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NUMBER SYSTEM

Importance : Being a basic concept of mathematics : 1 and 2 questions on number system are regularly asked in different competitive exams. Its knowledge is also essential to solve other questions.

Scope of questions : Different type of questions like based on fractions, even/odd/whole/divisible/prime/coprime/rational/irrational/numbers and related to divisibility, order, ascending, descending, addition, multiplication, inverse numbers may be asked.

Way to success : These questions are solved by different methods. Maximum practice and rechecking is the way to success for this chapter.

Natural Numbers : Set of counting numbers is called natural numbers. It is denoted by N. where,

$$N = \{1, 2, 3, \dots, \infty\}$$

Even Numbers : The set of all natural numbers which are divisible by 2 are called even numbers. It is denoted by E.

$$\text{Where, } E = \{2, 4, 6, 8, 10, \dots, \infty\}$$

Odd Numbers : The set of all natural numbers which are not divisible by 2 are called odd numbers. In other words, the natural numbers which are not even numbers, are odd numbers. i.e.,

$$O = \{1, 3, 5, 7, \dots, \infty\}$$

Whole Numbers : When zero is included in the set of natural numbers, then it forms set of whole numbers. It is denoted by W. where,

$$W = \{0, 1, 2, 3, \dots, \infty\}$$

Integers : When in the set of whole numbers, natural numbers with negative sign are included, then it becomes set of integers. It is denoted by I or Z.

$$I : [-\infty, \dots, -4, -3, -2, -1, 0, 1, 2, 3, 4, \dots, \infty]$$

Integers can further be classified into negative or positive Integers. Negative Integers are denoted by Z^- and positive Integers are denoted by Z^+ .

$$Z^- = \{-\infty, \dots, -3, -2, -1\} \text{ and}$$

$$Z^+ = \{1, 2, 3, \dots, \infty\}$$

Further 0 is neither negative nor positive integer.

Prime Numbers: The natural numbers which have no factors other than 1 and itself are called prime numbers.

Note that, (i) In other words they can be divided only by themselves or 1 only. As, 2, 3, 5, 7, 11 etc.

(ii) All prime numbers other than 2 are odd numbers but all odd numbers are not prime numbers.

2 is the only one even Prime number.

Co-Prime Numbers : Two numbers which have no common factor except 1, are called Co-Prime numbers. Such as, 9 and 16, 4 and 17, 80 and 81 etc.

It is not necessary that two co-prime numbers are prime always. They may or may not be prime numbers.

Divisible numbers/composite numbers : The whole numbers which are divisible by numbers other than itself and 1 are called divisible numbers or we can say the numbers which are not prime numbers are composite or divisible numbers. As, 4, 6, 9, 15,

Note : 1 is neither Prime number nor composite number. Composite numbers may be even or odd.

Rational Numbers : The numbers which can be

expressed in the form of $\frac{p}{q}$ where p and q are integers and coprime and $q \neq 0$ are called rational numbers. It is denoted by Q. These may be positive, or negative.

e.g. $\frac{4}{5}, \frac{5}{1}, -\frac{1}{2}$ etc are rational numbers.

Irrational Numbers : The numbers which are not rational numbers, are called irrational numbers. Such as

$$\sqrt{2} = 1.414213562\dots$$

$$\pi = 3.141592653\dots$$

Real Numbers: Set of all rational numbers as well as irrational numbers is called Real numbers. The square of all of them is positive.

Cyclic Numbers : Cyclic numbers are those numbers of n digits which when multiplied by any other number upto n gives same digits in a different order. They are in the same line. As 142857

$$2 \times 142857 = 285714 : 3 \times 142857 = 428571$$

$$4 \times 142857 = 571428 : 5 \times 142857 = 714285$$

Perfect Numbers : If the sum of all divisors of a number N (except N) is equal to the number N itself then the number is called perfect number. Such as, 6, 28, 496, 8128 etc.

The factor of 6 are 1, 2 and 3

$$\text{Since, } 6 : 1 + 2 + 3 = 6$$

$$28 : 1 + 2 + 4 + 7 + 14 = 28$$

$$496 : 1 + 2 + 4 + 8 + 16 + 32 + 64 + 128 + 256 = 496$$

$$8128 : 1 + 2 + 4 + 8 + 16 + 32 + 64 + 127 + 254 + 508 + 1016 + 2032 + 4064 = 8128. \text{ etc.}$$

Note : In a perfect number, the sum of inverse of all of its factors including itself is 2 always.

e.g. Factors of 28 are 1, 2, 4, 7, 14 are

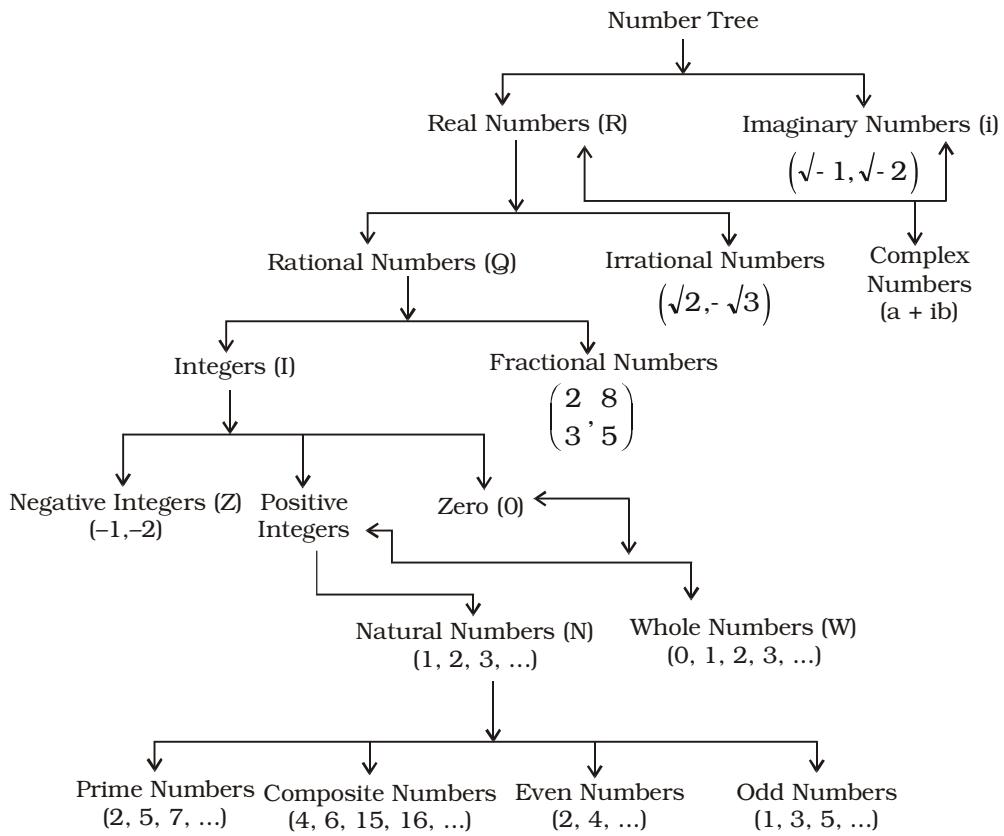
$$= \frac{1}{1} + \frac{1}{2} + \frac{1}{4} + \frac{1}{7} + \frac{1}{14} + \frac{1}{28} = \frac{56}{28} = 2$$

Complex Numbers : $Z = a + ib$ is called complex number, where a and b are real numbers, $b \neq 0$ and $i = \sqrt{-1}$.

Such as, $\sqrt{-2}, \sqrt{-3}$ etc.

So, $a + ib$ or $4 + 5i$ are complex numbers.

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Additive Identity : If $a + 0 = a$, then 0 (zero) is called additive identity.

Additive Inverse : If $a + (-a) = 0$, so 'a' and '-a' are called additive inverse to each other. As, $2 + (-2) = 0$

Additive inverse of 2 is -2.

Multiplicative Identity : If $a \times 1 = a$. then 1 is called multiplicative identity. e.g. $3 \times 1 = 3$ etc.

Multiplicative Inverse : If $a \times b = 1$. then we can say that a and b are multiplicative inverse of each other. As

$$2 \times \frac{1}{2} = 1$$

So, multiplicative inverse of 2 is $\frac{1}{2}$

SOME IMPORTANT POINTS ON NUMBERS

- (a) 2 is the only even prime number.
- (b) Number 1 is neither divisible nor prime.
- (c) Two consecutive odd prime numbers are called prime pair.
- (d) All natural numbers are whole, rational, integer and real.
- (e) All whole numbers are rational Integer and real.
- (f) All whole numbers are rational and real.
- (g) All whole numbers, rational and irrational numbers are real.

(h) Whole numbers and natural numbers can never be negative.

(i) Natural (including Prime, Composite, even or odd) numbers and whole numbers are never negative.

(j) Fractions are rational.

(k) All prime numbers except 2 are odd.

(l) 0 is neither negative nor positive number.

(m) If a is any number then, if a divides zero, result will be zero. If 0 divides a, then result will be infinite or not defined or undetermined i.e.

$$\frac{0}{a} = 0 \text{ but } \frac{a}{0} = \infty \text{ (infinite)}$$

where a is real number.

(n) Dividing 0 by any number gives zero e.g. $\frac{0}{a} = 0$

(o) The place or position of a digit in a number is called its place value such as
Place value of 2 in 5283 is 200.

(p) The real value of any digit in a certain number is called its face value. As, face value of 2 in 5283 is 2.

(q) The sum and the product of two rational numbers is always a rational number.

(r) The product or the sum of a rational number and irrational number is always an irrational number.

(s) π is an irrational number.

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- (t) There can be infinite number of rational or irrational numbers between two rational numbers or two irrational numbers.
- (u) Decimal indication of an irrational number is infinite coming as $-\sqrt{3}, \sqrt{2}$
- (v) The square of an even number is even and the square of an odd number is odd.

DECIMAL

- (w) The decimal representation of a rational number is either finite or infinite recurring e.g. $= \frac{3}{4} = 0.75$
(finite), $\frac{11}{3} = 3.666 \dots$ (infinite recurring)
- (x) If decimal number $0.x$ and $0.xy$ are given, then they can be expressed in the form of $\frac{p}{q}$

$$\text{As, } 0.x = \frac{x}{10} \text{ and } 0.xy = \frac{xy}{100}$$

- (y) If decimal recurring numbers $0.\bar{x}$ and $0.\overline{xy}$ are given, then they can be expressed in the form of $\frac{p}{q}$ As $0.\bar{x} = \frac{x}{9}$ and $0.\overline{xy} = \frac{xy}{99}$
- (z) The recurring decimal numbers of type $0.\bar{x}$ or $0.\overline{xyz}$ may be converted to rational form as $\frac{p}{q}$ follows.
 $0.\overline{xy} = \frac{xy - x}{90}$ and $0.\overline{xyz} = \frac{xyz - x}{990}$

DIVISIBILITY

Importance : Divisibility questions, if not asked directly, still its knowledge is very essential to solve different questions in simplifications.

Scope of questions : The study of this concept is very useful to increase speed in simplification and number system.

Way to success : The knowledge of divisibility rules (of 2, 3, 4, 5, 6, 8, 9) and of osculators for 7, 11, 13 etc & mental calculations increase our (speed) time management and accuracy.

Basic Formulae of Divisibility from 2 to 19:

1. Divisibility by 2 : If the last digit of a number is 0 or an even number then that number is divisible by 2. Such as, 242, 540 etc.

2. Divisibility by 3 : If the sum of all digits of a number is divisible by 3, then that number will be divisible by 3. Such as,

$$432 : 4 + 3 + 2 = 9 \text{ which is divisible by 3.}$$

So, 432 is divisible by 3.

3. Divisibility by 4 : If in any number last two digits are divisible by 4, then whole number will be divisible by 4. Such as,

48424. In this number 24 is divisible by 4. So, 48424 will be divisible by 4.

4. Divisibility by 5 : If last digit of a number is 5 or 0, then that number is divisible by 5. Such as 200, 225 etc.

5. Divisibility by 6 : If a number is divisible by both 2 and 3, then that number is divisible by 6 also, such as 216, 25614 etc.

6. Divisibility by 7 : Here concept of osculator should be applied. The meaning of negative osculator is – there increases or decreases 1 from the factor of 10 of the number. As, $21 : 2 \times 10 + 1 = 21$

$$49 : 5 \times 10 - 1 = 50 - 1 = 49$$

To check the divisibility of 7, we use osculator ‘2’, as, $112 : 11 - 2 \times 2 = 7$ which is divisible by 7

Again,

$343 : 34 - 2 \times 3 = 28$ which is divisible by 7. Then 343 will be divisible by 7.

7. Divisibility by 8 : If in any number last three digits are divisible by 8, then whole number is divisible by 8, such as, 247864 since 864 is divisible by 8.

So, 247864 is divisible by 8.

Similarly, 289000 is divisible by 8.

8. Divisibility by 9 : If the sum of all digits of a number is divisible by 9, then that whole number will be divisible by 9. As, $243243 : 2 + 4 + 3 + 2 + 4 + 3 = 18$ is divisible by 9. So, 243243 is divisible by 9.

9. Divisibility by 10 : The number whose last digit is ‘0’, is divisible by 10, such as, 10, 20, 200, 300 etc.

10. Divisibility by 11 : If the difference between “Sum of digits at even place” and “Sum of digits at odd place” is divisible by 11, then the whole number is divisible by 11 such as,

$$\begin{array}{r} 9 & 1 & 7 & 4 \\ \swarrow & \downarrow & \uparrow & \searrow \\ + & & & \\ \downarrow & & & 5 \\ 16 \end{array}$$

$$\therefore (9 + 7) - (4 + 1) = 16 - 5 = 11 \text{ is divisible by 11.}$$

So, 9174 will be divisible by 11.

11. Divisibility by 12 : If a number is divisible by 3 and 4 both. Then the number is divisible by 12. Such as, 19044 etc.

12. Divisibility by 13 : For 13 we use osculator 4, but our osculator is not negative here. It is one-more osculator (4).

$$143 : 14 + 3 \times 4 = 26$$

and 26 is divisible by 13, So, 143 is divisible by 13.

Similarly for $325 : 32 + 5 \times 4 = 52$

52 is divisible by 13

Hence, 325 will also be divisible by 13.

13. Divisibility by 14 : If a number is divisible by 2 and 7 both then that number is divisible by 14 i.e. number is even and osculator 2 is applicable.

14. Divisibility by 15 : If a number is divisible by 3 and 5 both, then that number is divisible by 15.

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15. Divisibility by 16 : If last 4 digits of a number are divisible by 16, then whole number is divisible by 16. Such as 341920.

16. Divisibility by 17 : For 17, there is a negative 'osculator 5'. This process is same as the process of 7. As. 1904 : $190 - 5 \times 4 = 170$.

$\therefore 170$ is divisible by 17. So 1904 will be divisible by 17.

17. Divisibility by 18 : If a number is divisible by 2 and 9 both, then that number is divisible by 18.

18. Divisibility by 19 : For 19, there is one-more (positive) osculator 2, which is same processed as 13. As, $361 = 36 + 1 \times 2 = 38$

$\therefore 38$ is divisible by 19. So 361 is also divisible by 19.

Few more Important Points:

1. Out of a group of n consecutive integers one and only one number is divisible by n .

2. The product of n consecutive numbers is always divisible by $n!$ or $= \lfloor n \rfloor$.

3. For any number n , $(n^p - 1)$ is always divisible by P where P is a prime number, for e.g.,

if $n = 2$ and $P = 5$ then,

$$(2^5 - 2) = (32 - 2) = 30 \text{ which is divisible by 5.}$$

4. The square of an odd number when divided by 8 always leaves a remainder 1, as

If we divide $7^2 = 49$ or $5^2 = 25$ by 8 then remainder will be 1.

5. For any natural number n , n^5 or n^{4k+1} is having same unit digit as n has, where k is a whole number, such as,

$3^5 = 243$ has 3 at its unit place.

6. Square of any natural number can be written in the form of $3n$ or $3n + 1$ or $4n$ or $(4n + 1)$.

e.g. square of 11 = $121 = 3 \times 40 + 1$

or $4 \times 30 + 1$

If $N = a^p b^q c^r \dots \dots$ where a, b and c are prime numbers and p, q and r are natural numbers, then

1. Number of factors of N is given by

$$F = (p+1)(q+1)(r+1) \dots$$

2. Number of ways to express the number as a product

of two factors are $\frac{F}{2}$ if F is even or $\frac{F+1}{2}$ if F is odd respectively.

3. Sum of all the factors of the number N .

$$S(F) = \frac{(a^{p+1} - 1)}{(a-1)} \times \frac{(b^{q+1} - 1)}{(b-1)} \times \frac{(c^{r+1} - 1)}{(c-1)}$$

4. The number of ways in which a number N can be resolved into co-prime factors is 2^{k-1} , where k is the number of different Prime factors of the number N .

5. The number of co-primes to number N is given by

$$C(N) = n \left(1 - \frac{1}{a}\right) \left(1 - \frac{1}{b}\right) \left(1 - \frac{1}{c}\right)$$

Special Rules :

Rule 1 : If the sum of digits of two digit number is 'a' and if the digits or the number are reversed, such that number reduces by 'b', then

$$\text{Original Number} = \frac{11a+b}{2}$$

For example : (For number 82) $a = 8 + 2 = 10$

and $b = 82 - 28 = 54$ is given then

$$\text{original number} = \frac{11 \times 10 + 54}{2} = \frac{164}{2} = 82$$

Rule 2 : If the sum of digits of two digit number is 'a' and if the digits of the number are reversed, such that number increases by 'b', then,

$$\text{Original Number} = \frac{11a-b}{2}$$

e.g. (For number 47): $a = 4 + 7 = 11$
 $\& b = 74 - 47 = 27$ thus the

$$\text{original number} = \frac{11 \times 11 - 27}{2} = 47$$

Rule 3 : If the difference between a number and formed by number reversing digit is x , then the difference between both the digits of the number is $\frac{x}{9}$

eg. (for 63) $x = 63 - 36 = 27$

$$\Rightarrow \text{Required difference} = \frac{27}{9} = 3$$

Rule 4 : If the sum of a number and the number formed by reversing the digits is x , then the sum of digits of the number is $\frac{x}{11}$.

e.g. (For number 76) $x = 67 + 76 = 143$ Required sum of numbers = $67 + 76 = 143$

$$\text{Required sum} = \frac{143}{11} = 13$$

Dividend = (Divisor \times Quotient) + Remainder

$$\text{Divisor} = \frac{\text{Dividend} - \text{Remainder}}{\text{Quotient}}$$

$$\text{Quotient} = \frac{\text{Dividend} - \text{Remainder}}{\text{Divisor}}$$

Remainder = Dividend - (Divisor \times Quotient)

Special Rule for Remainder Calculation:

Rule 5 : If $\frac{a^n}{a-1}$ then remainder will always be 1,

whether n is even or odd.

Rule 6 : If $\frac{a^{(\text{even number})}}{(a+1)}$, then remainder will be 1.

Rule 7 : If $\frac{a^{(\text{odd number})}}{(a+1)}$, then remainder will be a.

Rule 8 : If n is a single digit number, then in n^3 , n will be at unit place. It is valid for the number 0, 1, 4, 5, 6 or 9 As, digit at unit place in (4^3) is 4.

Rule 9 : If n is a single digit number then in n^p , where p is any number (+ve), n will be at unit place. It is valid for 5 and 6.



QUESTIONS ASKED IN PREVIOUS SSC EXAMS

TYPE-I

- 1.** Which of the following fraction is the smallest?

$$\frac{7}{6}, \frac{7}{9}, \frac{4}{5}, \frac{5}{7}$$

(1) $\frac{7}{6}$ (2) $\frac{7}{9}$

(3) $\frac{4}{5}$ (4) $\frac{5}{7}$

(SSC CGL Exam. 04.07.1999
(Ist Sitting)

- 2.** Which of the following fraction is the smallest?

$$\frac{9}{13}, \frac{17}{26}, \frac{28}{29}, \frac{33}{52}$$

(1) $\frac{33}{52}$ (2) $\frac{17}{26}$

(3) $\frac{9}{13}$ (4) $\frac{28}{29}$

(SSC CGL Exam. 04.07.1999
(IIInd Sitting)

- 3.** The smallest possible three-place decimal number is:

(1) 0.012 (2) 0.123
(3) 0.111

(4) None of the above

(SSC CGL Exam. 27.02.2000
(IIInd Sitting)

- 4.** Which of the following fraction is the smallest?

$$\frac{8}{15}, \frac{14}{33}, \frac{7}{13}, \frac{11}{13}$$

(1) $\frac{8}{15}$ (2) $\frac{7}{13}$

(3) $\frac{11}{13}$ (4) $\frac{14}{33}$

(SSC CGL Exam. 24.02.2002
(Ist Sitting)

- 5.** Which of the following is the smallest fraction?

$$\frac{8}{25}, \frac{7}{23}, \frac{11}{23}, \frac{14}{53}$$

(1) $\frac{8}{25}$ (2) $\frac{7}{23}$

(3) $\frac{11}{23}$ (4) $\frac{14}{53}$

(SSC CGL Prelim Exam. 24.02.2002
(Middle Zone)

- 6.** Which of the following is the largest fraction? $\frac{6}{7}, \frac{5}{6}, \frac{7}{8}, \frac{4}{5}$

(1) $\frac{6}{7}$ (2) $\frac{4}{5}$

(3) $\frac{5}{6}$ (4) $\frac{7}{8}$

(SSC CGL Prelim Exam. 11.05.2003
(First Sitting)

- 7.** The smallest number of five digits exactly divisible by 476 is

(1) 47600 (2) 10000
(3) 10476 (4) 10472

(SSC CGL Prelim Exam. 08.02.2004
(First Sitting)

- 8.** The least among the fractions

$$\frac{15}{16}, \frac{19}{20}, \frac{24}{25}, \frac{34}{35}$$

(1) $\frac{34}{35}$ (2) $\frac{15}{16}$

(3) $\frac{19}{20}$ (4) $\frac{24}{25}$

(SSC CGL Tier-I Exam. 16.05.2010
(Second Sitting)

- 9.** The greatest fraction among

$$\frac{2}{3}, \frac{5}{6}, \frac{11}{15} \text{ and } \frac{7}{8}$$

(1) $\frac{7}{8}$ (2) $\frac{11}{15}$

(3) $\frac{5}{6}$ (4) $\frac{2}{3}$

(SSC CISF ASI
Exam. 29.08.2010 (Paper-1))

- 10.** The least number among

$$\frac{4}{9}, \sqrt{\frac{9}{49}}, 0.\overline{4}\overline{5} \text{ and } (0.8)^2$$

(1) $\frac{4}{9}$ (2) $\sqrt{\frac{9}{49}}$

(3) $0.\overline{4}\overline{5}$ (4) $(0.8)^2$

(SSC CPO S.I. Exam. 06.09.2009)

- 11.** Which of the following number is the greatest of all?

0.9, 0. $\bar{9}$, 0.0 $\bar{9}$, 0. $\overline{09}$

(1) 0.9 (2) 0. $\bar{9}$

(3) 0.0 $\bar{9}$ (4) 0. $\overline{09}$

(SSC CHSL DEO & LDC
Exam. 28.11.2010 (Ist Sitting))

- 12.** The greatest value among the fractions $\frac{2}{7}, \frac{1}{3}, \frac{5}{6}, \frac{3}{4}$ is :

(1) $\frac{3}{4}$ (2) $\frac{5}{6}$

(3) $\frac{1}{3}$ (4) $\frac{2}{7}$

(SSC CHSL DEO & LDC
Exam. 21.10.2012 (IIInd Sitting))

- 13.** The least number of five digits which has 123 as a factor is

(1) 10037 (2) 10086
(3) 10081 (4) 10063

(SSC Delhi Police
SI Exam. 19.08.2012)

- 14.** The largest among the numbers

$$(0.1)^2, \sqrt{0.0121}, 0.12 \text{ and } \sqrt{0.0004}$$

(1) $(0.1)^2$ (2) $\sqrt{0.0121}$

(3) 0.12 (4) $\sqrt{0.0004}$

(SSC CHSL DEO & LDC
Exam. 28.10.2012, Ist Sitting)

- 15.** The greatest among the following

$$\text{numbers } (3)^{\frac{1}{3}}, (2)^{\frac{1}{2}}, 1, (6)^{\frac{1}{6}}$$

is :

(1) $(2)^{\frac{1}{2}}$ (2) 1

(3) $(6)^{\frac{1}{6}}$ (4) $(3)^{\frac{1}{3}}$

(SSC CAPFs SI & CISF ASI
Exam. 23.06.2013)

- 16.** When 335 is added to 5A7, the result is 8B2. 8B2 is divisible by 3. What is the largest possible value of A?

(1) 8 (2) 2
(3) 1 (4) 4

(SSC CGL Tier-II Exam. 29.09.2013)

- 17.** If a number is as much greater than 31 as it is less than 75, then the number is

(1) 106 (2) 44
(3) 74 (4) 53

(SSC CHSL DEO & LDC
Exam. 20.10.2013)

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18. The greatest number among $0.7 + \sqrt{0.16}$, $1.02 - \frac{0.6}{24}$, 1.2×0.83

and $\sqrt{1.44}$ is :

(1) $0.7 + \sqrt{0.16}$ (2) $\sqrt{1.44}$

(3) 1.2×0.83 (4) $1.02 - \frac{0.6}{24}$

(SSC CGL Prelim Exam. 08.02.2004
(Second Sitting)

19. Which is the largest of the following fractions ?

$\frac{2}{3}, \frac{3}{5}, \frac{8}{11}, \frac{11}{17}$

(1) $\frac{8}{11}$ (2) $\frac{3}{5}$

(3) $\frac{11}{17}$ (4) $\frac{2}{3}$

(SSC CGL Tier-I
Re-Exam. (2013) 27.04.2014

20. Sum of three fractions is $2\frac{11}{24}$.

On dividing the largest fraction

by the smallest fraction, $\frac{7}{6}$ is

obtained which is $\frac{1}{3}$ greater than the middle fraction. The smallest fraction is

(1) $\frac{5}{8}$ (2) $\frac{3}{4}$

(3) $\frac{5}{6}$ (4) $\frac{3}{7}$

(SSC CGL Tier-II Exam, 2014 12.04.2015
(Kolkata Region)
(TF No. 789 TH 7)

21. Arrangement of the fractions $\frac{4}{3}, \frac{2}{9}, \frac{7}{8}, \frac{5}{12}$ into ascending order is

(1) $-\frac{7}{8}, -\frac{2}{9}, \frac{5}{12}, \frac{4}{3}$

(2) $-\frac{7}{8}, -\frac{2}{9}, \frac{4}{3}, \frac{5}{12}$

(3) $-\frac{2}{9}, -\frac{7}{8}, \frac{5}{12}, \frac{4}{3}$

(4) $-\frac{2}{9}, -\frac{7}{8}, \frac{4}{3}, \frac{5}{12}$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015
(Ist Sitting) TF No. 9692918)

22. Which of the following is correct ?

(1) $\frac{2}{3} < \frac{3}{5} < \frac{11}{15}$

(2) $\frac{3}{5} < \frac{2}{3} < \frac{11}{15}$

(3) $\frac{11}{15} < \frac{3}{5} < \frac{2}{3}$

(4) $\frac{3}{5} < \frac{11}{15} < \frac{2}{3}$

(SSC CGL Tier-II Online Exam. 01.12.2016)

TYPE-II

1. A number when divided by 899 gives a remainder 63. If the same number is divided by 29, the remainder will be :

(1) 10 (2) 5
(3) 4 (4) 2

(SSC CGL Exam. 04.07.1999
(IInd Sitting) & SSC CGL
Exam. 27.07.2008 (IInd Sitting)

2. $\frac{1}{0.04}$ is equal to :

(1) $\frac{1}{40}$ (2) $\frac{2}{5}$
(3) $\frac{5}{2}$ (4) 25

(SSC CGL Exam. 27.02.2000
(Ist Sitting)

3. A six digit number is formed by repeating a three digit number; for example, 256, 256 or 678, 678 etc. Any number of this form is always exactly divisible by :

(1) 7 only (2) 11 only
(3) 13 only (4) 1001

(SSC CGL Exam. 27.02.2000
(Ist Sitting)

4. The smallest number to be added to 1000, so that 45 divides the sum exactly, is :

(1) 35 (2) 80
(3) 20 (4) 10

(SSC CGL Exam. 27.02.2000
(Ist Sitting)

5. Which of the following numbers will always divide a six-digit number of the form $xyxyxy$ (where $1 \leq x \leq 9, 1 \leq y \leq 9$)?

(1) 1010 (2) 10101

(3) 11011 (4) 11010

(SSC CHSL DEO & LDC Exam.
04.12.2011 (IInd Sitting) (East Zone)

6. The divisor is 25 times the quotient and 5 times the remainder. If the quotient is 16, the dividend is :

(1) 6400 (2) 6480
(3) 400 (4) 480

(SSC CGL Exam. 24.02.2002
(Ist Sitting) & SSC CGL Prel.
Exam. 13.11.2005 (IInd Sitting)

7. The product of two positive numbers is 11520 and their quotient is $\frac{9}{5}$. Find the difference of two numbers.

(1) 60 (2) 64
(3) 74 (4) 70

(SSC CGL Exam. 24.02.2002
(IInd Sitting)

8. When a number is divided by 56, the remainder obtained is 29. What will be the remainder when the number is divided by 8 ?

(1) 4 (2) 5
(3) 3 (4) 7

(SSC CGL Exam. 24.02.2002
(IInd Sitting) & SSC CGL
Exam. 04.02.2007 (Ist Sitting)

9. A student was asked to multiply a number by $\frac{3}{2}$ but he divided

that number by $\frac{3}{2}$. His result was 10 less than the correct answer. The number was :

(1) 10 (2) 12
(3) 15 (4) 20

(SSC CGL Prelim Exam. 24.02.2002
(Second Sitting)

10. A number being divided by 52 gives remainder 45. If the number is divided by 13, the remainder will be

(1) 5 (2) 6
(3) 12 (4) 7

(SSC CGL Prelim Exam. 24.02.2002
(Middle Zone)

NUMBER SYSTEM

11. If $\frac{3}{4}$ of the difference of $2\frac{1}{4}$ and

$1\frac{2}{3}$ is subtracted from $\frac{2}{3}$ of

$3\frac{1}{4}$ the result is

(1) $\frac{-48}{83}$ (2) $\frac{48}{83}$

(3) $\frac{-83}{48}$ (4) $\frac{83}{48}$

(SSC CGL Prelim Exam. 24.02.2002

(Middle Zone)

12. A number when divided by 296 gives a remainder 75. When the same number is divided by 37, the remainder will be

- (1) 1 (2) 2
 (3) 8 (4) 11

(SSC CPO S.I. Exam. 12.01.2003)

13. A number when divided successively by 4 and 5 leaves remainder 1 and 4 respectively. When it is successively divided by 5 and 4 the respective remainders will be

- (1) 4, 1 (2) 3, 2
 (3) 2, 3 (4) 1, 2

(SSC CGL Prelim Exam. 11.05.2003

(Second Sitting)

14. In a division problem, the divisor is 4 times the quotient and 3 times the remainder. If remainder is 4, the dividend is

- (1) 36 (2) 40
 (3) 12 (4) 30

(SSC CGL Prelim Exam. 11.05.2003

(Second Sitting)

15. Each member of a picnic party contributed twice as many rupees as the total number of members and the total collection was ₹ 3042. The number of members present in the party was

- (1) 2 (2) 32
 (3) 40 (4) 39

(SSC CGL Prelim Exam. 11.05.2003

(Second Sitting)

16. How many natural numbers divisible by 7 are there between 3 and 200 ?

- (1) 27 (2) 28
 (3) 29 (4) 36

(SSC CPO S.I. Exam. 07.09.2003)

17. The sum of first sixty numbers from one to sixty is divisible by
 (1) 13 (2) 59
 (3) 60 (4) 61
 (SSC CPO S.I. Exam. 07.09.2003)

18. A number when divided by 3 leaves a remainder 1. When the quotient is divided by 2, it leaves a remainder 1. What will be the remainder when the number is divided by 6?

- (1) 3 (2) 4
 (3) 5 (4) 2

(SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting))

19. The product of two numbers is 9375 and the quotient, when the larger one is divided by the smaller, is 15. The sum of the numbers is :

- (1) 395 (2) 380
 (3) 400 (4) 425

(SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting))

20. A number, when divided by 119, leaves a remainder of 19. If it is divided by 17, it will leave a remainder of :

- (1) 19 (2) 10
 (3) 7 (4) 2

(SSC CPO S.I.
 Exam. 26.05.2005) & SSC CGL
 Prelim Exam. 27.07.2008)

21. $(7^{19} + 2)$ is divided by 6, the remainder is :

- (1) 5 (2) 3
 (3) 2 (4) 1

(SSC CPO S.I. Exam. 26.05.2005)

22. When a number is divided by 357 the remainder is 39. If that number is divided by 17, the remainder will be :

- (1) 0 (2) 3
 (3) 5 (4) 11

(SSC Section Officer (Commercial Audit)
 Exam. 25.09.2005)

23. A number divided by 68 gives the quotient 269 and remainder zero. If the same number is divided by 67, the remainder is :

- (1) 0 (2) 1
 (3) 2 (4) 3

(SSC CGL Prelim Exam. 13.11.2005
 (First Sitting))

24. A number when divided by 6 leaves remainder 3. When the square of the same number is divided by 6, the remainder is :
 (1) 0 (2) 1
 (3) 2 (4) 3

(SSC CGL Prelim Exam. 13.11.2005
 (First Sitting))

25. When a number is divided by 893, the remainder is 193. What will be the remainder when it is divided by 47 ?

- (1) 3 (2) 5
 (3) 25 (4) 33

(SSC CGL Prelim Exam. 13.11.2005
 (First Sitting))

26. A number divided by 13 leaves a remainder 1 and if the quotient, thus obtained, is divided by 5, we get a remainder of 3. What will be the remainder if the number is divided by 65 ?

- (1) 28 (2) 16
 (3) 18 (4) 40

(SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting))

27. Which of the following number is NOT divisible by 18 ?

- (1) 54036 (2) 50436
 (3) 34056 (4) 65043

(SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting))

28. 64329 is divided by a certain number. While dividing, the numbers, 175, 114 and 213 appear as three successive remainders. The divisor is

- (1) 184 (2) 224
 (3) 234 (4) 296

(SSC CGL Prelim Exam. 04.02.2007
 (First Sitting))

29. In a question on division, the divisor is 7 times the quotient and 3 times the remainder. If the remainder is 28, then the dividend is

- (1) 588 (2) 784
 (3) 823 (4) 1036

(SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting))

30. If two numbers are each divided by the same divisor, the remainders are respectively 3 and 4. If the sum of the two numbers be divided by the same divisor, the remainder is 2. The divisor is

- (1) 9 (2) 7
 (3) 5 (4) 3

(SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting))

NUMBER SYSTEM

- 31.** A number consists of two digits. If the number formed by interchanging the digits is added to the original number, the resulting number (i.e. the sum) must be divisible by
 (1) 11 (2) 9
 (3) 5 (4) 3
 (SSC CGL Prelim Exam. 27.07.2008
 (First Sitting)
- 32.** A number when divided by 5 leaves a remainder 3. What is the remainder when the square of the same number is divided by 5 ?
 (1) 1 (2) 2
 (3) 3 (4) 4
 (SSC CGL Prelim Exam. 27.07.2008
 (First Sitting)
- 33.** A number when divided by 192 gives a remainder of 54. What remainder would be obtained on dividing the same number by 16 ?
 (1) 2 (2) 4
 (3) 6 (4) 8
 (SSC CPO S.I. Exam. 06.09.2009)
- 34.** A number, when divided by 136, leaves remainder 36. If the same number is divided by 17, the remainder will be
 (1) 9 (2) 7
 (3) 3 (4) 2
 (SSC CGL Tier-I Exam. 16.05.2010
 (Second Sitting)
- 35.** Two numbers, when divided by 17, leave remainders 13 and 11 respectively. If the sum of those two numbers is divided by 17, the remainder will be
 (1) 13 (2) 11
 (3) 7 (4) 4
 (SSC CISF ASI
 Exam 29.08.2010 (Paper-1)
- 36.** A number, when divided by 221, leaves a remainder 64. What is the remainder if the same number is divided by 13 ?
 (1) 0 (2) 1
 (3) 11 (4) 12
 (SSC CPO S.I.
 Exam 12.12.2010 (Paper-I)
- 37.** When 'n' is divisible by 5 the remainder is 2. What is the remainder when n^2 is divided by 5 ?
 (1) 2 (2) 3
 (3) 1 (4) 4
 (SSC CGL Tier-1 Exam 19.06.2011
 (Second Sitting)
- 38.** The remainder when 3^{21} is divided by 5 is
 (1) 1 (2) 2
 (3) 3 (4) 4
 (SSC CGL Tier-1 Exam 26.06.2011
 (First Sitting)
- 39.** A number when divided by 49 leaves 32 as remainder. This number when divided by 7 will have the remainder as
 (1) 4 (2) 3
 (3) 2 (4) 5
 (SSC CGL Tier-1 Exam 26.06.2011
 (First Sitting)
- 40.** When a number is divided by 36, the remainder is 19. What will be the remainder when the number is divided by 12 ?
 (1) 7 (2) 5
 (3) 3 (4) 0
 (SSC CPO (SI, ASI & Intelligence Officer)
 Exam 28.08.2011 (Paper-I)
- 41.** $9^6 - 11$ when divided by 8 would leave a remainder of :
 (1) 0 (2) 1
 (3) 2 (4) 3
 (SSC CGL Prelim Exam. 04.07.1999
 (First Sitting)
- 42.** If 17^{200} is divided by 18, the remainder is—
 (1) 17 (2) 16
 (3) 1 (4) 2
 (SSC CGL Prelim Exam. 27.02.2000
 (First Sitting)
- 43.** When 2^{31} is divided by 5 the remainder is
 (1) 4 (2) 3
 (3) 2 (4) 1
 (SSC CGL Tier-1 Exam 19.06.2011
 (First Sitting)
- 44.** A student was asked to divide a number by 6 and add 12 to the quotient. He, however, first added 12 to the number and then divided it by 6, getting 112 as the answer. The correct answer should have been
 (1) 124 (2) 122
 (3) 118 (4) 114
 (SSC CGL Tier-1 Exam. 19.06.2011
 (Second Sitting)
- 45.** When a number is divided by 387, the remainder obtained is 48. If the same number is divided by 43, then the remainder obtained will be—
 (1) 0 (2) 3
 (3) 5 (4) 35
 (SSC CHSL DEO & LDC Exam.
 28.11.2010 (Ist Sitting)
- 46.** When two numbers are separately divided by 33, the remainders are 21 and 28 respectively. If the sum of the two numbers is divided by 33, the remainder will be
 (1) 10 (2) 12
 (3) 14 (4) 16
 (SSC CHSL DEO & LDC Exam.
 28.11.2010 (IIInd Sitting)
- 47.** In a division sum, the divisor is 10 times the quotient and 5 times the remainder. If the remainder is 46, then the dividend is
 (1) 4236 (2) 4306
 (3) 4336 (4) 5336
 (SSC Multi-Tasking (Non-Technical)
 Staff Exam. 20.02.2011)
- 48.** When a number is divided by 24, the remainder is 16. The remainder when the same number is divided by 12 is
 (1) 3 (2) 4
 (3) 6 (4) 8
 (SSC Multi-Tasking (Non-Technical)
 Staff Exam. 27.02.2011)
- 49.** The expression $2^{6n} - 4^{2n}$, where n is a natural number is always divisible by
 (1) 15 (2) 18
 (3) 36 (4) 48
 (SSC CHSL DEO & LDC
 Exam. 04.12.2011 (Ist Sitting
 (North Zone))
- 50.** $(4^{61} + 4^{62} + 4^{63})$ is divisible by
 (1) 3 (2) 11
 (3) 13 (4) 17
 (SSC CHSL DEO & LDC
 Exam. 04.12.2011 (IIInd Sitting
 (North Zone))
- 51.** 47 is added to the product of 71 and an unknown number. The new number is divisible by 7 giving the quotient 98. The unknown number is a multiple of
 (1) 2 (2) 5
 (3) 7 (4) 3
 (SSC CHSL DEO & LDC
 Exam. 04.12.2011 (Ist Sitting
 (East Zone))
- 52.** When an integer K is divided by 3, the remainder is 1, and when $K + 1$ is divided by 5, the remainder is 0. Of the following, a possible value of K is
 (1) 62 (2) 63
 (3) 64 (4) 65
 (SSC CHSL DEO & LDC
 Exam. 11.12.2011 (Ist Sitting
 (Delhi Zone))

NUMBER SYSTEM

- 53.** A number when divided by 91 gives a remainder 17. When the same number is divided by 13, the remainder will be :

(1) 0 (2) 4
 (3) 6 (4) 3

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting (Delhi Zone)

- 54.** If the sum of the two numbers is 120 and their quotient is 5, then the difference of the two numbers is-

(1) 115 (2) 100
 (3) 80 (4) 72

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting (Delhi Zone)

- 55.** A number when divided by 280 leaves 115 as remainder. When the same number is divided by 35, the remainder is

(1) 15 (2) 10
 (3) 20 (4) 17

(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (East Zone)

- 56.** A certain number when divided by 175 leaves a remainder 132. When the same number is divided by 25, the remainder is :

(1) 6 (2) 7
 (3) 8 (4) 9

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting (East Zone)

- 57.** The number of integers in between 100 and 600, which are divisible by 4 and 6 both, is

(1) 40 (2) 42
 (3) 41 (4) 50

(SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (IIInd Sitting)

- 58.** The value of λ for which the expression $x^3 + x^2 - 5x + \lambda$ will be divisible by $(x - 2)$ is :

(1) 2 (2) -2
 (3) -3 (4) 4

(SSC CHSL DEO & LDC Exam. 21.10.2012, IIInd Sitting)

- 59.** If the number formed by the last two digits of a three digit integer is an integral multiple of 6, the original integer itself will always be divisible by

(1) 6 (2) 3
 (3) 2 (4) 12

(SSC Multi-Tasking Staff Exam. 17.03.2013, Kolkata Region)

- 60.** Divide 37 into two parts so that 5 times one part and 11 times the other are together 227.

(1) 15, 22 (2) 20, 17
 (3) 25, 12 (4) 30, 7

(SSC Multi-Tasking Staff Exam. 24.03.2013, Ist Sitting)

- 61.** The greatest common divisor of

$3^{3^{333}} + 1$ and $3^{3^{334}} + 1$ is :

(1) 2 (2) 1
 (3) $3^{3^{333}} + 1$ (4) 20

(SSC CGL Tier-I Exam. 21.04.2013)

- 62.** How many numbers between 400 and 800 are divisible by 4, 5 and 6 ?

(1) 7 (2) 8
 (3) 9 (4) 10

(SSC Constable (GD) Exam. 12.05.2013 Ist Sitting)

- 63.** A positive integer when divided by 425 gives a remainder 45. When the same number is divided by 17, the remainder will be

(1) 11 (2) 8
 (3) 9 (4) 10

(SSC CGL Tier-I Exam. 19.05.2013 Ist Sitting)

- 64.** A number x when divided by 289 leaves 18 as the remainder. The same number when divided by 17 leaves y as a remainder. The value of y is

(1) 5 (2) 2
 (3) 3 (4) 1

(SSC CGL Tier-I Exam. 19.05.2013 Ist Sitting)

- 65.** When n is divided by 6, the remainder is 4. When $2n$ is divided by 6, the remainder is

(1) 2 (2) 0
 (3) 4 (4) 1

(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

- 66.** Two numbers 11284 and 7655, when divided by a certain number of three digits, leaves the same remainder. The sum of digits of such a three-digit number is

(1) 8 (2) 9
 (3) 10 (4) 11

(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

- 67.** In a division sum, the divisor is 3 times the quotient and 6 times the remainder. If the remainder is 2, then the dividend is

(1) 50 (2) 48
 (3) 36 (4) 28

(SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting)

- 68.** $2^{16} - 1$ is divisible by

(1) 11 (2) 13
 (3) 17 (4) 19

(SSC CGL Tier-1 Exam 26.06.2011 (Second Sitting)

- 69.** The smallest number that must be added to 803642 in order to obtain a multiple of 11 is

(1) 1 (2) 4
 (3) 7 (4) 9

(SSC CPO S.I. Exam. 12.01.2003)

- 70.** Which one of the following will completely divide $5^{71} + 5^{72} + 5^{73}$?

(1) 150 (2) 160
 (3) 155 (4) 30

(SSC CGL Tier-1 Exam 19.06.2011 (Second Sitting)

- 71.** If $[n]$ denotes the greatest integer $< n$ and $\{n\}$ denotes the smallest integer $> n$, where n is any real number, then

$$\left(1\frac{1}{5}\right) \times \left[1\frac{1}{5}\right] - \left(1\frac{1}{5}\right) \div \left[1\frac{1}{5}\right] + (1.5)$$

is

(1) 1.5 (2) 2
 (3) 2.5 (4) 3.5

(SSC Delhi Police S.I. (SI) Exam. 19.08.2012)

- 72.** The number which is to be added to 0.01 to get 1.1, is

(1) 1.11 (2) 1.09
 (3) 1 (4) 0.10

(SSC Data Entry Operator Exam. 31.08.2008)

- 73.** $999\frac{998}{999} \times 999$ is equal to :

(1) 998999 (2) 999899
 (3) 989999 (4) 999989

(SSC CHSL DEO & LDC Exam. 27.11.2010)

- 74.** $(2^{71} + 2^{72} + 2^{73} + 2^{74})$ is divisible by

(1) 9 (2) 10
 (3) 11 (4) 13

(SSC (South Zone) Investigator Exam 12.09.2010)

NUMBER SYSTEM

- 75.** By which number should 0.022 be multiplied so that product becomes 66 ?
 (1) 3000 (2) 3200
 (3) 4000 (4) 3600
 (SSC CGL Prelim Exam. 24.02.2002 (Middle Zone))
- 76.** $(3^{25} + 3^{26} + 3^{27} + 3^{28})$ is divisible by
 (1) 11 (2) 16
 (3) 25 (4) 30
 (SSC CPO S.I. Exam. 05.09.2004)
- 77.** The value of $(0.34\overline{67} + 0.1\overline{333})$ is :
 (1) 0.48 (2) 0.4801
 (3) 0. $\overline{48}$ (4) 0. $\overline{48}$
 (SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))
- 78.** The value of $\frac{3.157 \times 4126 \times 3.198}{63.972 \times 2835.121}$ is closest to
 (1) 0.002 (2) 0.02
 (3) 0.2 (4) 2
 (SSC CPO S.I. Exam. 12.01.2003)
- 79.** $\frac{1}{7} + \left(999 \frac{692}{693} \right) \times 99$ is equal to
 (1) 1 (2) 99000
 (3) 99800 (4) 99900
 (SSC CHSL DEO & LDC Exam. 10.11.2013, IInd Sitting)
- 80.** $(49)^{15} - 1$ is exactly divisible by :
 (1) 50 (2) 51
 (3) 29 (4) 8
 (SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))
- 81.** If a and b are two odd positive integers, by which of the following integers is $(a^4 - b^4)$ always divisible ?
 (1) 3 (2) 6
 (3) 8 (4) 12
 (SSC CGL Tier-I Exam. 16.05.2010 (First Sitting))
- 82.** If m and n are positive integers and $(m - n)$ is an even number, then $(m^2 - n^2)$ will be always divisible by
 (1) 4 (2) 6
 (3) 8 (4) 12
 (SSC CGL Tier-II Exam. 16.09.2012)
- 83.** If $5432*7$ is divisible by 9, then the digit in place of * is :
 (1) 0 (2) 1
 (3) 6 (4) 9
 (SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))
- 84.** The least number, which must be added to 6709 to make it exactly divisible by 9, is
 (1) 5 (2) 4
 (3) 7 (4) 2
 (SSC CGL Prelim Exam. 08.02.2004 (First Sitting))
- 85.** The total number of integers between 100 and 200, which are divisible by both 9 and 6, is :
 (1) 5 (2) 6
 (3) 7 (4) 8
 (SSC CGL Prelim Exam. 08.02.2004 (First Sitting))
- 86.** How many 3-digit numbers, in all, are divisible by 6 ?
 (1) 140 (2) 150
 (3) 160 (4) 170
 (SSC CPO S.I. Exam. 26.05.2005 & SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))
- 87.** If 'n' be any natural number, then by which largest number $(n^3 - n)$ is always divisible ?
 (1) 3 (2) 6
 (3) 12 (4) 18
 (SSC CGL Tier-I Exam. 16.05.2010 (Second Sitting))
- 88.** If n is an integer, then $(n^3 - n)$ is always divisible by :
 (1) 4 (2) 5
 (3) 6 (4) 7
 (SSC CGL Exam. 13.11.2005 (Ist Sitting) & SSC CHSL DEO & LDC Exam. 27.11.2010)
- 89.** If the sum of the digits of any integer lying between 100 and 1000 is subtracted from the number, the result always is
 (1) divisible by 6
 (2) divisible by 2
 (3) divisible by 9
 (4) divisible by 5
 (SSC CHSL DEO & LDC Exam. 20.10.2013)
- 90.** If a number is divisible by both 11 and 13, then it must be necessarily :
 (1) divisible by $(11 + 13)$
 (2) divisible by $(13 - 11)$
 (3) divisible by (11×13)
 (4) 429
 (SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))
- 91.** If * is a digit such that $5824*$ is divisible by 11, then * equals :
 (1) 2 (2) 3
 (3) 5 (4) 6
 (SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))
- 92.** If $78*3945$ is divisible by 11, where * is a digit, then * is equal to
 (1) 1 (2) 0
 (3) 3 (4) 5
 (SSC CPO S.I. Exam. 05.09.2004)
- 93.** If the number 4 8 3 2 7 * 8 is divisible by 11, then the missing digit (*) is
 (1) 5 (2) 3
 (3) 2 (4) 1
 (SSC CPO S.I. Exam. 09.11.2008)
- 94.** Both the end digits of a 99 digit number N are 2. N is divisible by 11, then all the middle digits are :
 (1) 1 (2) 2
 (3) 3 (4) 4
 FCI Assistant Grade-III Exam. 05.02.2012 (Paper-I)
 East Zone (IInd Sitting)
- 95.** If n is a whole number greater than 1, then $n^2(n^2 - 1)$ is always divisible by :
 (1) 16 (2) 12
 (3) 10 (4) 8
 (SSC CPO S.I. Exam. 26.05.2005)
- 96.** A 4-digit number is formed by repeating a 2-digit number such as 2525, 3232, etc. Any number of this form is always exactly divisible by :
 (1) 7 (2) 11
 (3) 13 (4) Smallest 3-digit prime number
 (SSC CGL Prelim Exam. 13.11.2005 (First Sitting) & SSC CGL Tier-I Exam. 16.05.2010 (IInd Sitting))
- 97.** What least number, of 5 digits is divisible by 41?
 (1) 10045 (2) 10004
 (3) 10041 (4) 41000
 (SSC CPO S.I. Exam. 03.09.2006)
- 98.** It is given that $(2^{32} + 1)$ is exactly divisible by a certain number. which one of the following is also definitely divisible by the same number ?
 (1) $2^{96} + 1$ (2) 7×2^{33}
 (3) $2^{16} - 1$ (4) $2^{16} + 1$
 (SSC CGL Prelim Exam. 04.02.2007 (First Sitting))

NUMBER SYSTEM

- 99.** The greatest whole number, by which the expression $n^4 + 6n^3 + 11n^2 + 6n + 24$ is divisible for every natural number n , is
 (1) 6 (2) 24
 (3) 12 (4) 48
 (SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting)
- 100.** How many numbers between 1000 and 5000 are exactly divisible by 225 ?
 (1) 16 (2) 18
 (3) 19 (4) 12
 (SSC CGL Prelim Exam. 27.07.2008
 (First Sitting)
- 101.** Find the largest number, which exactly divides every number of the form $(n^3 - n)(n - 2)$ where n is a natural number greater than 2.
 (1) 6 (2) 12
 (3) 24 (4) 48
 (SSC CPO S.I. Exam. 09.11.2008)
- 102.** The greatest number less than 1500, which is divisible by both 16 and 18, is
 (1) 1440 (2) 1404
 (3) 1386 (4) 1368
 (SSC (South Zone) Investigator Exam 12.09.2010)
- 103.** The least number, which is to be added to the greatest number of 4 digits so that the sum may be divisible by 345, is
 (1) 50 (2) 6
 (3) 60 (4) 5
 (SSC CGL Tier-1 Exam 19.06.2011
 (Second Sitting))
- 104.** $4^{61} + 4^{62} + 4^{63} + 4^{64}$ is divisible by
 (1) 3 (2) 10
 (3) 11 (4) 13
 (SSC CPO S.I. Exam. 12.01.2003)
- 105.** The difference of a number consisting of two digits from the number formed by interchanging the digits is always divisible by
 (1) 10 (2) 9
 (3) 11 (4) 6
 (SSC CGL Tier-I Exam. 21.04.2013 IIInd Sitting)
- 106.** Which one of the numbers is divisible by 25 ?
 (1) 303310 (2) 373355
 (3) 303375 (4) 22040
 (SSC CGL Tier-II Exam. 29.09.2013)
- 107.** The least number which must be added to the greatest number of 4 digits in order that the sum may be exactly divisible by 307 is
 (1) 132 (2) 32
 (3) 43 (4) 75
 (SSC CGL Tier-I Re-Exam. (2013)
 20.07.2014 (IIInd Sitting))
- 108.** If $a = 4011$ and $b = 3989$ then value of $ab = ?$
 (1) 15999879 (2) 15899879
 (3) 15989979 (4) 15998879
 (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)
- 109.** For any integral value of n , $3^{2n} + 9n + 5$ when divided by 3 will leave the remainder
 (1) 1 (2) 2
 (3) 0 (4) 5
 (SSC CGL Tier-I Exam. 19.10.2014)
- 110.** The solution to the inequality $12x - 61 \leq 6$ is
 (1) $x \leq 6$ (2) $0 \leq x \leq 6$
 (3) $-6 \leq x \leq 6$ (4) $-6 \leq x \leq 0$
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)
- 111.** 5349 is added to 3957. Then 7062 is subtracted from the sum. The result is not divisible by
 (1) 4 (2) 3
 (3) 7 (4) 11
 (SSC CHSL DEO Exam. 02.11.2014
 (Ist Sitting))
- 112.** The product of all the prime numbers between 80 and 90 is
 (1) 83 (2) 89
 (3) 7387 (4) 598347
 (SSC CHSL DEO Exam. 02.11.2014
 (Ist Sitting))
- 113.** If n is even, $(6^n - 1)$ is divisible by
 (1) 37 (2) 35
 (3) 30 (4) 6
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting
 (TF No. 545 QP 6))
- 114.** I have x marbles. My elder brother has 3 more than mine, while my younger brother has 3 less than mine. If the total number of marbles is 15, the number of marbles that I have is
 (1) 3 (2) 5
 (3) 8 (4) 7
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting
 (TF No. 545 QP 6))
- 115.** Weight of a bucket when filled fully with water is 17 kg. If the weight of the bucket when half filled with water is 13.5 kg, what is the weight of empty bucket ?
 (1) 12 kg (2) 8 kg
 (3) 10 kg (4) 7 kg
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting
 (TF No. 545 QP 6))
- 116.** In a farm there are cows and hens. If heads are counted they are 180, if legs are counted they are 420. The number of cows in the farm is
 (1) 130 (2) 150
 (3) 50 (4) 30
 (SSC CGL Tier-II Exam. 12.04.2015
 (TF No. 567 TL 9))
- 117.** The number which can be written in the form of $n(n + 1)(n + 2)$, where n is a natural number, is
 (1) 7 (2) 3
 (3) 5 (4) 6
 (SSC CGL Tier-II Exam. 12.04.2015
 (TF No. 567 TL 9))
- 118.** A number when divided by 2736 leaves the remainder 75. If the same number is divided by 24, then the remainder is
 (1) 12 (2) 3
 (3) 0 (4) 23
 (SSC CGL Tier-II Exam, 2014 12.04.2015
 (Kolkata Region))
- 119.** The maximum value of F in the following equation
 $5E9 + 2F8 + 3G7 = 1114$ is where E, F, G each stands for any digit.
 (1) 8 (2) 9
 (3) 7 (4) 5
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
 IIInd Sitting))
- 120.** The sum of four numbers is 48. When 5 and 1 are added to the first two; and 3 and 7 are subtracted from the 3rd and 4th, the numbers will be equal. The numbers are
 (1) 9, 7, 15, 17 (2) 4, 12, 12, 20
 (3) 5, 11, 13, 19 (4) 6, 10, 14, 18
 (SSC CGL Tier-I Exam, 09.08.2015
 (Ist Sitting) TF No. 1443088)

NUMBER SYSTEM

- 121.** The least number that should be added to 2055, so that the sum is exactly divisible by 27 is

(1) 28 (2) 24
 (3) 27 (4) 31

(SSC CGL Tier-I Exam, 09.08.2015
 (Ist Sitting) TF No. 1443088)

- 122.** What is the Arithmetic mean of the first 'n' natural numbers ?

(1) $\frac{n(n+1)}{2}$ (2) $\frac{n+1}{2}$
 (3) $\frac{n^2(n+1)}{2}$ (4) $2(n+1)$

(SSC CGL Tier-I Exam, 09.08.2015
 (Ist Sitting) TF No. 1443088)

- 123.** A number when divided by 361 gives a remainder 47. If the same number is divided by 19, the remainder obtained is

(1) 3 (2) 8
 (3) 9 (4) 1

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

- 124.** The difference between the greatest and the least four digit numbers that begin with 3 and ends with 5 is

(1) 999 (2) 900
 (3) 990 (4) 909

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IInd Sitting)

- 125.** The sum of two numbers is 75 and their difference is 25. The product of the two numbers is :

(1) 1350 (2) 1250
 (3) 125 (4) 1000

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015
 (Ist Sitting) TF No. 6636838)

- 126.** The difference between the greatest and least prime numbers which are less than 100 is

(1) 96 (2) 97
 (3) 94 (4) 95

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015
 (Ist Sitting) TF No. 9692918)

- 127.** Which one of the following is the minimum value of the sum of two integers whose product is 24?

(1) 25 (2) 11
 (3) 8 (4) 10

(SSC CGL Tier-I (CBE)
 Exam. 10.09.2016)

- 128.** If the sum of the digits of a three digit number is subtracted from that number, then it will always be divisible by

(1) 3 only
 (2) 9 only
 (3) Both 3 and 9
 (4) All of 3, 6 and 9

(SSC CGL Tier-II Online Exam.01.12.2016)

- 129.** The greater of the two numbers whose product is 900 and sum exceeds their difference by 30 is

(1) 60 (2) 75
 (3) 90 (4) 100

(SSC CGL Tier-II Online Exam.01.12.2016)

- 130.** In a division sum, the divisor 'd' is 10 times the quotient 'q' and 5 times the remainder 'r'. If $r = 46$, the dividend will be

(1) 5042 (2) 5328
 (3) 5336 (4) 4276

(SSC CGL Tier-II Online Exam.01.12.2016)

- 131.** A number when divided by 44, gives 432 as quotient and 0 as remainder. What will be the remainder when dividing the same number by 31?

(1) 3 (2) 4
 (3) 5 (4) 6

(SSC CPO SI, ASI Online Exam.05.06.2016) (IInd Sitting)

- 132.** A number when divided by 729 gives a remainder of 56. What will we get as remainder if the same number is divided by 27?

(1) 4 (2) 2
 (3) 0 (4) 1

(SSC CPO SI, ASI Online Exam.05.06.2016) (IInd Sitting)

- 133.** What is the smallest 6-digit number that is completely divisible by 108 ?

(1) 100003 (2) 100004
 (3) 100006 (4) 100008

(SSC CPO Exam. 06.06.2016)
 (Ist Sitting)

- 134.** If 25 is added to a number it becomes 3 less than thrice of the number. Then number is :

(1) 15 (2) 14
 (3) 19 (4) 20

(SSC CPO SI & ASI, Online Exam. 06.06.2016) (IInd Sitting)

- 145.** The number $334 \times 545 \times 7p$ is divisible by 3340 if p is at least.

(1) 2 (2) 4
 (3) 3 (4) 1

(SSC CPO SI & ASI, Online Exam. 06.06.2016) (IInd Sitting)

- 136.** If the sum of a number and its reciprocal be 2, then the number is

(1) 0 (2) 1
 (3) -1 (4) 2

(SSC CGL Tier-I (CBE)

Exam. 29.08.2016) (IInd Sitting)

- 137.** When a number is divided by 56, the remainder will be 29. If the same number is divided by 8, then the remainder will be

(1) 6 (2) 7
 (3) 5 (4) 3

(SSC CGL Tier-I (CBE)

Exam. 31.08.2016) (Ist Sitting)

- 138.** A positive number when decreased by 4, is equal to 21 times the reciprocal of this number. The number is :

(1) 3 (2) 7
 (3) 5 (4) 9

(SSC CGL Tier-I (CBE)

Exam. 03.09.2016) (IInd Sitting)

- 139.** When n is divided by 4, the remainder is 3. The remainder when $2n$ is divided by 4 is :

(1) 1 (2) 2
 (3) 3 (4) 6

(SSC CGL Tier-I (CBE)

Exam. 02.09.2016) (IInd Sitting)

- 140.** A number when divided by the sum of 555 and 445 gives two times their difference as quotient and 30 as the remainder. The number is

(1) 220030 (2) 22030
 (3) 1220 (4) 1250

(SSC CGL Tier-II (CBE)

Exam. 30.11.2016)

- 141.** When a number x is divided by a divisor it is seen that the divisor = 4 times the quotient = double the remainder. If the remainder is 80 then the value of x is

(1) 6480 (2) 9680
 (3) 8460 (4) 4680

(SSC CGL Tier-II (CBE)

Exam. 30.11.2016)

- 142.** On dividing a certain number by 342 we get 47 as remainder. If the same number is divided by 18, what will be the remainder ?

(1) 15 (2) 11
 (3) 17 (4) 13

(SSC CGL Tier-II (CBE)

Exam. 30.11.2016)

- 143.** The sum of three numbers is 252. If the first number is thrice the second and third number is two-third of the first, then the second number is

(1) 41 (2) 21
 (3) 42 (4) 84

(SSC CGL Tier-II (CBE)

Exam. 30.11.2016)

NUMBER SYSTEM

- 144.** The difference between the greatest and the least five-digit numbers formed by the digits 2, 5, 0, 6 and 8 is (repetition of digits is not allowed)

(1) 69552 (2) 65925
 (3) 65952 (4) 63952

(SSC CGL Tier-I (CBE))

Exam. 29.08.2016 (Ist Sitting)

- 145.** A man has some hens and some cows. If the total number of heads of hens and cows together is 50 and the number of feet of hens and cows together is 142, then the number of cows is

(1) 21 (2) 25
 (3) 27 (4) 29

(SSC CGL Tier-I (CBE))

Exam. 01.09.2016 (IIInd Sitting)

- 146.** The least number, which when divided by 5, 6, 7 and 8 leaves a remainder 3 in each case, but when divided by 9 leaves no remainder, is :

(1) 1677 (2) 1683
 (3) 2523 (4) 3363

(SSC CGL Tier-I (CBE))

Exam. 02.09.2016 (IIInd Sitting)

- 147.** If the sum of the digits of any integer between 100 and 1000 is subtracted from the same integer, the resulting number is always divisible by

(1) 2 (2) 5
 (3) 6 (4) 9

(SSC CGL Tier-I (CBE))

Exam. 03.09.2016 (IIInd Sitting)

- 148.** The least number that must be added to 8961 to make it exactly divisible by 84 is :

(1) 27 (2) 57
 (3) 141 (4) 107

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (IIInd Sitting)

- 149.** Number of composite numbers lying between 67 and 101 is :

(1) 27 (2) 24
 (3) 26 (4) 23

(SSC CGL Tier-I (CBE))

Exam. 08.09.2016 (IIInd Sitting)

- 150.** The least number that must be subtracted from 1294 so that the remainder when divided by 9, 11 and 13 will leave in each case the same remainder 6, is :

(1) 2 (2) 3
 (3) 1 (4) 4

(SSC CGL Tier-I (CBE))

Exam. 09.09.2016 (IIInd Sitting)

- 151.** What least value must be assigned to $*$ so that the number $63576*2$ is divisible by 8 ?

(1) 1 (2) 2
 (3) 3 (4) 4

(SSC CGL Tier-I (CBE))

Exam. 10.09.2016 (IIInd Sitting)

- 152.** The least number to be added to 13851 to get a number which is divisible by 87 is :

(1) 18 (2) 43
 (3) 54 (4) 69

(SSC CGL Tier-I (CBE))

Exam. 10.09.2016 (IIIrd Sitting)

- 153.** What least value must be assigned to $*$ so that the number $451 * 603$ is exactly divisible by 9?

(1) 7 (2) 8
 (3) 5 (4) 9

(SSC CGL Tier-I (CBE))

Exam. 11.09.2016 (IIIrd Sitting)

- 154.** The largest number of four digits exactly divisible by 88 is :

(1) 9988 (2) 9944
 (3) 8888 (4) 9768

(SSC CGL Tier-I (CBE))

Exam. 27.10.2016 (Ist Sitting)

- 155.** Which of the following numbers is completely divisible by 99?

(1) 57717 (2) 57627
 (3) 55162 (4) 56982

(SSC CHSL (10+2) Tier-I (CBE))

Exam. 15.01.2017 (IIInd Sitting)

- 156.** The sum of all prime numbers between 58 and 68 is

(1) 179 (2) 178
 (3) 187 (4) 183

(SSC CHSL (10+2) Tier-I (CBE))

Exam. 16.01.2017 (IIInd Sitting)

- 157.** The product of digits of a 2-digit number is 24. If we add 45 to the number, the new number obtained is a number formed by interchanging the digits. What is the original number?

(1) 54 (2) 83
 (3) 38 (4) 45

(SSC CHSL (10+2) Tier-I (CBE))

Exam. 16.01.2017 (IIInd Sitting)

- 158.** The smallest number, which should be added to 756896 so as to obtain a multiple of 11, is

(1) 1 (2) 2
 (3) 3 (4) 5

(SSC CGL Tier-II (CBE))

Exam. 12.01.2017

- 159.** The product of two numbers is 48. If one number equals "The number of wings of a bird plus 2 times the number of fingers on your hand divided by the number of wheels of a Tricycle". Then the other number is

(1) 9 (2) 10
 (3) 12 (4) 18

(SSC CGL Tier-II (CBE))

Exam. 12.01.2017

TYPE-III

- 1.** One-fourth of a tank holds 135 litres of water. What part of the tank is full if it contains 180 litres of water?

(1) $\frac{2}{5}$ (2) $\frac{2}{3}$

(3) $\frac{1}{3}$ (4) $\frac{1}{6}$

(SSC CGL Exam. 04.07.1999 (Ist Sitting))

- 2.** What is two-third of half of 369?

(1) 123 (2) 246

(3) $246\frac{3}{8}$ (4) $271\frac{3}{4}$

(SSC CGL Exam. 04.07.1999 (Ist Sitting))

- 3.** $\frac{1}{5}$ of a number exceeds $\frac{1}{7}$ of the same number by 10. The number is :

(1) 125 (2) 150
 (3) 175 (4) 200

(SSC CGL Exam. 04.07.1999 (Ist Sitting))

- 4.** A boy was asked to find the value of $\frac{3}{8}$ of a sum of money. Instead of multiplying the sum by $\frac{3}{8}$ he

divided it by $\frac{3}{8}$ and then his answer exceeded by ₹ 55. Find the correct answer?

(1) ₹ 9 (2) ₹ 24
 (3) ₹ 64 (4) ₹ 1,320

(SSC CGL Exam. 04.07.1999 (Ist Sitting))

- 5.** In a class, $\frac{3}{5}$ of the students are girls and rest are boys. If $\frac{2}{9}$ of

the girls and $\frac{1}{4}$ of the boys are absent. What part of the total number of students are present?

(1) $\frac{23}{30}$ (2) $\frac{23}{36}$

(3) $\frac{18}{49}$ (4) $\frac{17}{25}$

(SSC CGL Exam. 04.07.1999 (Ist Sitting))

NUMBER SYSTEM

6. An 85m long rod is divided into two parts. If one part is $\frac{2}{3}$ of the other part, then the longer part (in metres) is :

- (1) 34 (2) $56\frac{2}{3}$
 (3) 85 (4) 51

(SSC CGL Exam. 04.07.1999
 (Ist Sitting)

7. Fraction between $\frac{2}{5}$ and $\frac{4}{9}$ is :

- (1) $\frac{3}{7}$ (2) $\frac{2}{3}$
 (3) $\frac{4}{5}$ (4) $\frac{1}{2}$

(SSC CGL Exam. 04.07.1999
 (IIInd Sitting)

8. $\frac{2}{3}$ of three-fourth of a number is :

- (1) $\frac{1}{2}$ of the number
 (2) $\frac{1}{3}$ of the number
 (3) $\frac{8}{9}$ of the number
 (4) $\frac{17}{12}$ of the number

(SSC CGL Exam. 04.07.1999
 (IIInd Sitting)

9. If 3 times a number exceeds its $\frac{3}{5}$ by 60, then what is the number?

- (1) 25 (2) 35
 (3) 45 (4) 60

(SSC CGL Exam. 04.07.1999
 (IIInd Sitting)

10. Half of 1 per cent written as a decimal is—

- (1) 0.2 (2) 0.02
 (3) 0.05 (4) 0.005

(SSC CGL Exam. 27.02.2000
 (Ist Sitting)

11. A runner runs $1\frac{1}{4}$ laps of a 5 lap race. What fractional part of the race remains to be run?

- (1) $15/4$ (2) $4/5$
 (3) $5/6$ (4) $2/3$

(SSC CGL Exam. 27.02.2000
 (Ist Sitting)

12. The product of two fractions is $\frac{14}{15}$ and their quotient is $\frac{35}{24}$. The greater fraction is—

- (1) $\frac{7}{4}$ (2) $\frac{7}{6}$
 (3) $\frac{7}{3}$ (4) $\frac{4}{5}$

(SSC CGL Exam. 24.02.2002
 (Ist Sitting)

13. What fraction of $\frac{4}{7}$ must be added to itself to make the sum

- $1\frac{1}{14}$?
 (1) $\frac{7}{8}$ (2) $\frac{1}{2}$
 (3) $\frac{4}{7}$ (4) $\frac{15}{14}$

(SSC CGL Exam. 24.02.2002
 (Ist Sitting)

14. If $\frac{4}{5}$ of an estate be worth ₹ 16800, then the value of $\frac{3}{7}$ of it is—

- (1) ₹ 90000 (2) ₹ 9000
 (3) ₹ 72000 (4) ₹ 21000

(SSC CGL Exam. 24.02.2002
 (Ist Sitting)

15. A boy on being asked what $\frac{6}{7}$ of a certain fraction was, made the mistake of dividing the fraction

- by $\frac{6}{7}$ and so got an answer which exceeded the correct answer by $\frac{13}{70}$. Find the fraction—

- (1) $\frac{2}{3}$ (2) $\frac{3}{5}$
 (3) $\frac{4}{5}$ (4) $\frac{7}{9}$

(SSC CGL Exam. 24.02.2002
 (Ist Sitting)

16. $\frac{1}{2}$ of $\frac{3}{4}$ of a number is $2\frac{1}{2}$ of 10. What is the number?

- (1) 50 (2) 60
 (3) $66\frac{2}{3}$ (4) 56

(SSC CGL Exam. 24.02.2002
 (Ist Sitting)

17. If one-third of one-fourth of a number is 15, then three-tenth of the number is

- (1) 35 (2) 36
 (3) 45 (4) 54

(SSC CGL Prelim Exam. 24.02.2002
 (Second Sitting)

18. Express 45 minutes as the fraction of one day.

- (1) $\frac{1}{40}$ (2) $\frac{1}{32}$
 (3) $\frac{1}{60}$ (4) $\frac{1}{24}$

(SSC CGL Prelim Exam. 24.02.2002
 (Second Sitting)

19. If 1 is added to the denominator

of a fraction it becomes $\frac{1}{2}$. If 1 is added to the numerator it becomes 1. The product of numerator and denominator of the fraction is

- (1) 6 (2) 10

- (3) 12 (4) 14

(SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone)

20. A student was asked to find $\frac{5}{16}$ of a number. By mistake he

found $\frac{5}{6}$ of that number. His answer was 250 more than the correct answer. Find the given number.

- (1) 300 (2) 480
 (3) 450 (4) 500

(SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone)

21. A number exceeds its one-fifth by 20. The number is

- (1) 100 (2) 25

- (3) 20 (4) 5

(SSC CPO S.I. Exam. 12.01.2003)

22. Two-third of a positive number

and $\frac{25}{216}$ of its reciprocal are equal. The number is

- (1) $\frac{25}{144}$ (2) $\frac{5}{12}$

- (3) $\frac{144}{25}$ (4) $\frac{12}{5}$

(SSC CPO S.I. Exam. 12.01.2003)

23. 0.1 and $\frac{5}{8}$ of a bamboo are in mud and water respectively and the rest of length 2.75 m is above water. What is the length of the bamboo?

- (1) 10 m (2) 30 m

- (3) 27.5 m (4) 20 m

(SSC CGL Prelim Exam. 11.05.2003
 (First Sitting)

NUMBER SYSTEM

- 24.** A man spends $\frac{1}{3}$ of his income on food, $\frac{2}{5}$ of his income on house rent and $\frac{1}{5}$ of his income on clothes. If he still has ₹ 400 left with him, his income is
 (1) ₹ 4000 (2) ₹ 5000
 (3) ₹ 6000 (4) ₹ 7000
 (SSC CGL Prelim Exam. 11.05.2003 (Second Sitting))

- 25.** When $0.\overline{47}$ is converted as a fraction, the result is

- (1) $\frac{47}{90}$ (2) $\frac{46}{90}$
 (3) $\frac{46}{99}$ (4) $\frac{47}{99}$

(SSC Section Officer (Commercial Audit) Exam. 16.11.2003)

- 26.** By how much does $\frac{6}{7/8}$ exceed

$$\frac{6/7}{8} ?$$

- (1) $6\frac{1}{8}$ (2) $6\frac{3}{4}$
 (3) $7\frac{3}{4}$ (4) $7\frac{5}{6}$

(SSC Section Officer (Commercial Audit) Exam. 16.11.2003) & SSC CGL Exam. 27.07.2008 (Ist Sitting)

- 27.** If one-nineth of a certain number exceeds its one-tenth by 4, the number is

- (1) 320 (2) 360
 (3) 400 (4) 440

(SSC CPO S.I. Exam. 05.09.2004)

- 28.** $0.\overline{423}$ is equivalent to the fraction :

- (1) $\frac{491}{990}$ (2) $\frac{419}{990}$
 (3) $\frac{49}{99}$ (4) $\frac{94}{99}$

(SSC CPO S.I. Exam. 26.05.2005)

- 29.** Which of the following fraction is greater than $\frac{3}{4}$ but less than $\frac{5}{6}$?

- (1) $\frac{2}{3}$ (2) $\frac{1}{2}$
 (3) $\frac{4}{5}$ (4) $\frac{9}{10}$

(SSC CPO S.I. Exam. 26.05.2005)

- 30.** A tin of oil was $\frac{4}{5}$ full. When 6 bottles of oil was taken out and 4 bottles of oil was poured into it, it was $\frac{3}{4}$ full. How many

- bottles of oil can the tin contain?
 (1) 10 (2) 20
 (3) 30 (4) 40

(SSC CPO S.I. Exam. 26.05.2005)

- 31.** A candidate in an examination was asked to find $\frac{5}{14}$ of a certain number. By mistake he found $\frac{5}{4}$ of it. Thus, his answer was 25 more than the correct answer. The number was :

- (1) 28 (2) 56
 (3) 84 (4) 140

(SSC CPO S.I. Exam. 26.05.2005)

- 32.** In an examination, a student was asked to find $\frac{3}{14}$ of a certain number. By mistake, he found $\frac{3}{4}$ of it. His answer was 150 more than the correct answer. The given number is :

- (1) 500 (2) 280
 (3) 240 (4) 180

(SSC CGL Prelim Exam. 13.11.2005 (First Sitting))

- 33.** The product of two fractions is

$$\frac{14}{15} \text{ and their quotient is } \frac{35}{24}.$$

The greater of the fractions is

- (1) $\frac{7}{4}$ (2) $\frac{7}{6}$
 (3) $\frac{7}{3}$ (4) $\frac{4}{5}$

(SSC CGL Prelim Exam. 13.11.2005 (Second Sitting))

- 34.** If the difference between the reciprocal of a positive proper fraction and the fraction itself be $\frac{9}{20}$, then the fraction is

- (1) $\frac{3}{5}$ (2) $\frac{3}{10}$
 (3) $\frac{4}{5}$ (4) $\frac{5}{4}$

(SSC CPO S.I. Exam. 03.09.2006)

- 35.** A boy was asked to find $\frac{3}{5}$ of a fraction. Instead, he divided the fraction by $\frac{3}{5}$ and got an answer which exceeded the correct answer by $\frac{32}{75}$. The correct answer is

- (1) $\frac{3}{25}$ (2) $\frac{6}{25}$
 (3) $\frac{2}{25}$ (4) $\frac{2}{15}$

(SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))

- 36.** The rational number between $\frac{1}{2}$ and $\frac{3}{5}$ is

- (1) $\frac{2}{5}$ (2) $\frac{4}{7}$
 (3) $\frac{2}{3}$ (4) $\frac{1}{3}$

(SSC CPO S.I. Exam. 09.11.2008)

- 37.** A man read $\frac{2}{5}$ th of a book on

the first day. He read $\frac{1}{3}$ rd more on second day than he read on the first day. 15 pages were left for the third day. The number of pages in the book is

- (1) 100 (2) 105
 (3) 225 (4) 250

(SSC CPO S.I. Exam. 6.09.2009)

- 38.** The number 0.121212.... in the

form $\frac{p}{q}$ is equal to

- (1) $\frac{4}{11}$ (2) $\frac{2}{11}$
 (3) $\frac{4}{33}$ (4) $\frac{2}{33}$

(SSC CGL Tier-I Exam. 16.05.2010 (First Sitting))

NUMBER SYSTEM

39. $0.\overline{001}$ is equal to

(1) $\frac{1}{1000}$ (2) $\frac{1}{999}$

(3) $\frac{1}{99}$ (4) $\frac{1}{9}$

(SSC CGL Tier-I Exam. 16.05.2010
(First Sitting)

40. $1.\overline{27}$ in the form $\frac{p}{q}$ is equal to

(1) $\frac{127}{100}$ (2) $\frac{73}{100}$

(3) $\frac{14}{11}$ (4) $\frac{11}{14}$

(SSC CGL Tier-I Exam. 16.05.2010
(Second Sitting)

41. Find a number, one-seventh of which exceeds its eleventh part by 100.

(1) 1925 (2) 1825
(3) 1540 (4) 1340

(SSC CGL Tier-1 Exam 26.06.2011
(First Sitting)

42. The value of

$$\frac{1}{15} + \frac{1}{35} + \frac{1}{63} + \frac{1}{99} + \frac{1}{143}$$

is

(1) $\frac{5}{39}$ (2) $\frac{4}{39}$

(3) $\frac{2}{39}$ (4) $\frac{7}{39}$

FCI Assistant Grade-III
Exam. 25.02.2012 (Paper-I)
North Zone (Ist Sitting)

43. The number $2.\dot{5}\dot{2}$, when written as a fraction and reduced to lowest terms, the sum of the numerator and denominator is

(1) 7 (2) 29
(3) 141 (4) 349

FCI Assistant Grade-III
Exam. 25.02.2012 (Paper-I)
North Zone (Ist Sitting)

44. $\frac{1}{10}$ of a rod is coloured red, $\frac{1}{20}$

orange, $\frac{1}{30}$ yellow, $\frac{1}{40}$ green,

$\frac{1}{50}$ blue, $\frac{1}{60}$ black and the rest is violet. If the length of the violet portion of the rod is 12.08 metres, then the length of the rod is

- (1) 16 m (2) 18 m

- (3) 20 m (4) 30 m

(SSC CGL Prelim Exam. 08.02.2004
(Second Sitting)

45. A tree increases annually by $\frac{1}{8}$ th

of its height. By how much will it increase after 2 years, if it stands today 64 cm high?

- (1) 72 cm (2) 74 cm
(3) 75 cm (4) 81 cm

FCI Assistant Grade-III Exam. 25.02.2012
(Paper-I)

North Zone (Ist Sitting)

46. A man spends $\frac{1}{4}$ th of his in-

come on food $\frac{2}{3}$ rd of it on house rent and the remaining income which is ₹ 630 on other commodities. Find his house rent.

- (1) ₹ 5040 (2) ₹ 3520
(3) ₹ 4890 (4) ₹ 4458

(SSC CGL Prelim Exam. 04.07.1999
(Second Sitting)

47. How many $\frac{1}{6}$ of together make

$$41\frac{2}{3}?$$

- (1) 125 (2) 150
(3) 250 (4) 350

(SSC CHSL DEO Entry Operator & LDC
Exam. 28.11.2010 (Ist Sitting)

48. A fraction having denominator

30 and lying between $\frac{5}{8}$ and

$$\frac{7}{11} \text{ is -}$$

(1) $\frac{18}{30}$ (2) $\frac{19}{30}$

(3) $\frac{20}{30}$ (4) $\frac{21}{30}$

(SSC CHSL DEO Entry Operator & LDC
Exam. 28.11.2010 (Ist Sitting)

49. The sum of the numerator and denominator of a positive fraction is 11. If 2 is added to both numerator and denominator, the

fraction is increased by $\frac{1}{24}$.

The difference of numerator and denominator of the fraction is

- (1) 5 (2) 3
(3) 1 (4) 9

(SSC CHSL DEO & LDC Exam.
04.12.2011 (Ist Sitting) (North Zone)

50. The denominator of a fraction is 3 more than its numerator. If the numerator is increased by 7 and the denominator is decreased by 2, we obtain 2. The sum of numerator and denominator of the fraction is

- (1) 5 (2) 13
(3) 17 (4) 19

(SSC CHSL DEO & LDC Exam.
04.12.2011 (Ist Sitting) (East Zone)

51. A fraction becomes $\frac{1}{3}$ when 1 is

subtracted from both the numerator and the denominator. The

same fraction becomes $\frac{1}{2}$ when

1 is added to both the numerator and the denominator. The sum of numerator and denominator of the fraction is

- (1) 10 (2) 18
(3) 7 (4) 16

(SSC CHSL DEO & LDC Exam.
04.12.2011 (IInd Sitting) (East Zone)

52. A girl was asked to multiply a

number by $\frac{7}{8}$, instead she di-

vided the number by $\frac{7}{8}$ and got

the result 15 more than the correct result. The sum of the digits of the number was :

- (1) 4 (2) 8
(3) 6 (4) 11

(SSC CHSL DEO & LDC Exam.
11.12.2011 (IInd Sitting) (Delhi Zone)

53. A student was asked to multiply

a given number by $\frac{8}{17}$. Instead,

he divided the given number by

$\frac{8}{17}$. His answer was 225 more

than the correct answer. The given number was

- (1) 64 (2) 289
(3) 136 (4) 225

(SSC CHSL DEO & LDC Exam.
11.12.2011 (Ist Sitting) (East Zone)

NUMBER SYSTEM

54. If 1 is added to both the numerator and the denominator of a fraction, it becomes $\frac{1}{4}$. If 2 is added to both the numerator and the denominator of that fraction,

it becomes $\frac{1}{3}$. The sum of numerator and denominator of the fraction is :

- (1) 8 (2) 13
 (3) 22 (4) 27

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (East Zone)

55. A number whose one-fifth part increased by 4 is equal to its one-fourth part diminished by 10, is :

- (1) 260 (2) 280
 (3) 240 (4) 270

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (East Zone)

56. A person gives $\frac{1}{4}$ of his property to his daughter, $\frac{1}{2}$ to his sons and $\frac{1}{5}$ for charity. How much has he given away ?

- (1) $\frac{1}{20}$ (2) $\frac{19}{20}$
 (3) $\frac{1}{10}$ (4) $\frac{9}{10}$

(SSC CGL Tier-I Exam. 11.11.2012, Ist Sitting)

57. In an office, there are 108 tables and 132 chairs. If $\frac{1}{6}$ of the tables and $\frac{1}{4}$ of the chairs are broken.

How many people can work in the office if each person requires one table and one chair?

- (1) 86 (2) 90
 (3) 92 (4) 99

(SSC Multi-Tasking Staff Exam. 24.03.2013, Ist Sitting)

58. A, B, C and D purchase a gift worth ₹ 60. A pays $\frac{1}{2}$ of what

others are paying, B pays $\frac{1}{3}$ of what others are paying and C pays $\frac{1}{4}$ of what others are paying. What is the amount paid by D ?

- (1) ₹ 16 (2) ₹ 13
 (3) ₹ 14 (4) ₹ 15

(SSC CGL Tier-I Exam. 21.04.2013)

59. In a school $\frac{1}{10}$ of the boys are

same in number as $\frac{1}{4}$ of the girls and $\frac{5}{8}$ of the girls are same in number as $\frac{1}{4}$ of the boys. The ratio of the boys to girls in that school is

- (1) 2 : 1 (2) 5 : 2
 (3) 4 : 3 (4) 3 : 2

(SSC Constable (GD) Exam. 12.05.2013 Ist Sitting)

60. A fraction becomes $\frac{9}{11}$, if 2 is added to both the numerator and the denominator. If 3 is added to both the numerator and the denominator it becomes $\frac{5}{6}$. What is the fraction ?

- (1) $\frac{7}{9}$ (2) $\frac{3}{7}$
 (3) $\frac{5}{9}$ (4) $\frac{7}{10}$

(SSC CGL Tier-I Exam. 19.05.2013 Ist Sitting)

61. A rational number between $\frac{3}{4}$ and $\frac{3}{8}$ is

- (1) $\frac{12}{7}$ (2) $\frac{7}{3}$
 (3) $\frac{16}{9}$ (4) $\frac{9}{16}$

(SSC CGL Tier-I Exam. 19.05.2013 Ist Sitting)

62. The numerator of a fraction is 4 less than its denominator. If the numerator is decreased by 2 and the denominator is increased by 1, then the denominator becomes eight times the numerator. Find the fraction.

- (1) $\frac{3}{8}$ (2) $\frac{3}{7}$
 (3) $\frac{4}{8}$ (4) $\frac{2}{7}$

(SSC CGL Tier-I

Exam. 19.05.2013 1st Sitting)

63. In a class, there are 'z' students. Out of them 'x' are boys. What part of the class is composed of girls ?

- (1) $\frac{x}{z}$ (2) $\frac{z}{x}$
 (3) $1 - \frac{x}{z}$ (4) $\frac{x}{z} - 1$

(SSC CGL Tier-II Exam. 29.09.2013)

64. Divide 50 into two parts so that the sum of their reciprocals is $\frac{1}{12}$.

- (1) 35, 15 (2) 20, 30
 (3) 24, 36 (4) 28, 22

(SSC CHSL DEO & LDC Exam. 20.10.2013)

65. A school group charters three identical buses and occupies $\frac{4}{5}$ of the seats. After $\frac{1}{4}$ of the passengers leave, the remaining passengers use only two of the buses. The fraction of the seats on the two buses that are now occupied is

- (1) $\frac{8}{9}$ (2) $\frac{7}{10}$
 (3) $\frac{7}{9}$ (4) $\frac{9}{10}$

(SSC CGL Tier-II Exam. 12.04.2015 (TF No. 567 TL 9)

66. $0.\overline{123}$ is equal to :

- (1) $\frac{14}{333}$ (2) $\frac{41}{333}$
 (3) $\frac{123}{1000}$ (4) $\frac{441}{333}$

(FCI Assistant Grade-III Exam. 05.02.2012 (Paper-I)
 East Zone (IInd Sitting)

NUMBER SYSTEM

67. 0.393939 is equal to

- (1) $\frac{39}{100}$ (2) $\frac{13}{33}$
 (3) $\frac{93}{100}$ (4) $\frac{39}{990}$

(SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting)

68. $\frac{1}{11}$ is equal to

- (1) 0.009 (2) 0.09

- (3) 0.09 (4) 0.009

(SSC CPO S.I. Exam. 09.11.2008)

69. The decimal fraction 2.349 is equal to

- (1) 2326 /999 (2) 2326/990

- (3) 2347/999 (4) 2347/990

(SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (IInd Sitting))

70. The value of

$$\frac{1}{20} + \frac{1}{30} + \frac{1}{42} + \frac{1}{56} + \frac{1}{72} + \frac{1}{90}$$

- (1) $\frac{1}{10}$ (2) $\frac{3}{5}$

- (3) $\frac{3}{20}$ (4) $\frac{7}{20}$

(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

71. $1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{7} + \frac{1}{14} + \frac{1}{28}$ is equal to :

- (1) 2 (2) 2.5
 (3) 3 (4) 3.5

(SSC CGL Prelim Exam. 04.07.1999
 (First Sitting))

$$\frac{1}{20} + \frac{1}{30} + \frac{1}{42} + \frac{1}{56} + \frac{1}{72}$$

+ $\frac{1}{90} + \frac{1}{110} + \frac{1}{132}$ is equal to:

- (1) $\frac{1}{8}$ (2) $\frac{1}{7}$

- (3) $\frac{1}{6}$ (4) $\frac{1}{10}$

(SSC CGL Prelim Exam. 24.02.2002
 (Second Sitting))

73. Ram left $\frac{1}{3}$ of his property to

his widow and $\frac{3}{5}$ of the remainder to his daughter. He gave the rest to his son who received Rs. 6,400. How much was his original property worth?

- (1) ₹ 16,000 (2) ₹ 32,000
 (3) ₹ 24,000 (4) ₹ 1,600

(SSC CHSL DEO & LDC Exam. 9.11.2014)

74. A number exceeds its two fifth by 75. The number is

- (1) 125 (2) 112
 (3) 100 (4) 150

(SSC CGL Tier-I Exam. 09.08.2015
 (IInd Sitting) TF No. 4239378)

75. If the sum of two numbers, one

of which is $\frac{2}{5}$ times the other, is 50, then the numbers are

- (1) $\frac{115}{7}$ and $\frac{235}{7}$

- (2) $\frac{150}{7}$ and $\frac{200}{7}$

- (3) $\frac{240}{7}$ and $\frac{110}{7}$

- (4) $\frac{250}{7}$ and $\frac{100}{7}$

(SSC CGL Tier-I Exam. 09.08.2015
 (IInd Sitting) TF No. 4239378)

76. If $\frac{3}{4}$ of a number is 7 more than

$\frac{1}{6}$ of the number, then $\frac{5}{3}$ of

the number is :

- (1) 12 (2) 20
 (3) 15 (4) 18

(SSC CGL Tier-I Exam. 16.08.2015
 (Ist Sitting) TF No. 3196279)

77. The vulgar fraction of 0.3939 is :

- (1) $\frac{15}{33}$ (2) $\frac{11}{39}$

- (3) $\frac{17}{39}$ (4) $\frac{13}{33}$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 15.11.2015
 (IInd Sitting) TF No. 7203752)

78. The smallest fraction, which should be added to the sum of

$2\frac{1}{2}$, $3\frac{1}{3}$, $4\frac{1}{4}$ and $5\frac{1}{5}$ to make the result a whole number, is

- (1) $\frac{13}{60}$ (2) $\frac{1}{4}$

- (3) $\frac{17}{60}$ (4) $\frac{43}{60}$

(SSC CGL Tier-II Online Exam. 01.12.2016)

79. Which of the following fractions

does not lie between $\frac{5}{6}$ and

$\frac{8}{15}$?

- (1) $\frac{2}{3}$ (2) $\frac{3}{4}$

- (3) $\frac{4}{5}$ (4) $\frac{6}{7}$

(SSC CPO SI & ASI, Online Exam. 06.06.2016) (IInd Sitting)

80. The numerator of a fraction is multiple of two numbers. One of the numbers is greater than the other by 2. The greater number is smaller than the denominator by 4. If the denominator $7 + c$ ($c > -7$) is a constant, then the minimum value of the fraction is

- (1) 5 (2) $\frac{1}{5}$

- (3) -5 (4) $-\frac{1}{5}$

(SSC CGL Tier-II (CBE) Exam. 30.11.2016)

81. The sum of three numbers is 2,

the 1st number is $\frac{1}{2}$ times the 2nd number and the 3rd num-

ber is $\frac{1}{4}$ times the 2nd number.

The 2nd number is

- (1) $\frac{7}{6}$ (2) $\frac{8}{7}$

- (3) $\frac{9}{8}$ (4) $\frac{10}{9}$

(SSC CGL Tier-II (CBE) Exam. 30.11.2016)

NUMBER SYSTEM

- 82.** If $\frac{1}{2}$ is added to a number and the sum is multiplied by 3, the result is 21. Then the number is :
 (1) 6.5 (2) 5.5
 (3) 4.5 (4) - 6.5
 (SSC CGL Tier-I (CBE)
 Exam. 04.09.2016 (IIIrd Sitting)

- 83.** If $\frac{4}{5}$ th of a number exceeds its $\frac{3}{4}$ th by 8, then the number is :
 (1) 130 (2) 120
 (3) 160 (4) 150
 (SSC CGL Tier-I (CBE)
 Exam. 06.09.2016 (IIIrd Sitting)

- 84.** A mason can build a wall in 70 hours. After 7 hours he takes a break. What fraction of the wall is yet to be built?
 (1) 0.9 (2) 0.8
 (3) 0.5 (4) 0.75
 (SSC CHSL (10+2) Tier-I (CBE)
 Exam. 15.01.2017) (IInd Sitting)

- 85.** Two baskets together have 640 oranges. If $\left(\frac{1}{5}\right)$ th of the oranges in the first basket be taken to the second basket. The number of oranges in the first basket is
 (1) 800 (2) 600
 (3) 400 (4) 300
 (SSC CGL Tier-II (CBE)
 Exam. 12.01.2017)

TYPE-IV

- 1.** Arrange $\frac{4}{5}, \frac{7}{8}, \frac{6}{7}, \frac{5}{6}$ in the ascending order :
 (1) $\frac{4}{5}, \frac{7}{8}, \frac{6}{7}, \frac{5}{6}$ (2) $\frac{5}{6}, \frac{6}{7}, \frac{7}{8}, \frac{4}{5}$
 (3) $\frac{4}{5}, \frac{5}{6}, \frac{6}{7}, \frac{7}{8}$ (4) $\frac{7}{8}, \frac{6}{7}, \frac{5}{6}, \frac{4}{5}$
 (SSC CGL Prelim Exam. 24.02.2002
 (Second Sitting))

- 2.** Arrange the following fractions in decreasing order :
 $\frac{3}{5}, \frac{7}{9}, \frac{11}{13}$
 (1) $\frac{3}{5}, \frac{7}{9}, \frac{11}{13}$ (2) $\frac{7}{9}, \frac{3}{5}, \frac{11}{13}$
 (3) $\frac{11}{13}, \frac{7}{9}, \frac{3}{5}$ (4) $\frac{11}{13}, \frac{3}{5}, \frac{7}{9}$
 (SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting))

- 3.** The fractions $\frac{1}{3}, \frac{4}{7}$ and $\frac{2}{5}$ written in ascending order given by:

$$(1) \frac{4}{7} < \frac{1}{3} < \frac{2}{5} \quad (2) \frac{2}{5} < \frac{4}{7} < \frac{1}{3}$$

$$(3) \frac{1}{3} < \frac{2}{5} < \frac{4}{7} \quad (4) \frac{4}{7} > \frac{1}{3} > \frac{2}{5}$$

(SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting))

- 4.** Six numbers are arranged in decreasing order. The average of the first five numbers is 30 and the average of the last five numbers is 25. The difference of the first and the last numbers is :

$$(1) 20 \quad (2) 25$$

$$(3) 5 \quad (4) 30$$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 15.11.2015
 (Ist Sitting) TF No. 6636838)

- 5.** The sum of three consecutive integers is 51. The middle one is :

$$(1) 14 \quad (2) 15$$

$$(3) 16 \quad (4) 17$$

(SSC CGL Tier-I (CBE))

Exam. 09.09.2016 (IIIrd Sitting))

TYPE-V

- 1.** The digit in unit's place of the product $81 \times 82 \times 83 \times \dots \times 89$ is

$$(1) 0 \quad (2) 2$$

$$(3) 6 \quad (4) 8$$

(SSC Section Officer (Commercial Audit)
 Exam. 16.11.2003)

- 2.** The digit in unit's place of the product $(2153)^{167}$ is :

$$(1) 1 \quad (2) 3$$

$$(3) 7 \quad (4) 9$$

(SSC CGL Prelim Exam. 08.02.2004 (First Sitting))

- 3.** The digit in the unit's place of the product

$$(2464)^{1793} \times (615)^{317} \times (131)^{491}$$

$$(1) 0 \quad (2) 2$$

$$(3) 3 \quad (4) 5$$

(SSC CPO S.I. Exam. 05.09.2004)

- 4.** Unit digit in $(264)^{102} + (264)^{103}$ is :

$$(1) 0 \quad (2) 4$$

$$(3) 6 \quad (4) 8$$

(SSC CGL Prelim Exam. 04.07.1999

(First Sitting))

- 5.** The digit in the unit's place of $[(251)^{98} + (21)^{29} - (106)^{100} + (705)^{35} - 16^4 + 259]$ is :

$$(1) 1 \quad (2) 4$$

$$(3) 5 \quad (4) 6$$

(SSC CGL Prelim Exam. 27.02.2000
 (Second Sitting))

- 6.** The last digit of 3^{40} is

$$(1) 1 \quad (2) 3$$

$$(3) 7 \quad (4) 9$$

(SSC CHSL DEO & LDC
 Exam. 28.10.2012 (Ist Sitting))

- 7.** What will be the unit digit in the product 7^{105} ?

$$(1) 5 \quad (2) 7$$

$$(3) 9 \quad (4) 1$$

(SSC Section Officer (Commercial Audit)
 Exam. 25.09.2005)

- 8.** The unit digit in the expansion of $(2137)^{754}$ is

$$(1) 1 \quad (2) 3$$

$$(3) 7 \quad (4) 9$$

(SSC CPO S.I. Exam. 07.09.2003
 & SSC Section Officer (Commercial Audit) Exam. 30.09.2007
 (Second Sitting))

- 9.** One's digit of the number $(22)^{23}$ is

$$(1) 4 \quad (2) 6$$

$$(3) 8 \quad (4) 2$$

(SSC CPO S.I. Exam. 09.11.2008)

- 10.** The unit digit in the product $(122)^{173}$ is

$$(1) 2 \quad (2) 4$$

$$(3) 6 \quad (4) 8$$

(SSC CGL Tier-1 Exam 19.06.2011
 (First Sitting))

- 11.** The unit digit in the sum of $(124)^{372} + (124)^{373}$ is

$$(1) 5 \quad (2) 4$$

$$(3) 2 \quad (4) 0$$

(SSC CGL Tier-1 Exam 19.06.2011
 (Second Sitting))

- 12.** The last digit of $(1001)^{2008} + 1002$ is

$$(1) 0 \quad (2) 3$$

$$(2) 4 \quad (4) 6$$

(SSC CGL Tier-1 Exam 26.06.2011
 (First Sitting))

- 13.** Find the unit digit in the product $(4387)^{245} \times (621)^{72}$.

$$(1) 1 \quad (2) 2$$

$$(2) 5 \quad (4) 7$$

(SSC CGL Tier-1 Exam 26.06.2011
 (Second Sitting))

NUMBER SYSTEM

- 14.** The units digit of the expression $25^{6251} + 36^{528} + 73^{54}$ is

(1) 6 (2) 5
(3) 4 (4) 0

(SSC Multi-Tasking (Non-Technical) Staff Exam. 20.02.2011)

- 15.** The unit's digit in the product $7^{71} \times 6^{63} \times 3^{65}$ is

(1) 1 (2) 2
(3) 3 (4) 4

(SSC Multi-Tasking (Non-Technical) Staff Exam. 27.02.2011)

- 16.** The digit in unit's place of the number $(1570)^2 + (1571)^2 + (1572)^2 + (1573)^2$ is :

(1) 4 (2) 1
(3) 2 (4) 3

(SSC CHSL DEO & LDC Exam. 21.10.2012, IInd Sitting)

- 17.** The unit digit in $3 \times 38 \times 537 \times 1256$ is

(1) 4 (2) 2
(3) 6 (4) 8

(SSC CGL Tier-II Exam. 29.09.2013)

- 18.** In a two-digit number, the digit at the unit's place is 1 less than twice the digit at the ten's place. If the digits at unit's and ten's place are interchanged, the difference between the new and the original number is less than the original number by 20. The original number is

(1) 59 (2) 23
(3) 35 (4) 47

(SSC CHSL DEO & LDC Exam. 20.10.2013)

- 19.** The digit in unit's place of the product $49237 \times 3995 \times 738 \times 83 \times 9$ is

(1) 0 (2) 7
(3) 5 (4) 6

(SSC CHSL DEO & LDC Exam. 16.11.2014)

- 20.** By interchanging the digits of a two digit number we get a number which is four times the original number minus 24. If the unit's digit of the original number exceeds its ten's digit by 7, then original number is

(1) 29 (2) 36
(3) 58 (4) 18

(SSC CGL Tier-II Exam. 2014
12.04.2015 (Kolkata Region)
(TF No. 789 TH 7)

- 21.** There is a number consisting of two digits, the digit in the units' place is twice that in the tens' place and if 2 be subtracted from the sum of the digits, the difference is

equal to $\frac{1}{6}$ th of the number. The number is

(1) 26 (2) 25
(3) 24 (4) 23

(SSC CGL Tier-II Exam. 25.10.2015, TF No. 1099685)

TYPE-VI

- 1.** The sum of three consecutive odd natural numbers is 147. Then, the middle number is :

(1) 47 (2) 48
(3) 49 (4) 51

(SSC CGL Exam. 04.07.1999
(IInd Sitting))

- 2.** The sum of first 20 odd natural numbers is equal to :

(1) 210 (2) 300
(3) 400 (4) 420

(SSC CGL Exam. 27.02.2000
(Ist Sitting))

- 3.** The sum of all natural numbers from 75 to 97 is :

(1) 1598 (2) 1798
(3) 1958 (4) 1978

(SSC CGL Exam. 27.02.2000
(Ist Sitting))

- 4.** The sum of all natural numbers between 100 and 200, which are multiples of 3 is :

(1) 5000 (2) 4950
(3) 4980 (4) 4900

(SSC CGL Exam. 27.02.2000
(Ist Sitting))

- 5.** The sum of the squares of three consecutive natural numbers is 2030. Then, what is the middle number?

(1) 25 (2) 26
(3) 27 (4) 28

(SSC CGL Exam. 27.02.2000
(IInd Sitting))

- 6.** The sum of three consecutive odd natural numbers is 87. The smallest of these numbers is :

(1) 29 (2) 31
(3) 23 (4) 27

(SSC CGL Exam. 24.02.2002
(Ist Sitting))

- 7.** Sum of three consecutive even integers is 54. Find the least among them.

(1) 18 (2) 15
(3) 14 (4) 16

(SSC CGL Exam. 24.02.2002
(IInd Sitting))

- 8.** The sum of three consecutive numbers is 87. The middle number is

(1) 27 (2) 29
(3) 30 (4) 28

(SSC CGL Prelim Exam. 24.02.2002
(Middle Zone))

- 9.** What is the sum of two consecutive even numbers, the difference of whose square is 84?

(1) 38 (2) 34
(3) 42 (4) 46

(SSC CGL Prelim Exam. 11.05.2003
(Second Sitting))

- 10.** The sum of all the natural numbers from 51 to 100 is

(1) 5050 (2) 4275
(3) 4025 (4) 3775

(SSC CPO S.I.
Exam. 05.09.2004))

- 11.** The sum of all the 2-digit numbers is :

(1) 4995 (2) 4950
(3) 4945 (4) 4905

(SSC CPO S.I.
Exam. 26.05.2005))

- 12.** The sum of first 50 odd natural numbers is

(1) 1000 (2) 1250
(3) 5200 (4) 2500

(SSC CGL Prelim Exam. 27.07.2008 (First
Sitting))

- 13.** The sum of all the 3-digit numbers, each of which on division by 5 leaves remainder 3, is

(1) 180 (2) 1550
(3) 6995 (4) 99090

(SSC CGL Prelim Exam. 27.07.2008
(Second Sitting))

- 14.** The sum of all the 3-digit numbers is

(1) 98901 (2) 494550
(3) 8991 (4) 899

(SSC CGL Prelim Exam. 27.07.2008
(Second Sitting))

- 15.** Out of six consecutive natural numbers, if the sum of first three is 27, what is the sum of the other three?

(1) 36 (2) 35
(3) 25 (4) 24

(SSC CGL Tier-I Exam. 16.05.2010
(Second Sitting))

NUMBER SYSTEM

- 16.** Which one of the following is a factor of the sum of first twenty-five natural numbers ?
 (1) 26 (2) 24
 (3) 13 (4) 12

(SSC CISF ASI Exam 29.08.2010 (Paper-1))

- 17.** The sum of all even numbers between 21 and 51 is
 (1) 518 (2) 540
 (3) 560 (4) 596

(SSC CISF ASI Exam 29.08.2010 (Paper-1))

- 18.** The sum of four consecutive even numbers is 748. The smallest among them is
 (1) 188 (2) 186
 (3) 184 (4) 174

(SSC CISF ASI Exam 29.08.2010 (Paper-1))

- 19.** If the sum of five consecutive integers is S, then the largest of those integers in terms of S is

$$(1) \frac{S-10}{5} \quad (2) \frac{S+4}{4}$$

$$(3) \frac{S+5}{4} \quad (4) \frac{S+10}{5}$$

(SSC CHSL DEO & LDC Exam. 04.12.2011 (1st Sitting (East Zone)))

- 20.** The sum of all those prime numbers which are not greater than 17 is

$$(1) 59 \quad (2) 58
 (3) 41 \quad (4) 42$$

(SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (1st Sitting))

- 21.** The sum of the squares of 3 consecutive positive numbers is 365. The sum of the numbers is
 (1) 30 (2) 33
 (3) 36 (4) 45

(SSC Multi-Tasking (Non-Technical) Staff Exam. 22.02.2011)

- 22.** Find three consecutive numbers such that twice the first, three times the second and four times the third together make 191.

$$(1) 19, 20, 21 \quad (2) 21, 22, 23
 (3) 20, 21, 22 \quad (4) 22, 23, 24$$

(SSC Multi-Tasking Staff Exam. 24.03.2013, 1st Sitting)

- 23.** The sum of three consecutive odd natural numbers each divisible by 3 is 72. What is the largest among them?
 (1) 21 (2) 24
 (3) 27 (4) 36

(SSC CGL Exam. 04.07.1999 (1st Sitting))

- 24.** Find the sum of all positive multiples of 3 less than 50
 (1) 400 (2) 404
 (3) 408 (4) 412

(SSC CGL Tier-II Exam. 21.09.2014)

- 25.** What is the arithmetic mean of first 20 odd natural numbers ?
 (1) 19 (2) 17
 (3) 22 (4) 20

(SSC CGL Tier-I Exam. 16.08.2015 (1st Sitting) TF No. 3196279)

- 26.** Two positive whole numbers are such that the sum of the first number and twice the second number is 8 and their difference is 2. The numbers are :

$$(1) 7.5 \quad (2) 6.4
 (3) 4.2 \quad (4) 3.5$$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 06.12.2015 (1st Sitting) TF No. 3441135)

- 27.** The sum of three consecutive natural numbers divisible by 3 is 45. The smallest number is :

$$(1) 18 \quad (2) 3
 (3) 12 \quad (4) 9$$

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 20.03.2016 (1st Sitting))

- 28.** The sum of three consecutive natural numbers each divisible by 5, is 225. The largest among them is

$$(1) 85 \quad (2) 75
 (3) 70 \quad (4) 80$$

(SSC CGL Tier-I (CBE) Exam. 28.08.2016 (1st Sitting))

TYPE-VII

- 1.** If we write 45 as sum of four numbers so that when 2 is added to first number, 2 subtracted from second number, third multiplied by 2 and fourth divided by 2, we get the same result, then the four numbers are :

$$(1) 1, 8, 15, 21 \quad (2) 8, 12, 5, 20
 (3) 8, 12, 10, 15 \quad (4) 2, 12, 5, 26$$

(SSC CGL Exam. 04.07.1999 (1st Sitting))

- 2.** 12345679×72 is equal to :
 (1) 88888888 (2) 999999998
 (3) 888888888 (4) 898989898

(SSC CGL Exam. 27.02.2000 (1st Sitting))

- 3.** Given that $0.\overline{111} = \frac{1}{9}$; $0.4\overline{44} = \frac{4}{9}$
 is equal to :

$$(1) \frac{1}{90} \quad (2) \frac{2}{45}$$

$$(3) \frac{1}{99} \quad (4) \frac{4}{9}$$

(SSC CGL Exam. 27.02.2000 (1st Sitting))

- 4.** $8.\overline{31} + 0.\overline{6} + 0.0\overline{02}$ is equal to :

$$(1) 8.\overline{912} \quad (2) 8.\overline{912}$$

$$(3) 8.\overline{979} \quad (4) 8.\overline{979}$$

(SSC CGL Exam. 24.02.2002 (1st Sitting))

- 5.** The value of $(0.\overline{63} + 0.\overline{37})$ is

$$(1) 1 \quad (2) \frac{100}{99}$$

$$(3) \frac{99}{100} \quad (4) \frac{100}{33}$$

(SSC CHSL DEO & LDC Exam. 28.10.2012 (1st Sitting))

- 6.** $(0.\overline{11} + 0.\overline{22}) \times 3$ is equal to

$$(1) 3 \quad (2) 1.\overline{9}$$

$$(3) 1 \quad (4) 0.\overline{3}$$

(SSC CPO S.I. Exam. 12.12.2010 (Paper-I))

- 7.** Find the value of

$$\frac{1}{5} + 999 \frac{494}{495} \times 99$$

$$(1) 90000 \quad (2) 99000$$

$$(3) 90900 \quad (4) 99990$$

(SSC CGL Prelim Exam. 11.05.2003 (Second Sitting))

- 8.** If * means adding 6 times the second number to the first number then $(1 * 2) * 3$ equals :

$$(1) 121 \quad (2) 31$$

$$(3) 93 \quad (4) 91$$

(SSC CGL Prelim Exam. 11.05.2003 (First Sitting))

- 9.** The value of $999 \frac{995}{999} \times 999$ is

$$(1) 990809 \quad (2) 998996$$

$$(3) 999824 \quad (4) 998999$$

(SSC CGL Prelim Exam. 11.05.2003 (1st Sitting) & (SSC CGL Prelim Exam. 27.07.2008 (1st Sitting))

NUMBER SYSTEM

10. $1.\bar{2} \times 0.\bar{0}3 =$

- (1) $0.\overline{04}$ (2) $0.\overline{036}$
 (3) $1.\overline{13}$ (4) $0.\overline{037}$

(SSC CPO S.I. Exam. 06.09.2009)

11. Given that

$$3.718 = \frac{1}{0.2689}; \text{ then } \frac{1}{0.0003718}$$

is equal to

- (1) 2689 (2) 2.689
 (3) 26890 (4) 0.2689

(SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting))

12. If a and b are two distinct natural numbers, which one of the following is true ?

- (1) $\sqrt{a+b} > \sqrt{a} + \sqrt{b}$
 (2) $\sqrt{a+b} = \sqrt{a} + \sqrt{b}$
 (3) $\sqrt{a+b} < \sqrt{a} + \sqrt{b}$
 (4) $ab = 1$

(SSC CPO S.I. Exam. 16.12.2007)

13. Which one of the following numbers is **not** a square of any natural number ?

- (1) 17956 (2) 18225
 (3) 63592 (4) 53361

(SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting))

14. $0.\overline{142857} \div 0.\overline{285714}$ is equal to

- (1) 10 (2) 2
 (3) $\frac{1}{2}$ (4) $\frac{1}{3}$

(SSC CGL Prelim Exam. 04.02.2007
 (First Sitting))

15. The difference of $5.\overline{76}$ and $2.\overline{3}$ is

- (1) $2.\overline{54}$ (2) $3.\overline{73}$
 (3) $3.\overline{46}$ (4) 3.43

(SSC CISF ASI Exam 29.08.2010 (Paper-1))

16. When simplified the product

$$\left(1 - \frac{1}{3}\right)\left(1 - \frac{1}{4}\right)\left(1 - \frac{1}{5}\right) \dots \left(1 - \frac{1}{n}\right),$$

it becomes :

- (1) $\frac{1}{n}$ (2) $\frac{2}{n}$
 (3) $\frac{2(n-1)}{n}$ (4) $\frac{2}{n(n+1)}$

(SSC CGL Prelim Exam. 27.02.2000
 (First Sitting))

17. $2.\overline{8768}$ is equal to

- (1) $2\frac{4394}{4995}$ (2) $2\frac{292}{333}$
 (3) $2\frac{9}{10}$ (4) $2\frac{878}{999}$

(SSC CPO S.I. Exam. 03.09.2006)

18. Numbers 2, 4, 6, 8, 10,, 196, 198, 200 are multiplied together. The number of zeros at the end of the product on the right will be equal to —

- (1) 21 (2) 22
 (3) 24 (4) 25

(SSC Data Entry Operator Exam. 31.08.2008)

19. $7, 77, 77, 777 \div 77$ equals

- (1) 1111 (2) 101001
 (3) 10101 (4) 1010101

(SSC Data Entry Operator Exam. 02.08.2009)

20. $8.\bar{3}1 + 0.\bar{6} + 0.00\bar{2}$ is equal to

- (1) $8.\overline{912}$ (2) $8.9\overline{12}$
 (3) $8.\overline{979}$ (4) $8.9\overline{79}$

(SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting))

21. The value of $0.\bar{2} + 0.\bar{3} + 0.\overline{32}$ is :

- (1) $0.\overline{87}$ (2) $0.\overline{77}$
 (3) $0.\overline{82}$ (4) $0.\overline{86}$

(SSC CGL Prelim Exam. 13.11.2005
 (First Sitting))

22. The value of $(0.\overline{63} + 0.\overline{37})$ is

- (1) 1 (2) $\frac{100}{99}$
 (3) $\frac{99}{100}$ (4) $\frac{100}{33}$

(SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting))

23. If $\frac{51.84}{4.32} = 12$, then the value of

$$\frac{0.005184}{0.432}$$

- (1) 0.12 (2) 0.012
 (3) 0.0012 (4) 1.2

(SSC Assistant Grade-III Exam. 11.11.2012 (IIInd Sitting))

24. The value of

$$\left(1 + \frac{1}{2}\right)\left(1 + \frac{1}{3}\right)\left(1 + \frac{1}{4}\right) \dots \left(1 + \frac{1}{120}\right)$$

- (1) 30 (2) 40.5
 (3) 60.5 (4) 121

(SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting))

25. Sum of two numbers is 40 and their product is 375. What will be the sum of their reciprocals?

- (1) $\frac{8}{75}$ (2) $\frac{1}{40}$
 (3) $\frac{75}{8}$ (4) $\frac{75}{4}$

(SSC CGL Exam. 04.07.1999
 (Ist Sitting))

26. The sum and product of two numbers are 12 and 35 respectively. What will be the sum of their reciprocals?

- (1) $\frac{1}{3}$ (2) $\frac{1}{5}$
 (3) $\frac{12}{35}$ (4) $\frac{35}{12}$

(SSC CGL Exam. 27.02.2000
 (Ist Sitting))

27. If the sum of two numbers is 3 and the sum of their squares is 12, then their product is equal to :

- (1) $\frac{3}{2}$ (2) $\frac{2}{3}$
 (3) $-\frac{3}{2}$ (4) $-\frac{2}{3}$

(SSC CGL Exam. 27.02.2000
 (Ist Sitting))

28. 800 chocolates were distributed among the students of a class. East student got twice as many chocolates as the number of students in the class. The number of students in the class was :

- (1) 25 (2) 30
 (3) 35 (4) 20

(SSC CGL Exam. 27.02.2000
 (Ist Sitting))

29. The numbers 2, 4, 6, 8, 98, 100 are multiplied together. The number of zeros at the end of the product must be :

- (1) 13 (2) 12
 (3) 11 (4) 10

(SSC CGL Exam. 27.02.2000
 (Ist Sitting))

30. How many digits in all are required to write numbers from 1 to 50?

- (1) 100 (2) 92
 (3) 91 (4) 50

(SSC CGL Exam. 27.02.2000
 (IIInd Sitting))

NUMBER SYSTEM

- 31.** If doubling a number and adding 20 to the result gives the same answer as multiplying the number by 8 and taking away 4 from the product, the number is :

(1) 2 (2) 3
(3) 4 (4) 6

(SSC CGL Exam. 27.02.2000
(IInd Sitting)

- 32.** A number of friends decided to go on a picnic and planned to spend ₹ 108 on eatables. Three of them however did not turn up. As a consequence each one of the remaining had to contribute ₹ 3 extra. The number of them who attended the picnic was :

(1) 15 (2) 12
(3) 9 (4) 6

(SSC CGL Exam. 27.02.2000
(IInd Sitting)

- 33.** The numbers 1, 3, 5, 7 ... , 99 and 128 are multiplied together. The number of zeros at the end of the product must be :

(1) 19 (2) 22
(3) 7 (4) Nil

(SSC CGL Exam. 27.02.2000
(IInd Sitting)

- 34.** The sum of the squares of two positive numbers is 100 and difference of their squares is 28. Find the sum of the numbers :

(1) 12 (2) 13
(3) 14 (4) 15

(SSC CGL Exam. 24.02.2002
(Ist Sitting)

- 35.** The simplified value of

$$\left(1 - \frac{1}{3}\right)\left(1 - \frac{1}{4}\right)\left(1 - \frac{1}{5}\right) \dots \left(1 - \frac{1}{99}\right)\left(1 - \frac{1}{100}\right)$$

is

(1) $\frac{2}{99}$ (2) $\frac{1}{25}$
(3) $\frac{1}{50}$ (4) $\frac{1}{100}$

(SSC CGL Prelim Exam. 11.05.2003
(Ist Sitting) & (SSC CGL Prelim Exam.
13.11.2205 (Ist Sitting) & (SSC CGL
Prelim Exam. 27.07.2008 (IInd Sitting)

- 36.** The product of two numbers is 120. The sum of their squares is 289. The difference of these two numbers is

(1) 9 (2) 7
(3) 8 (4) 6

(SSC CGL Prelim Exam. 24.02.2002
(Middle Zone)

- 37.** The sum and product of two numbers are 10 and 24 respectively. The sum of their reciprocals is

(1) $\frac{1}{2}$ (2) $\frac{5}{12}$
(3) $\frac{7}{12}$ (4) $\frac{12}{5}$

(SSC CGL Prelim Exam. 24.02.2002
(Middle Zone)

$$38. \left(99\frac{1}{7} + 99\frac{2}{7} + 99\frac{3}{7} + 99\frac{4}{7} + 99\frac{5}{7} + 99\frac{6}{7}\right)$$

is equal to

(1) 603 (2) 600
(3) 598 (4) 597

(SSC CHSL DEO & LDC
Exam. 28.11.2010 (IInd Sitting)

- 39.** 380 mangoes are distributed among some boys and girls who are 85 in number. Each boy gets four mangoes and each girl gets five. The number of boys is

(1) 15 (2) 38
(3) 40 (4) 45

(SSC CGL Prelim Exam. 24.02.2002
(Middle Zone)

- 40.** The product of two positive numbers is 2500. If one number is four times the other, then the sum of the two numbers is :

(1) 25 (2) 125
(3) 225 (4) 250

(SSC CGL Exam. 24.02.2002
(IInd Sitting)

- 41.** In a two digit number if it is known that its units digit exceeds its tens digit by 2 and that the product of the given number and the sum of its digits is equal to 144, then the number is

(1) 46 (2) 42
(3) 26 (4) 24

(SSC CPO S.I.
Exam. 12.01.2003)

- 42.** In a test, 1 mark is awarded for each correct answer and one mark is deducted for each wrong answer. If a boy answers all 20 items of the test and gets 8 marks, the number of questions answered correct by him was

(1) 16 (2) 14
(3) 12 (4) 8

(SSC CPO S.I.
Exam. 12.01.2003)

- 43.** A number of boys raised ₹ 400 for a famine relief fund, each boy giving as many 25 paise coins as there were boys. The number of boys was :

(1) 40 (2) 16
(3) 20 (4) 100

(SSC CGL Prelim Exam. 11.05.2003
(First Sitting)

- 44.** Thrice the square of a natural number decreased by four times the number is equal to 50 more than the number. The number is:

(1) 4 (2) 5
(3) 10 (4) 6

(SSC CGL Prelim Exam. 11.05.2003
(First Sitting)

- 45.** The difference between two positive numbers is 3. If the sum of their squares is 369, then the sum of the numbers is :

(1) 81 (2) 33
(3) 27 (4) 25

(SSC CGL Prelim Exam. 11.05.2003
(First Sitting)

- 46.** A number consists of two digits such that the digit in the ten's place is less by 2 than the digit in the unit's place. Three times

the number added to $\frac{6}{7}$ times

the number obtained by reversing the digits equals 108. The sum of digits in the number is :

(1) 8 (2) 9
(3) 6 (4) 7

(SSC CGL Prelim Exam. 11.05.2003
(First Sitting)

- 47.** Of the three numbers, the second is twice the first and it is also thrice the third. If the average of three numbers is 44, the difference of the first number and the third number is :

(1) 24 (2) 18
(3) 12 (4) 6

(SSC CGL Prelim Exam. 11.05.2003
(First Sitting)

- 48.** A two digit number is five times the sum of its digits. If 9 is added to the number, the digits interchange their positions. The sum of digits of the number is :

(1) 11 (2) 9
(3) 7 (4) 6

(SSC CGL Prelim Exam. 08.02.2004
(Second Sitting)

- 49.** How many numbers less than 1000 are multiples of both 10 and 13 ?

(1) 9 (2) 8
(3) 6 (4) 7

(SSC CGL Prelim Exam. 13.11.2005
(First Sitting)

NUMBER SYSTEM

- 50.** The number 1, 2, 3, 4, ..., 1000 are multiplied together. The number of zeros at the end (on the right) of the product must be :
 (1) 30 (2) 200
 (3) 211 (4) 249
 (SSC CGL Prelim Exam. 13.11.2005
 (First Sitting)
- 51.** If the difference of two numbers is 3 and the difference of their squares is 39, then the larger number is
 (1) 8 (2) 9
 (3) 12 (4) 13
 (SSC CGL Prelim Exam. 13.11.2005
 (IInd Sitting) & SSC CHSL DEO
 & LDC Exam. 04.11.2012)
- 52.** 7 is added to a certain number; the sum is multiplied by 5; the product is divided by 9 and 3 is subtracted from the quotient. Thus if the remainder left is 12, what was the original number?
 (1) 30 (2) 20
 (3) 40 (4) 60
 (SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting)
- 53.** On multiplying a number by 7, all the digits in the product appear as 3's. the smallest such number is
 (1) 47649 (2) 47719
 (3) 47619 (4) 48619
 (SSC CPO S.I. Exam. 03.09.2006)
- 54.** A 2-digit number is 3 times the sum of its digits. If 45 is added to the number, its digits are interchanged. The sum of digits of the number is
 (1) 11 (2) 9
 (3) 7 (4) 5
 (SSC CGL Prelim Exam. 04.02.2007
 (First Sitting))
- 55.** The numbers 2272 and 875 are divided by a 3-digit number N, giving the same remainders. The sum of the digits of N is
 (1) 10 (2) 11
 (3) 12 (4) 13
 (SSC CGL Prelim Exam. 04.02.2007
 (First Sitting))
- 56.** The sum and product of two numbers are 12 and 35 respectively. The sum of their reciprocals will be
 (1) $\frac{12}{35}$ (2) $\frac{1}{35}$
 (3) $\frac{35}{8}$ (4) $\frac{7}{32}$
 (SSC CGL Prelim Exam. 04.02.2007
 (First Sitting))
- 57.** Of the three numbers, the second is twice the first and is also thrice the third. If the average of these three numbers is 44, the largest number is
 (1) 24 (2) 36
 (3) 72 (4) 108
 (SSC Section Officer (Commercial Audit)
 Exam. 30.09.2007 (Second Sitting)
- 58.** The sum of the digits of a two digit number is 10. The number formed by reversing the digits is 18 less than the original number. Find the original number.
 (1) 81 (2) 46
 (3) 64 (4) 60
 (SSC CPO S.I. Exam. 06.09.2009)
- 59.** Five times of a positive integer is equal to 3 less than twice the square of that number. The number is
 (1) 3 (2) 13
 (3) 23 (4) 33
 (SSC CPO S.I. Exam. 06.09.2009)
- 60.** The product of two numbers is 24 times the difference of these two numbers. If the sum of these numbers is 14, the larger number is
 (1) 9 (2) 8
 (3) 7 (4) 10
 (SSC CPO S.I. Exam. 06.09.2009)
- 61.** The product of two numbers is 0.008. One of the number is $\frac{1}{5}$ of the other. The smaller number is
 (1) 0.2 (2) 0.4
 (3) 0.02 (4) 0.04
 (SSC SAS Exam 26.06.2010
 (Paper-1))
- 62.** I multiplied a natural number by 18 and another by 21 and added the products. Which one of the following could be the sum?
 (1) 2007 (2) 2008
 (3) 2006 (4) 2002
 (SSC CGL Tier-1 Exam 19.06.2011
 (First Sitting))
- 63.** If the sum of two numbers be multiplied by each number separately, the products so obtained are 247 and 114. The sum of the numbers is
 (1) 19 (2) 20
 (3) 21 (4) 23
 (SSC CGL Tier-1 Exam 26.06.2011
 (First Sitting))
- 64.** If a and b are odd numbers, then which of the following is even ?
 (1) $a + b + ab$ (2) $a + b - 1$
 (3) $a + b + 1$ (4) $a + b + 2ab$
 (SSC CGL Tier-1 Exam 26.06.2011
 (Second Sitting))
- 65.** If two numbers x and y separately divided by a number d , remainders obtained are 4375 and 2986 respectively. If the sum of the numbers i.e $(x+y)$ is divided by the same number d remainder obtained is 2361. The value of number d is
 (1) 7361 (2) 5000
 (3) 4000 (4) 2542
 (SSC CPO S.I. Exam.09.11.2008)
- 66.** A farmer divides his herd of n cows among his four sons so that the first son gets one – half the herd, the second son gets one – fourth, the third son gets one – fifth and the fourth son gets 7 cows. The value of n is
 (1) 80 (2) 100
 (3) 140 (4) 180
 (SSC CPO S.I. Exam. 09.11.2008)
- 67.** In an examination, a student scores 4 marks for every correct answer and loses 1 mark for every wrong answer. A student attempted all the 200 questions and scored in all 200 marks. The number of questions, he answered correctly was
 (1) 82 (2) 80
 (3) 68 (4) 60
 (SSC CGL Tier-I Exam. 16.05.2010
 (Second Sitting))
- 68.** In an examination, a student scores 4 marks for every correct answer and loses 1 mark for every wrong answer. If he attempts all 75 questions and secures 125 marks, the number of questions he attempts correctly is
 (1) 35 (2) 40
 (3) 42 (4) 46
 (SSC CGL Tier-1 Exam. 26.06.2011
 (First Sitting))
- 69.** The product of two numbers is 120 and the sum of their squares is 289. The sum of the two numbers is
 (1) 23 (2) 7
 (3) 13 (4) 169
 (SSC Data Entry Operator
 Exam. 31.08.2008)

NUMBER SYSTEM

- 70.** The sum and product of two numbers are 11 and 18 respectively. The sum of their reciprocals is

(1) $\frac{2}{11}$ (2) $\frac{11}{2}$

(3) $\frac{18}{11}$ (4) $\frac{11}{18}$

(SSC Data Entry Operator Exam. 02.08.2009)

- 71.** A man ate 100 grapes in 5 days. Each day, he ate 6 more grapes than those he ate on the earlier day. How many grapes did he eat on the first day?

(1) 8 (2) 12
(3) 54 (4) 76

(SSC Data Entry Operator Exam. 02.08.2009)

- 72.** Instead of multiplying a number by 0.72, a student multiplied it by 7.2. If his answer was 2592 more than the correct answer, then the original number was

(1) 400 (2) 420
(3) 500 (4) 560

(SSC Data Entry Operator Exam. 02.08.2009)

- 73.** Of the three numbers, the sum of the first two is 55, sum of the second and third is 65 and sum of third with thrice of the first is 110. The third number is

(1) 25 (2) 30
(3) 35 (4) 28

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (North Zone))

- 74.** A number consists of two digits and the digit in the ten's place exceeds that in the unit's place by 5. If 5 times the sum of the digits be subtracted from the number, the digits of the number are reversed. Then the sum of digits of the number is

(1) 11 (2) 7
(3) 9 (4) 13

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting (North Zone))

- 75.** In a three-digit number, the digit at the hundred's place is two times the digit at the unit's place and the sum of the digits is 18. If the digits are reversed, the number is reduced by 396. The difference of hundred's and ten's digit of the number is

(1) 1 (2) 2
(3) 3 (4) 5

(SSCCHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting (East Zone))

- 76.** If the digits in the unit and the ten's places of a three digit number are interchanged, a new number is formed, which is greater than the original number by 63. Suppose the digit in the unit place of the original number be x . Then, all the possible values of x are

(1) 7, 8, 9 (2) 2, 7, 9
(3) 0, 1, 2 (4) 1, 2, 8

(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (East Zone))

- 77.** The sum of a natural number and its square equals the product of the first three prime numbers. The number is

(1) 2 (2) 3
(3) 5 (4) 6

(SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (Ist Sitting))

- 78.** A man has some hens and cows. If the number of heads : number of feet = 12 : 35, find out the number of hens, if the number of heads alone is 48.

(1) 28 (2) 26
(3) 24 (4) 22

(SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (Ist Sitting))

- 79.** The length of a road is one kilometre. The number of plants required for plantation at a gap of 20 metres in both sides of the road is

(1) 102 (2) 100
(3) 51 (4) 50

(SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting))

- 80.** $999 \frac{98}{99} \times 99$ is equal to :

(1) 98999 (2) 99899
(3) 99989 (4) 99998

(SSC CHSL DEO Entry Operator & LDC Exam. 28.11.2010 (Ist Sitting))

- 81.** The sum of a two digit number and the number obtained by reversing its digits is a square number. How many such numbers are there?

(1) 5 (2) 6
(3) 7 (4) 8

(SSC Multi-Tasking (Non-Technical) Staff Exam. 27.02.2011)

- 82.** The value of $99 \frac{95}{99} \times 99$ is

(1) 9798 (2) 9997
(3) 9898 (4) 9896

(SSC CPO S.I. Exam. 06.09.2009)

- 83.** There are 50 boxes and 50 persons. Person 1 keeps 1 marble in every box. Person 2 keeps 2 marbles in every 2nd box, person 3 keeps 3 marbles in every third box. This process goes on till person 50 keeps 50 marbles in the 50th box. Find the total number of marbles kept in the 50th box.

(1) 43 (2) 78
(3) 6 (4) 93

(SSC FCI Assistant Grade-III Main Exam. 07.04.2013)

- 84.** 252 m of pant cloth and 141 m of shirt cloth are available in a cloth store. To stitch one pant

and one shirt, $2\frac{1}{2}$ m and $1\frac{3}{4}$

m of cloth are needed respectively. Then the approximate number of pants and shirts that can be made out of it are

(1) (80,100) (2) (100,80)
(3) (100,90) (4) (90,80)

(SSC FCI Assistant Grade-III Main Exam. 07.04.2013)

- 85.** The number 323 has

(1) three prime factors
(2) five prime factors
(3) two prime factors
(4) no prime factor

(SSC CGL Tier-I Exam. 21.04.2013 IIInd Sitting)

- 86.** The product of two positive numbers is 2500. If one number is four times the other, the sum of the two numbers is :

(1) 25 (2) 125
(3) 225 (4) 250

(SSC CGL Exam. 24.02.2002 (IIInd Sitting))

- 87.** Mohan gets 3 marks for each correct sum and loses 2 marks for each wrong sum. He attempts 30 sums and obtains 40 marks. The number of sums solved correctly is :

(1) 15 (2) 20
(3) 25 (4) 10

(SSC CGL Tier-I Exam. 21.04.2013)

NUMBER SYSTEM

88. If $a * b = a + b + \frac{a}{b}$, then the

value of $12 * 4$ is :

- (1) 20 (2) 21
- (3) 48 (4) 19

(SSC CGL Tier-I Exam. 21.04.2013)

89. Find the maximum number of trees which can be planted, 20 metres apart, on the two sides of a straight road 1760 metres long

- (1) 180 (2) 178
- (3) 174 (4) 176

(SSC CGL Tier-I Exam. 21.04.2013)

90. A and B have together three times what B and C have, while A, B, C together have thirty rupees more than that of A. If B has 5 times that of C, then A has

- (A) ₹ 60 (B) ₹ 65
- (C) ₹ 75 (D) ₹ 45

(SSC CGL Tier-I Exam. 21.04.2013)

91. If sum of two numbers be a and their product be b , then the sum of their reciprocals is

$$(1) \frac{1}{a} + \frac{1}{b} \quad (2) \frac{b}{a}$$

$$(3) \frac{a}{b} \quad (4) \frac{1}{ab}$$

(SSC Constable (GD) Exam. 12.05.2013 1st Sitting)

92. $\left(999\frac{999}{1000} \times 7\right)$ is equal to:

$$(1) 6993\frac{7}{1000} \quad (2) 7000\frac{7}{1000}$$

$$(3) 6633\frac{7}{1000} \quad (4) 6999\frac{993}{1000}$$

(SSC CPO S.I. Exam. 16.12.2007)

93. In a factory one out of every 9 is a female worker. If the number of female workers is 125, the total number of workers is

- (1) 1250 (2) 1125
- (3) 1025 (4) 1000

(SSC Constable (GD) Exam. 12.05.2013)

94. $999\frac{1}{7} + 999\frac{2}{7} + 999\frac{3}{7}$
 $+ 999\frac{4}{7} + 999\frac{5}{7} + 999\frac{6}{7}$

is simplified to :

- (1) 5997 (2) 5979
- (3) 5994 (4) 2997

(SSC CGL Prelim Exam. 08.02.2004 (Second Sitting))

95. 'a' divides 228 leaving a remainder 18. The biggest two-digit value of 'a' is

- (1) 70 (2) 21
- (3) 35 (4) 30

(SSC CHSL DEO & LDC Exam. 20.10.2013)

96. In a division sum, the divisor is 12 times the quotient and 5 times the remainder. If the remainder is 36, then the dividend is

- (1) 2706 (2) 2796
- (3) 2736 (4) 2826

(SSC CHSL DEO & LDC Exam. 27.10.2013 IIInd Sitting)

97. The sum of two number is 8 and their product is 15. The sum of their reciprocals is

- (1) $\frac{8}{15}$ (2) $\frac{15}{8}$
- (3) 23 (4) 7

(SSC CHSL DEO & LDC Exam. 28.11.2010 (IIInd Sitting))

98. A number is doubled and 9 is added. If the resultant is trebled, it becomes 75. What is that number ?

- (1) 6 (2) 3.5
- (3) 8 (4) None of these

(SSC CGL Exam. 04.07.1999 (IIInd Sitting))

99. If the operation '*' is defined by $a * b = a + b - ab$, then $5 * 7$ equals

- (1) 12 (2) -47
- (3) -23 (4) 35

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

100. A man engaged a servant on the condition that he would pay him ₹ 90 and a turban after service of one year. He served only for nine months and received the turban and an amount of ₹ 65. The price of turban is

- (1) ₹ 25 (2) ₹ 18.75
- (3) ₹ 10 (4) ₹ 2.50

(SSC CHSL DEO & LDC Exam. 16.11.2014)

101. If a certain number of two digits is divided by the sum of its digits, the quotient is 6 and the remainder is 3. If the digits are reversed and the resulting number is divided by the sum of the digits, the quotient is 4 and the remainder is 9. The sum of the digits of the number is

- (1) 6 (2) 9
- (3) 12 (4) 4

(SSC CGL Tier-II Exam. 2014 12.04.2015 (Kolkata Region) (TF No. 789 TH 7))

102. Among the following statements, the statement which is **not correct** is :

- (1) Every natural number is an integer.
- (2) Every natural number is a real number.
- (3) Every real number is a rational number.
- (4) Every integer is a rational number.

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 15.11.2015 (IIInd Sitting) TF No. 7203752)

103. If $p = -0.12$, $q = -0.01$ and $r = -0.015$, then the correct relationship among the three is :

- (1) $q > p > r$ (2) $p > r > q$
- (3) $p > q > r$ (4) $p < r < q$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 06.12.2015 (IIInd Sitting) TF No. 3441135)

104. In an exam the sum of the scores of A and B is 120, that of B and C is 130 and that of C and A is 140. Then the score of C is :

- (1) 65 (2) 75
- (3) 70 (4) 60

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 06.12.2015 (IIInd Sitting) TF No. 3441135)

105. What decimal of a week is an hour ?

- (1) 0.0059 (2) 0.0062
- (3) 0.062 (4) 0.059

(SSC CPO Exam. 06.06.2016 (Ist Sitting))

106. The value of x in the following equation is :

$$0.\dot{3} + 0.\dot{6} + 0.\dot{7} + 0.\dot{8} = x$$

- (1) 5.3 (2) $2\frac{3}{10}$

- (3) $2\frac{2}{3}$ (4) $2.\dot{3}\dot{5}$

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 20.03.2016 (IIInd Sitting))

7. Natu and Buchku each have certain number of oranges. Natu says to Buchku, "If you give me 10 of your oranges, I will have twice the number of oranges left with you". Buchku replies, "If you give me 10 of your oranges, I will have the same number of oranges as left with you". What is the number of oranges with Natu and Buchku, respectively ?

- (1) 50, 20 (2) 70, 50
- (3) 20, 50 (4) 50, 70

(SSC CGL Tier-II (CBE) Exam. 12.01.2017)

2

LCM AND HCF

Importance : Questions based on L.C.M and H.C.F concepts (in addition involved in other questions) are independently asked in certain competitive exams. A little practice with full 'concentration' will enable you to learn how to solve these questions.

Scope of questions : Most asked questions are related to finding out L.C.M. or H.C.F. for numbers special questions are based on remainder on dividing, difference ratio of L.C.M./H.C.F. to make complete square/cube of different number etc.

Way to success : TRICKS in addition to formulae help in most of L.C.M. & H.C.F. questions.

IMPORTANT DEFINITIONS :

Highest Common Factor (H.C.F.) : It is also called Greatest common Diviser (G.C.D). When a greatest number divides perfectly the two or more given numbers then that number is called the H.C.F. of two or more given numbers. e.g.

The H.C.F of 10, 20, 30 is 10 as they are perfectly divided by 10, 5 and 2 and 10 is highest or greatest of them.

Least common Multiple (L.C.M.) : The least number which is divisible by two or more given numbers, that least number is called L.C.M. of the numbers.

L.C.M. of 3,5,6 is 30, because all 3 numbers divide 30, 60, 90, and so on perfectly and 30 is minimum of them.

Factor and Multiple : If a number m, divides perfectly second number n, then m is called the factor of n and n is called the multiple of m.

Rule 1 : 1st number \times 2nd number = L.C. M. \times H.C.F.

- **There are two methods for calculating the H.C.F and L.C.M.**

(i) Factor Method

(ii) Division Method

- **If the ratio of two numbers is a:b, (lowest form i.e. indivisible to each other) then**

Numbers are ak and bk, where k is a constant and hence,

H.C.F. is K and L.C.M. is abk.

Rule 2 : L.C.M of fractions

$$= \frac{\text{L.C.M. of numerators}}{\text{H.C.F. of denominators}}$$

Rule 3 : H.C.F. of fractions

$$= \frac{\text{H.C.F of numerators}}{\text{L.C.M. of denominators}}$$

IMPORTANT POINTS

- If there is no common factor between two numbers, then L.C.M. will be the product of both numbers.
- If there are 'n' numbers in a set and H.C.F. of any two numbers is H and L.C.M. of all 'n' numbers is L, then product of all 'n' numbers is $[(H)^{n-1} \times L]$

Rule 4 : When a number is divided by a, b or c leaving same remainder 'r' in each case then that number must be $k + r$ where k is LCM of a, b and c.

Rule 5 : When a number is divided by a, b or c leaving remainders p, q or r respectively such that the difference between divisor and remainder in each case is same i.e., $(a - P) = (b - q) = (c - r) = t$ (say) then that (least) number must be in the form of $(k - t)$, where k is LCM of a, b and c

Rule 6 : The largest number which when divide the numbers a, b and c the remainders are same then that largest number is given by H.C.F. of $(a - b)$, $(b - c)$ and $(c - a)$.

Rule 7 : The largest number which when divide the numbers a, b and c give remainders as p, q, r respectively is given by H.C.F. of $(a - p)$, $(b - q)$ and $(c - r)$.

Rule 8 : Greatest n digit number which when divided by three numbers p,q,r leaves no remainder will be

$$\text{Required Number} = (n - \text{digit greatest number}) - R$$

R is the remainder obtained on dividing greatest n digit number by L.C.M of p,q,r.

Rule 9 : The n digit largest number which when divided by p, q, r leaves remainder 'a' will be

$$\text{Required number} = [n - \text{digit largest number} - R] + a$$

where, R is the remainder obtained when

n - digit largest number is divided by the L.C.M of p, q, r.



QUESTIONS ASKED IN PREVIOUS SSC EXAMS

TYPE-I

1. The LCM of two numbers is 864 and their HCF is 144. If one of the number is 288, the other number is :

(1) 576 (2) 1296
 (3) 432 (4) 144
 (SSC CGL Prelim Exam. 04.07.1999 (First Sitting))
2. LCM of two numbers is 225 and their HCF is 5. If one number is 25, the other number will be:

(1) 5 (2) 25
 (3) 45 (4) 225
 (SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))
3. The L.C.M. of two numbers is 1820 and their H.C.F. is 26. If one number is 130 then the other number is :

(1) 70 (2) 1690
 (3) 364 (4) 1264
 (SSC CGL Prelim Exam. 24.02.2002 (First Sitting))
4. The LCM of two numbers is 1920 and their HCF is 16. If one of the number is 128, find the other number.

(1) 204 (2) 240
 (3) 260 (4) 320
 (SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))
5. The HCF of two numbers 12906 and 14818 is 478. Their LCM is

(1) 400086 (2) 200043
 (3) 600129 (4) 800172
 (SSC CGL Prelim Exam. 24.02.2002 (Middle Zone))
6. The H.C.F. and L.C.M. of two 2-digit numbers are 16 and 480 respectively. The numbers are :

(1) 40, 48 (2) 60, 72
 (3) 64, 80 (4) 80, 96
 (SSC CPO S.I. Exam. 26.05.2005)
7. The HCF of two numbers is 16 and their LCM is 160. If one of the number is 32, then the other number is

(1) 48 (2) 80
 (3) 96 (4) 112
 (SSC CPO Sub Inspector Exam. 12.01.2003)

8. The product of two numbers is 4107. If the H.C.F. of the numbers is 37, the greater number is

(1) 185 (2) 111
 (3) 107 (4) 101
 (SSC CGL Prelim Exam. 11.05.2003 (Second Sitting) & SSC CGL Exam. 27.07.08 (Second Sitting))
9. The HCF of two numbers is 15 and their LCM is 300. If one of the number is 60, the other is :

(1) 50 (2) 75
 (3) 65 (4) 100
 (SSC CGL Prelim Exam. 08.02.2004 (First Sitting))
10. The HCF and LCM of two numbers are 12 and 924 respectively. Then the number of such pairs is

(1) 0 (2) 1
 (3) 2 (4) 3
 (SSC CGLTier-1 Exam 26.06.2011 (Second Sitting))
11. The LCM of two numbers is 30 and their HCF is 5. One of the number is 10. The other is

(1) 20 (2) 25
 (3) 15 (4) 5
 (SSC CGL Prelim Exam. 04.07.1999 (First Sitting))
12. The product of two numbers is 1280 and their H.C.F. is 8. The L.C.M. of the number will be :

(1) 160 (2) 150
 (3) 120 (4) 140
 (SSC CPO SI Exam. 16.12.2007)
13. The H.C.F. and L.C.M. of two numbers are 8 and 48 respectively. If one of the number is 24, then the other number is

(1) 48 (2) 36
 (3) 24 (4) 16
 (SSC CGLTier-1 Exam. 16.05.2010 (First Sitting))
14. The H.C.F and L.C.M of two numbers are 12 and 336 respectively. If one of the number is 84, the other is

(1) 36 (2) 48
 (3) 72 (4) 96
 (SSC CGLTier-1 Exam. 16.05.2010 (Second Sitting))
15. The product of two numbers is 216. If the HCF is 6, then their LCM is

(1) 72 (2) 60
 (3) 48 (4) 36
 (SSC CISF ASI Exam 29.08.2010 (Paper-1))
16. The HCF and LCM of two numbers are 18 and 378 respectively. If one of the number is 54, then the other number is

(1) 126 (2) 144
 (3) 198 (4) 238
 (SSC (South Zone) Investigator Exam 12.09.2010)
17. The HCF and product of two numbers are 15 and 6300 respectively. The number of possible pairs of the numbers is

(1) 4 (2) 3
 (3) 2 (4) 1
 (SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))
18. The HCF of two numbers is 15 and their LCM is 225. If one of the number is 75, then the other number is :

(1) 105 (2) 90
 (3) 60 (4) 45
 (SSC CHSL DEO & LDC Exam. 27.11.2010)
19. The LCM of two numbers is 520 and their HCF is 4. If one of the number is 52, then the other number is

(1) 40 (2) 42
 (3) 50 (4) 52
 (SSC CISF Constable (GD) Exam. 05.06.2011)
20. The H.C.F. of two numbers is 96 and their L.C.M. is 1296. If one of the number is 864, the other is

(1) 132 (2) 135
 (3) 140 (4) 144
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (Ind Sitting (East Zone)))
21. The LCM of two numbers is 4 times their HCF. The sum of LCM and HCF is 125. If one of the number is 100, then the other number is

(1) 5 (2) 25
 (3) 100 (4) 125
 (SSC Multi-Tasking (Non-Technical) Staff Exam. 20.02.2011)
22. Product of two co-prime numbers is 117. Then their L.C.M. is

(1) 117 (2) 9
 (3) 13 (4) 39
 (SSC CGL Tier-I Exam. 19.05.2013 1st Sitting)

LCM AND HCF

- 23.** The product of two numbers is 2160 and their HCF is 12. Number of such possible pairs is

(1) 1 (2) 2
 (3) 3 (4) 4
 (SSC CHSL DEO & LDC Exam.
 27.10.2013 IInd Sitting)

- 24.** LCM of two numbers is 2079 and their HCF is 27. If one of the number is 189, the other number is

(1) 297 (2) 584
 (3) 189 (4) 216
 (SSC (10+2) Level Data Entry Operator & LDC Exam.
 10.11.2013, IInd Sitting)

- 25.** The product of two numbers is 2028 and their HCF is 13. The number of such pairs is

(1) 1 (2) 2
 (3) 3 (4) 4
 (SSC CPO S.I. Exam. 12.01.2003 & SSC CGL Tier-I Exam. 19.06.11 (First Sitting))

- 26.** The HCF and LCM of two numbers are 13 and 455 respectively. If one of the number lies between 75 and 125, then, that number is :

(1) 78 (2) 91
 (3) 104 (4) 117
 (SSC CGL Prelim Exam. 04.07.1999 (First Sitting))

- 27.** The H.C.F. of two numbers is 8. Which one of the following can never be their L.C.M.?

(1) 24 (2) 48
 (3) 56 (4) 60
 (SSC CGL Prelim Exam. 27.02.2000 (First Sitting))

- 28.** The HCF of two numbers is 23 and the other two factors of their LCM are 13 and 14. The larger of the two numbers is :

(1) 276 (2) 299
 (3) 345 (4) 322
 (SSC CGL Prelim Exam. 08.02.2004 (First Sitting))

- 29.** The L.C.M. of three different numbers is 120. Which of the following cannot be their H.C.F.?

(1) 8 (2) 12
 (3) 24 (4) 35
 (SSC CGL Tier-1 Exam 26.06.2011 (First Sitting))

- 30.** The H.C.F. and L.C.M. of two numbers are 44 and 264 respectively. If the first number is divided by 2, the quotient is 44. The other number is

(1) 147 (2) 528
 (3) 132 (4) 264
 (SSC CHSL DEO & LDC Exam. 9.11.2014)

TYPE-II

- 1.** The least number which when divided by 4, 6, 8, 12 and 16 leaves a remainder of 2 in each case is :

(1) 46 (2) 48
 (3) 50 (4) 56
 (SSC CGL Prelim Exam. 04.07.1999 (First Sitting))

- 2.** The least number, which when divided by 12, 15, 20 or 54 leaves a remainder of 4 in each case, is :

(1) 450 (2) 454
 (3) 540 (4) 544
 (SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))

- 3.** Find the greatest number of five digits which when divided by 3, 5, 8, 12 have 2 as remainder :

(1) 99999 (2) 99958
 (3) 99960 (4) 99962
 (SSC CGL Prelim Exam. 24.02.2002 (First Sitting))

- 4.** The least multiple of 13, which on dividing by 4, 5, 6, 7 and 8 leaves remainder 2 in each case is:

(1) 2520 (2) 842
 (3) 2522 (4) 840
 (SSC CGL Prelim Exam. 24.02.2002 (Middle Zone, SSC CGL Prelim Exam. 24.02.2002 (Second Sitting) & SSC CGL Prelim Exam. 13.11.2005))

- 5.** A, B, C start running at the same time and at the same point in the same direction in a circular stadium. A completes a round in 252 seconds, B in 308 seconds and C in 198 seconds. After what time will they meet again at the starting point ?

(1) 26 minutes 18 seconds
 (2) 42 minutes 36 seconds
 (3) 45 minutes
 (4) 46 minutes 12 seconds
 (SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (Ist Sitting))

- 6.** Find the largest number of four digits such that on dividing by 15, 18, 21 and 24 the remainders are 11, 14, 17 and 20 respectively.

(1) 6557 (2) 7556
 (3) 5675 (4) 7664
 (SSC CGL Prelim Exam. 24.02.2002 (Middle Zone))

- 7.** The least perfect square, which is divisible by each of 21, 36 and 66 is

(1) 214344 (2) 214434
 (3) 213444 (4) 231444
 (SSC CPO S.I. Exam. 12.01.2003)

- 8.** The least number, which when divided by 4, 5 and 6 leaves remainder 1, 2 and 3 respectively, is

(1) 57 (2) 59
 (3) 61 (4) 63
 (SSC CPO S.I. Exam. 12.01.2003)

- 9.** Let the least number of six digits which when divided by 4, 6, 10, 15 leaves in each case same remainder 2 be N. The sum of digits in N is :

(1) 3 (2) 5
 (3) 4 (4) 6
 (SSC CGL Prelim Exam. 11.05.2003 (First Sitting))

- 10.** Which is the least number which when doubled will be exactly divisible by 12, 18, 21 and 30 ?

(1) 2520 (2) 1260
 (3) 630 (4) 196
 (SSC CGL Prelim Exam. 11.05.2003 (Second Sitting))

- 11.** The smallest square number divisible by 10, 16 and 24 is

(1) 900 (2) 1600
 (3) 2500 (4) 3600
 (SSC CPO S.I. Exam. 07.09.2003)

- 12.** If the students of a class can be grouped exactly into 6 or 8 or 10, then the minimum number of students in the class must be

(1) 60 (2) 120
 (3) 180 (4) 240
 (SSC CGL Prelim Exam. 08.02.2004 (First Sitting))

- 13.** The least number which when divided by 4, 6, 8 and 9 leave zero remainder in each case and when divided by 13 leaves a remainder of 7 is :

(1) 144 (2) 72
 (3) 36 (4) 85
 (SSC CGL Prelim Exam. 08.02.2004 (Second Sitting))

- 14.** The smallest number, which when divided by 12 and 16 leaves remainder 5 and 9 respectively, is :

(1) 55 (2) 41
 (3) 39 (4) 29
 (SSC CPO S.I. Exam. 26.05.2005)

LCM AND HCF

- 15.** A number which when divided by 10 leaves a remainder of 9, when divided by 9 leaves a remainder of 8, and when divided by 8 leaves a remainder of 7, is :
 (1) 1539 (2) 539
 (3) 359 (4) 1359
 (SSC CPO S.I. Exam. 26.05.2005)
- 16.** What is the smallest number which leaves remainder 3 when divided by any of the numbers 5, 6 or 8 but leaves no remainder when it is divided by 9 ?
 (1) 123 (2) 603
 (3) 723 (4) 243
 (SSC Section Officer (Commercial Audit) Exam. 25.09.2005)
- 17.** The least number which when divided by 16, 18, 20 and 25 leaves 4 as remainder in each case but when divided by 7 leaves no remainder is
 (1) 17004 (2) 18000
 (3) 18002 (4) 18004
 (SSC CGL DEO & LDC Exam. 04.12.2011 (1st Sitting)
 (East Zone)
- 18.** What is the least number which when divided by the numbers 3, 5, 6, 8, 10 and 12 leaves in each case a remainder 2 but when divided by 13 leaves no remainder ?
 (1) 312 (2) 962
 (3) 1562 (4) 1586
 (SSC CGL Prelim Exam. 13.11.2005 (Second Sitting))
- 19.** The least multiple of 7, which leaves the remainder 4, when divided by any of 6, 9, 15 and 18, is
 (1) 76 (2) 94
 (3) 184 (4) 364
 (SSC Section Officer (Commercial Audit) Exam. 30.09.2007
 (Second Sitting))
- 20.** The largest number of five digits which, when divided by 16, 24, 30, or 36 leaves the same remainder 10 in each case, is :
 (1) 99279 (2) 99370
 (3) 99269 (4) 99350
 (SSC CPO S.I. Exam. 16.12.2007)
- 21.** The smallest number, which when divided by 5, 10, 12 and 15, leaves remainder 2 in each case; but when divided by 7 leaves no remainder, is
 (1) 189 (2) 182
 (3) 175 (4) 91
 (SSC CGL Prelim Exam. 27.07.2008
 (First Sitting))
- 22.** What least number must be subtracted from 1936 so that the resulting number when divided by 9, 10 and 15 will leave in each case the same remainder 7 ?
 (1) 37 (2) 36
 (3) 39 (4) 30
 (SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))
- 23.** The least number, which when divided by 18, 27 and 36 separately leaves remainders 5, 14, and 23 respectively, is
 (1) 95 (2) 113
 (3) 149 (4) 77
 (SSC CPO S.I. Exam. 09.11.2008)
- 24.** The least number which when divided by 5, 6, 7 and 8 leaves a remainder 3, but when divided by 9 leaves no remainder is
 (1) 1677 (2) 1683
 (3) 2523 (4) 3363
 (SSC CPO S.I. Exam. 06.09.2009)
 & SSC CGL Tier-1 Exam.
 26.06.2011 (Second Sitting)
- 25.** The greatest number of four digits which when divided by 12, 16 and 24 leave remainders 2, 6 and 14 respectively is
 (1) 9974 (2) 9970
 (3) 9807 (4) 9998
 (SSC CPO S.I. Exam. 06.09.2009)
- 26.** When a number is divided by 15, 20 or 35, each time the remainder is 8. Then the smallest number is
 (1) 428 (2) 427
 (3) 328 (4) 338
 (SSC CPO S.I. Exam. 06.09.2009)
- 27.** The smallest number, which, when divided by 12 or 10 or 8, leaves remainder 6 in each case, is
 (1) 246 (2) 186
 (3) 126 (4) 66
 (SSC (South Zone) Investigator Exam. 12.09.2010)
- 28.** The traffic lights at three different road crossings change after 24 seconds, 36 seconds and 54 seconds respectively. If they all change simultaneously at 10 : 15 : 00 AM, then at what time will they again change simultaneously?
 (1) 10 : 16 : 54 AM
 (2) 10 : 18 : 36 AM
 (3) 10 : 17 : 02 AM
 (4) 10 : 22 : 12 AM
 (SSC CGL Tier-1 Exam. 26.06.2011 (First Sitting))
- 29.** From a point on a circular track 5 km long A, B and C started running in the same direction at the same time with speed of $2\frac{1}{2}$ km per hour, 3 km per hour and 2 km per hour respectively. Then on the starting point all three will meet again after
 (1) 30 hours (2) 6 hours
 (3) 10 hours (4) 15 hours
 (SSC CGL Prelim Exam. 11.05.2003 (Second Sitting))
- 30.** Four runners started running simultaneously from a point on a circular track. They took 200 seconds, 300 seconds, 360 seconds and 450 seconds to complete one round. After how much time do they meet at the starting point for the first time ?
 (1) 1800 seconds
 (2) 3600 seconds
 (3) 2400 seconds
 (4) 4800 seconds
 (SSC CGL Tier-1 Exam. 19.06.2011 (Second Sitting))
- 31.** Four bells ring at intervals of 4, 6, 8 and 14 seconds. They start ringing simultaneously at 12.00 O'clock. At what time will they again ring simultaneously ?
 (1) 12 hrs. 2 min. 48 sec.
 (2) 12 hrs. 3 min.
 (3) 12 hrs. 3 min. 20 sec.
 (4) 12 hrs. 3 min. 44 sec.
 (SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))
- 32.** 4 bells ring at intervals of 30 minutes, 1 hour, $1\frac{1}{2}$ hour and 1 hour 45 minutes respectively. All the bells ring simultaneously at 12 noon. They will again ring simultaneously at :
 (1) 12 mid night (2) 3 a.m.
 (3) 6 a.m. (4) 9 a.m.
 (SSC CGL Prelim Exam. 24.02.2002 (First Sitting))
- 33.** Four bells ring at the intervals of 5, 6, 8 and 9 seconds. All the bells ring simultaneously at some time. They will again ring simultaneously after
 (1) 6 minutes (2) 12 minutes
 (3) 18 minutes (4) 24 minutes
 (SSC CGL Prelim Exam. 24.02.2002 (Middle Zone))

LCM AND HCF

34. Three bells ring simultaneously at 11 a.m. They ring at regular intervals of 20 minutes, 30 minutes, 40 minutes respectively. The time when all the three ring together next is

- (1) 2 p.m. (2) 1 p.m.

- (3) 1.15 p.m. (4) 1.30 p.m.

(SSC CGL Tier-I Exam. 19.06.2011
(First Sitting)

35. The greatest number of four digits which when divided by 3, 5, 7, 9 leave remainders 1, 3, 5, 7 respectively is :

- (1) 9763 (2) 9764

- (3) 9766 (4) 9765

(SSC CGL DEO & LDC Exam. 21.10.2012
(IInd Sitting)

36. Five bells begin to toll together and toll respectively at intervals of 6, 7, 8, 9 and 12 seconds. After how many seconds will they toll together again ?

- (1) 72 Sec. (2) 612 Sec.

- (3) 504 Sec. (4) 318 Sec.

(SSC Constable (GD)
Exam. 12.05.2013)

37. L.C.M. of $\frac{2}{3}, \frac{4}{9}, \frac{5}{6}$ is

$$(1) \frac{8}{27} \quad (2) \frac{20}{3}$$

$$(3) \frac{10}{3} \quad (4) \frac{20}{27}$$

(SSCCGL DEO & LDC
Exam. 20.10.2013)

38. The number nearest to 10000, which is exactly divisible by each of 3, 4, 5, 6, 7 and 8, is :

- (1) 9240 (2) 10080

- (3) 9996 (4) 10000

(SSC CGL Prelim Exam.
08.02.2004 (First Sitting)

39. The largest 4-digit number exactly divisible by each of 12, 15, 18 and 27 is

- (1) 9690 (2) 9720

- (3) 9930 (4) 9960

(SSC Section Officer (Commercial Audit)
Exam. 26.11.2006 (Second
Sitting)

40. The least number, which is a perfect square and is divisible by each of the numbers 16, 20 and 24, is

- (1) 1600 (2) 3600

- (3) 6400 (4) 14400

(SSC Section Officer (Commercial Audit)
Exam. 30.09.2007 (Second
Sitting)

41. The number nearest to 43582 divisible by each of 25, 50 and 75 is :

- (1) 43500 (2) 43650

- (3) 43600 (4) 43550

(SSC CPO S.I. Exam. 16.12.2007)

42. The smallest number, which when increased by 5 is divisible by each of 24, 32, 36 and 564, is

- (1) 869 (2) 859

- (3) 4320 (4) 427

(SSC CPO S.I. Exam. 09.11.2008)

43. The greatest number, which when subtracted from 5834, gives a number exactly divisible by each of 20, 28, 32 and 35, is

- (1) 1120 (2) 4714

- (3) 5200 (4) 5600

(SSC CGL Tier-I Exam.
16.05.2010 (First Sitting))

44. The smallest perfect square divisible by each of 6, 12 and 18 is

- (1) 196 (2) 144

- (3) 108 (4) 36

(SSC (South Zone) Investigator
Exam. 12.09.2010)

45. The greatest 4-digit number exactly divisible by 10, 15, 20 is

- (1) 9990 (2) 9960

- (3) 9980 (4) 9995

(SSC Graduate Level Tier-II
Exam. 29.09.2013)

46. Find the least number which when divided separately by 15, 20, 36 and 48 leaves 3 as remainder in each case.

- (1) 183 (2) 243

- (3) 483 (4) 723

(SSC CGL Tier-II Exam. 21.09.2014)

47. Three men step off together from the same spot. Their steps measure 63 cm, 70 cm and 77 cm respectively. The minimum distance each should cover so that all can cover the distance in complete steps is

- (1) 9630 cm (2) 9360 cm

- (3) 6930 cm (4) 6950 cm

(SSC CGL Tier-II Exam. 21.09.2014)

48. Three bells ring at intervals of 36 seconds, 40 seconds and 48 seconds respectively. They start ringing together at a particular time. They will ring together after every

- (1) 6 minutes (2) 12 minutes

- (3) 18 minutes (4) 24 minutes

(SSC CGL Tier-II Online
Exam.01.12.2016)

49. The LCM of four consecutive numbers is 60. The sum of the first two numbers is equal to the fourth number. What is the sum of four numbers?

- (1) 17 (2) 14
(3) 21 (4) 24

(SSC CPO SI, ASI Online
Exam.05.06.2016) (IInd Sitting)

50. The LCM fo two prime numbers x and y , ($x > y$) is 161. The value of $(3y - x)$:

- (1) -2 (2) -1
(3) 1 (4) 2

(SSC CGL Tier-I (CBE)
Exam. 27.10.2016 (1st Sitting)

51. Three electronic devices make a beep after every 48 seconds, 72 seconds and 108 seconds respectively. They beeped together at 10 a.m. The time when they will next make a beep together at the earliest is

- (1) 10 : 07 : 12 hours
(2) 10 : 07 : 24 hours
(3) 10 : 07 : 36 hours
(4) 10 : 07 : 48 hours

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

TYPE-III

1. The maximum number of students among whom 1001 pens and 910 pencils can be distributed in such a way that each student gets same number of pens and same number of pencils, is :

- (1) 91 (2) 910
(3) 1001 (4) 1911

(SSC CGL Prelim Exam. 04.07.1999
(First Sitting))

2. The greatest number, which when divide 989 and 1327 leave remainders 5 and 7 respectively, is :

- (1) 8 (2) 16
(3) 24 (4) 32

(SSC CGL Prelim Exam. 24.02.2002
(Second Sitting))

3. H.C.F of $\frac{2}{3}, \frac{4}{5}$ and $\frac{6}{7}$ is

$$(1) \frac{48}{105} \quad (2) \frac{2}{105}$$

$$(3) \frac{1}{105} \quad (4) \frac{24}{105}$$

(SSC Graduate Level Tier-II
Exam. 16.09.2012)

4. Let N be the greatest number that will divide 1305, 4665 and 6905 leaving the same remainder in each case. Then, sum of the digits in N is :

- (1) 4 (2) 5
(3) 6 (4) 8

(SSC CGL Prelim Exam. 08.02.2004
(Second Sitting))

LCM AND HCF

- 5.** What is the greatest number that will divide 307 and 330 leaving remainders 3 and 7 respectively ?
 (1) 19 (2) 16
 (3) 17 (4) 23
 (SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting)
- 6.** Which greatest number will divide 3026 and 5053 leaving remainders 11 and 13 respectively?
 (1) 18 (2) 30
 (3) 45 (4) 60
 (SSC CPO S.I. Exam. 03.09.2006)
- 7.** The greatest number, by which 1657 and 2037 are divided to give remainders 6 and 5 respectively, is
 (1) 127 (2) 133
 (3) 235 (4) 305
 (SSC Section Officer (Commercial Audit) Exam. 26.11.2006
 (Second Sitting)
- 8.** The largest number, which divides 25, 73 and 97 to leave the same remainder in each case, is
 (1) 24 (2) 23
 (3) 21 (4) 6
 (SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting)
- 9.** What is the greatest number which will divide 110 and 128 leaving a remainder 2 in each case ?
 (1) 8 (2) 18
 (3) 28 (4) 38
 FCI Assistant Grade-III Exam. 05.02.2012 (Paper-I)
 East Zone (IInd Sitting)
- 10.** A milkman has 75 litres milk in one can and 45 litres in another. The maximum capacity of container which can measure milk of either container exact number of times is :
 (1) 1 litre (2) 5 litres
 (3) 15 litres (4) 25 litres
 (SSC CGL Prelim Exam. 24.02.2002
 (Second Sitting)
- 11.** What is the least number of square tiles required to pave the floor of a room 15 m 17 cm long and 9 m 2 cm broad?
 (1) 840 (2) 841
 (3) 820 (4) 814
 (SSC CGL Prelim Exam. 11.05.2003
 (First Sitting)
- 12.** Three sets of English, Mathematics and Science books containing 336, 240, 96 books respectively have to be stacked in such a way that all the books are stored subject-wise and the height of each stack is the same. Total number of stacks will be
 (1) 14 (2) 21
 (3) 22 (4) 48
 (SSC CGL Prelim Exam. 04.02.2007
 (First Sitting)
- 13.** A farmer has 945 cows and 2475 sheep. He farms them into flocks, keeping cows and sheep separate and having the same number of animals in each flock. If these flocks are as large as possible, then the maximum number of animals in each flock and total number of flocks required for the purpose are respectively
 (1) 15 and 228 (2) 9 and 380
 (3) 45 and 76 (4) 46 and 75
 (SSC (10+2) Level Data Entry Operator & LDC Exam. 11.12.2011
 (Ist Sitting (Delhi Zone))
- 14.** A milk vendor has 21 litres of cow milk, 42 litres of toned milk and 63 litres of double toned milk. If he wants to pack them in cans so that each can contains same litres of milk and does not want to mix any two kinds of milk in a can, then the least number of cans required is
 (1) 3 (2) 6
 (3) 9 (4) 12
 (SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (IInd Sitting))
- 15.** The greatest number that divides 411, 684, 821 and leaves 3, 4 and 5 as remainders, respectively, is
 (1) 254 (2) 146
 (3) 136 (4) 204
 (SSC FCI Assistant Grade-III Main Exam. 07.04.2013)
- 16.** Find the greatest number which will exactly divide 200 and 320.
 (1) 10 (2) 20
 (3) 16 (4) 40
 (SSC CGL Tier-II Exam. 21.09.2014)
- 17.** 84 Maths books, 90 Physics books and 120 Chemistry books have to be stacked topicwise. How many books will be there in each stack so that each stack will have the same height too ?
 (1) 12 (2) 18
 (3) 6 (4) 21
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014
- 18.** The greatest number that will divide 729 and 901 leaving remainders 9 and 5 respectively, is
 (1) 15 (2) 16
 (3) 19 (4) 20
 (SSC CHSL DEO Exam. 02.11.2014
 (Ist Sitting))
- 19.** Three tankers contain 403 litres, 434 litres, 465 litres of diesel respectively. Then the maximum capacity of a container that can measure the diesel of the three containers exact number of times is
 (1) 31 litres (2) 62 litres
 (3) 41 litres (4) 84 litres
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014
 TF No. 999 KPO)
- 20.** There are 24 peaches, 36 apricots and 60 bananas and they have to be arranged in several rows in such a way that every row contains the same number of fruits of only one type. What is the minimum number of rows required for this to happen ?
 (1) 12 (2) 9
 (3) 10 (4) 6
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IInd Sitting
 TF No. 545 QP 6)
- 21.** The greatest number by which 2300 and 3500 are divided leaving the remainders of 32 and 56 respectively, is
 (1) 136 (2) 168
 (3) 42 (4) 84
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 21.06.2015
 IInd Sitting)
- 22.** The product of two 2-digit numbers is 2160 and their H.C.F. is 12. The numbers are
 (1) (12, 60) (2) (72, 30)
 (3) (36, 60) (4) (60, 72)
 (SSC CGL Tier-I (CBE) Exam. 09.09.2016) (Ist Sitting)
- 23.** Find the greatest number that will divide 390, 495 and 300 without leaving a remainder.
 (1) 5 (2) 15
 (3) 25 (4) 35
 (SSC CGL Tier-I (CBE) Exam. 02.09.2016) (IInd Sitting)

LCM AND HCF

- 24.** In a school, 391 boys and 323 girls have been divided into the largest possible equal classes, so that each class of boys numbers the same as each class of girls. What is the number of classes?

(1) 23 (2) 19
(3) 44 (4) 17

(SSC CGL Tier-I (CBE)
Exam. 11.09.2016 (IInd Sitting)

- 25.** Two pipes of length 1.5 m and 1.2 m are to be cut into equal pieces without leaving any extra length of pipes. The greatest length of the pipe pieces of same size which can be cut from these two lengths will be

(1) 0.13 metre (2) 0.4 metre
(3) 0.3 metre (4) 0.41 metre

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

TYPE-IV

- 1.** The LCM and the HCF of the numbers 28 and 42 are in the ratio :

(1) 6 : 1 (2) 2 : 3
(3) 3 : 2 (4) 7 : 2

(SSC CGL Prelim Exam. 27.02.2000
(Second Sitting))

- 2.** If the ratio of two numbers is 2 : 3 and their L.C.M. is 54, then the sum of the two numbers is

(1) 5 (2) 15
(3) 45 (4) 270

(SSC CPO S.I. Exam. 07.09.2003)

- 3.** The ratio of two numbers is 4 : 5 and their L.C.M. is 120. The numbers are

(1) 30, 40 (2) 40, 32
(3) 24, 30 (4) 36, 20

(SSC CPO S.I. Exam. 07.09.2003)

- 4.** Three numbers are in the ratio 2 : 3 : 4 and their H.C.F. is 12. The L.C.M. of the numbers is

(1) 144 (2) 192
(3) 96 (4) 72

(SSC CGL Prelim Exam. 04.02.2007
(Second Sitting))

- 5.** Two numbers are in the ratio 3 : 4. If their LCM is 240, the smaller of the two number is

(1) 100 (2) 80
(3) 60 (4) 50

(SSC CGL Prelim Exam. 27.07.2008
(First Sitting))

- 6.** Two numbers are in the ratio 3 : 4. Their L.C.M. is 84. The greater number is

(1) 21 (2) 24
(3) 28 (4) 84

(SSC CGLTier-I Exam. 16.05.2010
(First Sitting))

- 7.** Two numbers are in the ratio 3 : 4. If their HCF is 4, then their LCM is

(1) 48 (2) 42
(3) 36 (4) 24

(SSC CGL Prelim Exam. 24.02.2002
(First Sitting) & SSC (South Zone)
Investigator Exam. 12.09.2010 &
SSC MTS Exam. 10.03.2013)

- 8.** The ratio of the sum to the LCM of two natural numbers is 7 : 12. If their HCF is 4, then the smaller number is :

(1) 20 (2) 16
(3) 12 (4) 8

(SSC CGL DEO & LDC
Exam. 11.12.2011 (IInd Sitting
(Delhi Zone))

- 9.** Two numbers are in the ratio 3 : 4. The product of their H.C.F. and L.C.M. is 2028. The sum of the numbers is

(1) 68 (2) 72
(3) 86 (4) 91

(SSC DEO Exam. 02.08.2009)

- 10.** The LCM of two numbers is 48. The numbers are in the ratio 2 : 3. The sum of the numbers is

(1) 28 (2) 32
(3) 40 (4) 64

(SSC Multi-Tasking (Non-Technical)
Staff Exam. 27.02.2011)

- 11.** The ratio of two numbers is 4 : 5 and their H.C.F. is 8. Then their L.C.M. is

(1) 130 (2) 140
(3) 150 (4) 160

(SSC CGL DEO & LDC
Exam. 04.12.2011
(IInd Sitting (North Zone))

- 12.** The ratio of two numbers is 3 : 4 and their HCF is 5. Their LCM is :

(1) 10 (2) 60
(3) 15 (4) 12

(SSC CAPFs SI & CISF ASI
Exam. 23.06.2013)

- 13.** Three numbers are in the ratio 1 : 2 : 3 and their HCF is 12. The numbers are

(1) 12, 24, 36 (2) 5, 10, 15
(3) 4, 8, 12 (4) 10, 20, 30

(SSC CGL Tier-I Exam.
19.10.2014 (Ist Sitting))

- 14.** If $x : y$ be the ratio of two whole numbers and z be their HCF, then the LCM of those two numbers is

(1) yz (2) $\frac{xz}{y}$

(3) $\frac{xy}{z}$ (4) xyz

(SSC CHSL DEO & LDC
Exam. 16.11.2014)

- 15.** The H.C.F. and L.C.M. of two numbers are 21 and 84 respectively. If the ratio the two numbers is 1 : 4, then the larger of the two numbers is

(1) 12 (2) 108
(3) 48 (4) 84

(SSC CGL Tier-II Exam.
25.10.2015, TF No. 1099685)

TYPE-V

- 1.** The product of the LCM and HCF of two numbers is 24. The difference of the two numbers is 2. Find the numbers ?

(1) 8 and 6 (2) 8 and 10
(3) 2 and 4 (4) 6 and 4

(SSC CGL Prelim Exam.
04.07.1999 (First Sitting))

- 2.** The LCM of two numbers is 495 and their HCF is 5. If the sum of the numbers is 100, then their difference is :

(1) 10 (2) 46
(3) 70 (4) 90

(SSC CGL Prelim Exam.
04.07.1999 (Second Sitting))

- 3.** Two numbers, both greater than 29, have HCF 29 and LCM 4147. The sum of the numbers is :

(1) 966 (2) 696
(3) 669 (4) 666

(SSC CGL Prelim Exam. 04.07.1999
(First Sitting), & SSC CGL Prelim
Exam. 24.02.2002 (Second Sitting))

- 4.** The sum of the H.C.F. and L.C.M of two numbers is 680 and the L.C.M. is 84 times the H.C.F. If one of the number is 56, the other is :

(1) 84 (2) 12
(3) 8 (4) 96

(SSC CGL Prelim Exam. 13.11.2005
(First Sitting))

- 5.** The sum of two numbers is 84 and their HCF is 12. Total number of such pairs of number is

(1) 2 (2) 3
(3) 4 (4) 5

(SSC HSL DEO & LDC Exam.
28.11.2010 (IInd Sitting))

- 6.** The sum of a pair of positive integer is 336 and their H.C.F. is 21. The number of such possible pairs is

(1) 2 (2) 3
(3) 4 (4) 5

(SSC CGL DEO & LDC Exam.
04.12.2011 (Ist Sitting (North Zone))

LCM AND HCF

7. The sum of two numbers is 45.

Their difference is $\frac{1}{9}$ of their

sum. Their L.C.M. is

- (1) 200 (2) 250
 (3) 100 (4) 150

(SSC CGL Prelim Exam. 04.02.2007
 (First Sitting)

8. The H.C.F. of two numbers, each having three digits, is 17 and their L.C.M. is 714. The sum of the numbers will be :

- (1) 289 (2) 391
 (3) 221 (4) 731

(SSC CPO S.I. Exam. 16.12.2007)

9. The product of the LCM and the HCF of two numbers is 24. If the difference of the numbers is 2, then the greater of the number is

- (1) 3 (2) 4
 (3) 6 (4) 8

(SSC CGL Prelim Exam. 27.07.2008
 (First Sitting)

10. The sum of two numbers is 216 and their HCF is 27. How many pairs of such numbers are there?

- (1) 1 (2) 2
 (3) 3 (4) 0

(SSC CGL Prelim Exam. 27.07.2008
 (First Sitting)

11. The LCM of two numbers is 12 times their HCF. The sum of the HCF and the LCM is 403. If one of the number is 93, then the other number is

- (1) 124 (2) 128
 (3) 134 (4) 138

(SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting)

12. Sum of two numbers is 384. H.C.F. of the numbers is 48. The difference of the numbers is

- (1) 100 (2) 192
 (3) 288 (4) 336

(SSC CPO S.I. Exam. 06.09.2009)

13. The sum of two numbers is 36 and their H.C.F and L.C.M. are 3 and 105 respectively. The sum of the reciprocals of two numbers is

- (1) $\frac{2}{35}$ (2) $\frac{3}{25}$
 (3) $\frac{4}{35}$ (4) $\frac{2}{25}$

(SSC CGL Tier-I Exam. 16.05.2010
 (Second Sitting) & SSC HSL DEO
 & LDC Exam. 28.11.2010)

14. L.C.M. of two numbers is 120 and their H.C.F. is 10. Which of the following can be the sum of those two numbers ?

- (1) 140 (2) 80
 (3) 60 (4) 70

(SSC CGL Tier-1 Exam 19.06.2011
 (Second Sitting)

15. Three numbers which are co-prime to one another are such that the product of the first two is 551 and that of the last two is 1073. The sum of the three numbers is :

- (1) 75 (2) 81
 (3) 85 (4) 89

(SSC CGL Prelim Exam. 11.05.2003
 (First Sitting)

16. The sum of two numbers is 36 and their H.C.F. is 4. How many pairs of such numbers are possible ?

- (1) 1 (2) 2
 (3) 3 (4) 4

(SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting)

17. If the HCF and LCM of two consecutive (positive) even numbers be 2 and 84 respectively, then the sum of the numbers is

- (1) 30 (2) 26
 (3) 14 (4) 34

(SSC CGL DEO & LDC Exam. 11.12.2011
 (Ist Sitting (East Zone))

18. The LCM of two positive integers is twice the larger number. The difference of the smaller number and the GCD of the two numbers is 4. The smaller number is :

- (1) 12 (2) 6
 (3) 8 (4) 10

(SSC CGL DEO & LDC Exam. 21.10.2012,
 IIInd Sitting)

19. The L.C.M. of two numbers is 20 times their H.C.F. The sum of H.C.F. and L.C.M. is 2520. If one of the number is 480, the other number is :

- (1) 400 (2) 480
 (3) 520 (4) 600

(SSC CPO S.I. Exam. 26.05.2005)

20. The LCM of two numbers is 44 times of their HCF. The sum of the LCM and HCF is 1125. If one number is 25, then the other number is

- (1) 1100 (2) 975
 (3) 900 (4) 800

(SSC CPO S.I.
 Exam 12.12.2010 (Paper-I))

21. If A and B are the H.C.F. and L.C.M. respectively of two algebraic expressions x and y , and $A + B = x + y$, then the value of $A^3 + B^3$ is

- (1) $x^3 - y^3$ (2) x^3
 (3) y^3 (4) $x^3 + y^3$

(SSC FCI Assistant Grade-III Main
 Exam. 07.04.2013)

22. HCF and LCM of two numbers are 7 and 140 respectively. If the numbers are between 20 and 45, the sum of the numbers is :

- (1) 70 (2) 77

- (3) 63 (4) 56

(SSC CGL Prelim Exam. 11.05.2003
 (First Sitting))

23. The number between 3000 and 4000 which is exactly divisible by 30, 36 and 80 is

- (1) 3625 (2) 3250
 (3) 3500 (4) 3600

(SSC CHSL (10+2) DEO & LDC
 Exam. 16.11.2014, Ist Sitting
 TF No. 333 LO 2)

24. Let x be the least number, which when divided by 5, 6, 7 and 8 leaves a remainder 3 in each case but when divided by 9 leaves no remainder. The sum of digits of x is

- (1) 21 (2) 22
 (3) 18 (4) 24

(SSC CGL Tier-II Exam,
 25.10.2015, TF No. 1099685)

25. The greatest four digit number which is exactly divisible by each one of the numbers 12, 18, 21 and 28 is

- (1) 9828 (2) 9288
 (3) 9882 (4) 9928

(SSC CHSL (10+2) LDC, DEO & PA/SA
 Exam, 01.11.2015, IInd Sitting)

26. A number x is divisible by 7. When this number is divided by 8, 12 and 16. It leaves a remainder 3 in each case. The least value of x is:

- (1) 148 (2) 149
 (3) 150 (4) 147

(SSC CHSL (10+2) LDC, DEO
 & PA/SA Exam, 15.11.2015
 (IIInd Sitting) TF No. 7203752)

27. Let x be the smallest number, which when added to 2000 makes the resulting number divisible by 12, 16, 18 and 21. The sum of the digits of x is

- (1) 7 (2) 5
 (3) 6 (4) 4

(SSC CGL Tier-II Exam,
 25.10.2015, TF No. 1099685)

LCM AND HCF

- 28.** The smallest five digit number which is divisible by 12,18 and 21 is :

(1) 10224 (2) 30256
(3) 10080 (4) 50321

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IInd Sitting) TF No. 3441135)

- 29.** A number between 1000 and 2000 which when divided by 30, 36 and 80 gives a remainder 11 in each case is

(1) 1451 (2) 1641
(3) 1712 (4) 1523

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015 (Ist Sitting) TF No. 9692918)

- 30.** The number between 4000 and 5000 that is divisible by each of 12, 18, 21 and 32 is

(1) 4023 (2) 4032
(3) 4302 (4) 4203

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015 (Ist Sitting) TF No. 9692918)

- 31.** If the product of three consecutive numbers is 210 then sum of the smaller number is :

(1) 3 (2) 4
(3) 5 (4) 11

(SSC CPO SI & ASI, Online Exam. 06.06.2016) (IInd Sitting)

TYPE-VI

- 1.** The LCM of two multiples of 12 is 1056. If one of the number is 132, the other number is

(1) 12 (2) 72
(3) 96 (4) 132

(SSC CPO S.I. Exam. 06.09.2009)

- 2.** The least number to be subtracted from 36798 to get a number which is exactly divisible by 78 is

(1) 18 (2) 60
(3) 38 (4) 68

(SSC CPO S.I. Exam. 06.09.2009)

- 3.** Find the least multiple of 23, which when divided by 18, 21 and 24 leaves the remainder 7, 10 and 13 respectively.

(1) 3013 (2) 3024
(3) 3002 (4) 3036

(SSC CGL Prelim Exam. 24.02.2002 (First Sitting))

- 4.** The greatest number, that divides 122 and 243 leaving respectively 2 and 3 as remainders, is

(1) 12 (2) 24
(3) 30 (4) 120

(SSC CGL Prelim Exam. 08.02.2004 (First Sitting))

- 5.** If $P = 2^3 \cdot 3^{10} \cdot 5$; $Q = 2^5 \cdot 3 \cdot 7$, then HCF of P and Q is :

(1) 2.3.5.7 (2) $3 \cdot 2^3$
(3) $2^2 \cdot 3^7$ (4) $2^5 \cdot 3^{10} \cdot 5 \cdot 7$

(SSC CGL DEO & LDC Exam. 11.12.2011 (IInd Sitting (East Zone))

- 6.** A fraction becomes $\frac{1}{6}$ when 4 is

subtracted from its numerator and 1 is added to its denominator. If 2 and 1 are respectively added to its numerator and the

denominator, it becomes $\frac{1}{3}$.

Then, the LCM of the numerator and denominator of the said fraction, must be

(1) 14 (2) 350
(3) 5 (4) 70

(SSC CGL DEO & LDC Exam. 04.12.2011 (IInd Sitting (North Zone))

- 7.** The HCF (GCD) of a, b is 12, a, b are positive integers and $a > b > 12$. The smallest values of (a, b) are respectively

(1) 12, 24 (2) 24, 12
(3) 24, 36 (4) 36, 24

(SSC CGL Tier-I Exam. 11.11.2012, Ist Sitting)

- 8.** The number of pair of positive integers whose sum is 99 and HCF is 9 is

(1) 2 (2) 3
(3) 4 (4) 5

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IInd Sitting)

SHORT ANSWERS

TYPE-I

1. (3)	2. (3)	3. (3)	4. (2)
5. (1)	6. (4)	7. (2)	8. (2)
9. (2)	10. (3)	11. (3)	12. (1)
13. (4)	14. (2)	15. (4)	16. (1)
17. (3)	18. (4)	19. (1)	20. (4)
21. (2)	22. (1)	23. (2)	24. (1)
25. (2)	26. (2)	27. (4)	28. (4)
29. (4)	30. (3)		

TYPE-II

1. (3)	2. (4)	3. (4)	4. (3)
5. (4)	6. (2)	7. (3)	8. (1)
9. (2)	10. (3)	11. (4)	12. (2)
13. (2)	14. (2)	15. (3)	16. (4)
17. (4)	18. (2)	19. (4)	20. (2)
21. (2)	22. (3)	23. (1)	24. (2)
25. (1)	26. (1)	27. (3)	28. (2)
29. (3)	30. (1)	31. (1)	32. (4)
33. (1)	34. (2)	35. (1)	36. (3)
37. (2)	38. (2)	39. (2)	40. (2)
41. (2)	42. (2)	43. (2)	44. (4)
45. (2)	46. (4)	47. (3)	48. (2)
49. (2)	50. (1)	51. (1)	

TYPE-III

1. (1)	2. (3)	3. (2)	4. (1)
5. (1)	6. (3)	7. (1)	8. (1)
9. (2)	10. (3)	11. (4)	12. (1)
13. (3)	14. (2)	15. (3)	16. (4)
17. (3)	18. (2)	19. (1)	20. (3)
21. (4)	22. (3)	23. (2)	24. (4)
25. (3)			

TYPE-IV

1. (1)	2. (3)	3. (3)	4. (1)
5. (3)	6. (3)	7. (1)	8. (3)
9. (4)	10. (3)	11. (4)	12. (2)
13. (1)	14. (4)	15. (4)	

TYPE-V

1. (4)	2. (1)	3. (2)	4. (4)
5. (2)	6. (3)	7. (3)	8. (3)
9. (3)	10. (2)	11. (1)	12. (3)
13. (3)	14. (4)	15. (3)	16. (3)
17. (2)	18. (3)	19. (4)	20. (1)
21. (4)	22. (3)	23. (4)	24. (3)
25. (1)	26. (4)	27. (1)	28. (3)
29. (1)	30. (2)	31. (4)	

TYPE-VI

1. (3)	2. (2)	3. (1)	4. (4)
5. (2)	6. (4)	7. (4)	8. (4)

3

SIMPLIFICATION

Importance : 1 or 2 questions based on simplification are essential part of almost every competitive exams. The difficulty level varies based on examination level.

Scope of questions : The mostly asked questions are based on complex, fractions, decimal, squares, cubes, square roots and cuberoots. Questions are completely numerical kind with no alongways.

Way to success: Note that BODMAS rule and other simplification TRICKS & RULES are completely followed. Your concentration and 'Mental calculation' will help most in these questions.

Rule 1 : An expression must be simplified by following defined order/sequence known as VBODMAS, which is given by:

1st step, V – Vineculum (line brackets)/Bar

B – Brackets

O – Of

D – Division

M – Multiplication

A – Addition

Last step, S – Subtraction

There are four types of brackets given below.

(i) – → Line/Bar

(ii) () → Simple or Small Bracket/open brackets

(iii) { } → Curly Brackets/Braces

(iv) [] → Square Brackets/Closed brackets

These brackets must be solved in given order only.

Rule 2 :

$$\frac{1}{n(n+1)} + \frac{1}{(n+1)(n+2)} + \frac{1}{(n+2)(n+3)} + \dots + \frac{1}{(n+r-1)(n+r)}$$

$$= \left(\frac{1}{n} - \frac{1}{n+1} \right) + \left(\frac{1}{n+1} - \frac{1}{n+2} \right) + \left(\frac{1}{n+2} - \frac{1}{n+3} \right)$$

$$+ \dots + \left(\frac{1}{n+r-1} - \frac{1}{n+r} \right) = \left(\frac{1}{n} - \frac{1}{n+r} \right)$$

$$\text{Rule 3 : } \frac{1}{n(n+2)} + \frac{1}{(n+2)(n+4)} + \frac{1}{(n+4)(n+6)}$$

$$+ \dots + \frac{1}{(n+2r-2)(n+2r)} = \frac{1}{2} \left(\frac{1}{n} - \frac{1}{n+2r} \right)$$

$$\text{Rule 4 : FORMULA} \rightarrow \frac{a^3+b^3}{a^2-ab+b^2} = (a+b)$$

$$\text{Rule 5 : FORMULA} \rightarrow \frac{a^3-b^3}{a^2+ab+b^2} = (a-b)$$

$$\text{Rule 6 : FORMULA} \rightarrow \frac{(a+b)^2+(a-b)^2}{(a^2+b^2)} = 2$$

$$\text{Rule 7 : FORMULA} \rightarrow a^2 + 2ab + b^2 = (a+b)^2$$

$$\text{Rule 8 : } \frac{a^2-b^2}{a-b} = a+b \text{ or, } \frac{a^2-b^2}{a+b} = a-b$$

Basic formulae

$$(i) (a+b)^2 = a^2 + 2ab + b^2$$

$$(ii) (a-b)^2 = a^2 - 2ab + b^2$$

$$(iii) (a^2 - b^2) = (a+b)(a-b)$$

$$(iv) (a+b)^2 + (a-b)^2 = 2(a^2 + b^2)$$

$$(v) (a+b)^2 - (a-b)^2 = 4ab$$

$$(vi) (a+b)^3 = a^3 + b^3 + 3ab(a+b)$$

$$(vii) (a-b)^3 = a^3 - b^3 - 3ab(a-b)$$

$$(viii) a^3 + b^3 = (a+b)(a^2 - ab + b^2)$$

$$(ix) a^3 - b^3 = (a-b)(a^2 + ab + b^2)$$

$$(x) a^3 + b^3 + c^3 - 3abc = (a+b+c)(a^2 + b^2 + c^2 - ab - bc - ca)$$

$$\text{If } a+b+c=0$$

$$\Rightarrow a^3 + b^3 + c^3 = 3abc$$

$$(xi) a^2 + \frac{1}{a^2} = \left(a + \frac{1}{a} \right)^2 - 2 = \left(a - \frac{1}{a} \right)^2 + 2$$

$$(xii) \left(a + \frac{1}{a} \right)^3 = a^3 + \frac{1}{a^3} + 3 \times \left(a + \frac{1}{a} \right)$$

$$(xiii) \left(a - \frac{1}{a} \right)^3 = a^3 - \frac{1}{a^3} - 3 \times \left(a - \frac{1}{a} \right)$$

QUESTIONS ASKED IN PREVIOUS SSC EXAMS

TYPE-I

1. Simplify : $1 + \frac{1}{1 + \frac{2}{2 + \frac{3}{1 + \frac{4}{5}}}}$

(1) $1\frac{11}{17}$

(2) $1\frac{5}{7}$

(3) $1\frac{6}{17}$

(4) $1\frac{21}{17}$

(SSC CGL Prelim Exam. 04.07.1999
(First Sitting)

2. Simplify : $1 + \frac{2}{1 + \frac{3}{1 + \frac{4}{5}}}$

(1) $\frac{7}{4}$

(2) $\frac{4}{7}$

(3) $\frac{7}{5}$

(4) $\frac{3}{7}$

(SSC CGL Prelim Exam. 04.07.1999
(First Sitting)

3. The value of

$$\frac{1}{3 + \frac{1}{2 - \frac{1}{2 - \frac{1}{9}}}} + \frac{17}{22} \text{ is :}$$

(1) $\frac{12}{22}$

(2) $\frac{22}{5}$

(3) $\frac{5}{22}$

(4) 1

(SSC CGL Prelim Exam. 24.02.2002
(First Sitting)

4. If $x = 1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{2}}}}$

then, the value of $2x + \frac{7}{4}$ is :

(1) 3

(2) 4

(3) 5

(4) 6

(SSC CGL Prelim Exam. 24.02.2002
(Second Sitting)

5. Simplify :

$$\frac{19}{43} \div \frac{1}{2 + \frac{1}{3 + \frac{1}{1 + \frac{1}{4}}}}$$

(1) 1

(2) $\frac{19}{43}$

(3) $\frac{43}{19}$

(4) $\frac{38}{43}$

(SSC CGL Prelim Exam. 24.02.2002
(Middle Zone)

6. The simplification of $\frac{5}{3 + \frac{3}{1 - \frac{2}{3}}}$

gives

(1) 5

(2) $\frac{5}{3}$

(3) $\frac{5}{12}$

(4) $\frac{3}{5}$

(SSC CPO S.I. Exam. 2.01.2003)

7. If $2 = x + \frac{1}{1 + \frac{1}{3 + \frac{1}{4}}}$, then the

value of x is :

(1) $\frac{18}{17}$

(2) $\frac{21}{17}$

(3) $\frac{13}{17}$

(4) $\frac{12}{17}$

(SSC CGL Prelim Exam. 11.05.2003
(First Sitting)

8. Find the value of

$$\frac{2}{1 + \frac{1}{1 - \frac{1}{2}}} \times \frac{3}{\frac{5}{6} \text{ of } \frac{3}{2} \div 1\frac{1}{4}}$$

(1) 6

(2) 8

(3) 4

(4) 2

(SSC CGL Prelim Exam. 11.05.2003
(Second Sitting)

9. Simplify :

$$1 + \frac{4}{2 + \frac{3}{5 - \frac{1}{2}}} (10 \div 2)$$

(1) 1

(2) 0

(3) $-\frac{15}{2}$

(4) $-\frac{1}{2}$

(SSC CGL Prelim Exam. 11.05.2003
(Second Sitting)

10.

$$\left[\left(1 + \frac{1}{10 + \frac{1}{10}} \right) \times \left(1 + \frac{1}{10 + \frac{1}{10}} \right) - \left(1 - \frac{1}{10 + \frac{1}{10}} \right) \times \left(1 - \frac{1}{10 + \frac{1}{10}} \right) \right] \div$$

$$\left[\left(1 + \frac{1}{10 + \frac{1}{10}} \right) + \left(1 - \frac{1}{10 + \frac{1}{10}} \right) \right]$$

simplifies to

(1) $\frac{100}{101}$

(2) $\frac{90}{101}$

(3) $\frac{20}{101}$

(4) $\frac{101}{100}$

(SSC CPO S.I. Exam. 07.09.2003)

11. $\frac{5\frac{9}{14}}{5 + \frac{1}{3 + \frac{1}{\frac{5}{3}}}}$ is equal to

(1) 1

(2) 1.5

(3) 2

(4) 2.5

(SSC CGL Prelim Exam. 08.02.2004
(First Sitting)

12. $\frac{2}{2 + \frac{2}{3 + \frac{2}{3 + \frac{2}{3}}}} \times 0.39$ is simplified to

(1) $\frac{1}{3}$

(2) 2

(3) 6

(4) None of these

(SSC CGL Prelim Exam. 08.02.2004
(Second Sitting)

SIMPLIFICATION

13. $1 + \frac{1}{1 + \frac{1}{2}}$ is equal to

- (1) 3 (2) $\frac{3}{2}$

- (3) $\frac{2}{3}$ (4) $\frac{5}{3}$

(SSC CPO S.I. Exam. 05.09.2004)

14. $\frac{13}{48}$ is equal to

$$(1) \frac{1}{3 + \frac{1}{1 + \frac{1}{16}}}$$

$$(2) \frac{1}{2 + \frac{1}{1 + \frac{1}{8}}}$$

$$(3) \frac{1}{3 + \frac{1}{1 + \frac{1}{1 + \frac{1}{8}}}}$$

$$(4) \frac{1}{3 + \frac{1}{1 + \frac{1}{2 + \frac{1}{4}}}}$$

(SSC CPO S.I. Exam. 03.09.2006)

15. The value of

$$1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{2}{3}}}}}$$

- (1) $\frac{21}{13}$ (2) $\frac{17}{3}$

- (3) $\frac{34}{21}$ (4) $\frac{8}{5}$

(SSC CGL Tier-1 Exam. 19.06.2011
(First Sitting)

16. The value of $\frac{2\frac{1}{3} - 1\frac{2}{11}}{3 + \frac{1}{3 + \frac{1}{3 + \frac{1}{3}}}}$ is

- (1) $\frac{38}{109}$ (2) $\frac{109}{38}$

- (3) 1 (4) $\frac{116}{109}$

(SSC CGL Tier-1 Exam 26.06.2011
(First Sitting)

17. The value of $3 + \frac{3}{3 + \frac{1}{3 + \frac{1}{3}}}$ is

- (1) $\frac{40}{11}$ (2) $\frac{43}{11}$

- (3) $\frac{46}{11}$ (4) $\frac{41}{11}$

(SSC CGL Tier-1 Exam. 26.06.2011
(Second Sitting)

18. $1 + \frac{1}{1 + \frac{1}{5}} = ?$

- (1) $\frac{11}{6}$ (2) $\frac{13}{6}$

- (3) $\frac{15}{6}$

(4) None of the above
(SSC CISF Constable (GD)
Exam. 05.06.2011)

19. $\frac{4\frac{2}{7} - \frac{1}{2}}{3\frac{1}{2} + 1\frac{1}{7}} \div \frac{1}{2 + \frac{1}{2 + \frac{1}{5 - \frac{1}{5}}}}$

is equal to

- (1) 1 (2) $\frac{1}{2}$

- (3) 2 (4) $\frac{1}{3}$

(SSC CHSL DEO & LDC Exam.
27.10.2013 IIInd Sitting)

20. If $\left[4 - \frac{5}{1 + \frac{1}{3 + \frac{1}{2 + \frac{1}{4}}}} \right]^{\text{th}}$

part of a journey takes 10 minutes, then to complete $\frac{3}{5}$ th of that journey, it will take

(1) 40 minutes (2) 45 minutes
(3) 48 minutes (4) 36 minutes
(SSC CHSL DEO & LDC Exam.
10.11.2013, Ist Sitting)

21.

$$\frac{4\frac{1}{7} - 2\frac{1}{4}}{3\frac{1}{2} + 1\frac{1}{7}} \div \frac{2}{2 + \frac{1}{2 + \frac{1}{5 - \frac{1}{5}}}}$$

is equal to

- (1) 1 (2) 4

- (3) 3 (4) 2

(SSC CHSL DEO & LDC Exam.
10.11.2013, IIInd Sitting)

22. The value of $1 + \frac{1}{1 + \frac{1}{3 + \frac{4}{5}}}$ is :

- (1) $\frac{12}{29}$ (2) $\frac{8}{19}$

- (3) $\frac{48}{29}$ (4) $\frac{2}{19}$

(SSC CAPFs SI & CISF ASI
Exam. 23.06.2013)

23. The value of $1 - \frac{a}{1 - \frac{1}{1 + \frac{a}{1-a}}}$ is

- (1) a (2) $1 - a$

- (3) 1 (4) 0

(SSC CGL Tier-I Exam. 26.10.2014)

24. On simplification, the expression

$$\frac{4\frac{1}{7} - 2\frac{1}{7}}{3\frac{1}{2} + 1\frac{1}{7}} \div \frac{1}{2 + \frac{1}{2 + \frac{1}{5 - \frac{1}{5}}}}$$

is equal to

- (1) $\frac{28}{65}$ (2) $\frac{24}{53}$

- (3) $\frac{56}{53}$ (4) $\frac{14}{65}$

(SSC CGL Tier-II Exam. 2014 12.04.2015
(Kolkata Region) TF No. 789 TH 7)

SIMPLIFICATION

25. The simplified value of :

$$\left\{ \left(1 + \frac{1}{10 + \frac{1}{10}} \right) \left(1 + \frac{1}{10 + \frac{1}{10}} \right) - \left(1 - \frac{1}{10 + \frac{1}{10}} \right) \left(1 - \frac{1}{10 + \frac{1}{10}} \right) \right\} \div$$

- (1) $\frac{20}{101}$ (2) $\frac{100}{101}$
 (3) 2 (4) $\frac{90}{101}$

(SSC CGL Tier-I Exam, 16.08.2015
 (IInd Sitting) TF No. 2176783)

26. The value of

$$4 - \frac{1}{1 + \frac{1}{3 + \frac{1}{2 + \frac{1}{4}}}} \text{ is}$$

- (1) $\frac{1}{8}$ (2) $\frac{1}{64}$
 (3) $\frac{1}{16}$ (4) $\frac{1}{32}$

(SSC CGL Tier-II Exam,
 25.10.2015, TF No. 1099685)

TYPE-II

1. Evaluate : $\frac{9|3-5|-5|4|\div 10}{-3(5)-2\times 4\div 2}$

- (1) $\frac{9}{10}$ (2) $-\frac{8}{17}$
 (3) $-\frac{16}{19}$ (4) $\frac{4}{7}$

(SSC CGL Prelim Exam. 04.07.1999
 (First Sitting))

2. $5-[4-(3-(3-3-6))]$ is equal to :
 (1) 10 (2) 6
 (3) 4 (4) 0

(SSC CGL Prelim Exam. 04.07.1999
 (First Sitting))

3. Evaluate :

$$\frac{-(4-6)^2 - 3(-2) + |-6|}{18 - 9 \div 3 \times 5}$$

- (1) $\frac{3}{8}$ (2) $\frac{4}{7}$
 (3) $\frac{8}{3}$ (4) $\frac{7}{4}$

(SSC CGL Prelim Exam. 04.07.1999
 (Second Sitting))

4. Simplify : $\frac{\frac{5}{3} \times \frac{7}{51} \text{ of } \frac{17}{5} - \frac{1}{3}}{\frac{2}{9} \times \frac{5}{7} \text{ of } \frac{28}{5} - \frac{2}{3}}$

- (1) $\frac{1}{2}$ (2) 4
 (3) 2 (4) $\frac{1}{4}$

(SSC CGL Prelim Exam. 04.07.1999
 (Second Sitting))

5. $1 - [5 - \{2 + (-5 + 6 - 2)\}]$ is equal to :

- (1) -4 (2) 2
 (3) 0 (4) -2

(SSC CGL Prelim Exam. 04.07.1999
 (Second Sitting))

6. On simplification $3034 - (1002 \div 20.04)$ is equal to

- (1) 3029 (2) 2984
 (3) 2993 (4) 2543

(SSC CGL Prelim Exam. 27.02.2000
 (First Sitting))

7. When simplified, the expression

$$(100) \frac{1}{2} \times (0.001) \frac{1}{3} -$$

$(0.0016)^{\frac{1}{4}} \times 3^0 + \left(\frac{5}{4}\right)^{-1}$ is equal to:

- (1) 1.6 (2) 0.8
 (3) 1.0 (4) 0

(SSC CGL Prelim Exam. 27.02.2000
 (First Sitting))

8. When $\left(\frac{1}{2} - \frac{1}{4} + \frac{1}{5} - \frac{1}{6}\right)$ is

divided by $\left(\frac{2}{5} - \frac{5}{9} + \frac{3}{5} - \frac{7}{18}\right)$,

the result is :

- (1) $5\frac{1}{10}$ (2) $2\frac{1}{18}$
 (3) $3\frac{1}{6}$ (4) $3\frac{3}{10}$

(SSC CGL Prelim Exam. 27.02.2000
 (Second Sitting))

9. Simplify :

$$8\frac{1}{2} - \left[3\frac{1}{4} \div \left\{ 1\frac{1}{4} - \frac{1}{2} \left(1\frac{1}{2} - \frac{1}{3} - \frac{1}{6} \right) \right\} \right]$$

- (1) $4\frac{1}{2}$ (2) $4\frac{1}{6}$
 (3) $9\frac{1}{2}$ (4) $\frac{2}{9}$

(SSC CGL Prelim Exam. 24.02.2002
 (First Sitting))

10. If $\frac{50}{*} = \frac{*}{12\frac{1}{2}}$, then the value of

- * is :
 (1) $\frac{25}{2}$ (2) $\frac{4}{25}$
 (3) 4 (4) 25

(SSC CGL Prelim Exam. 24.02.2002
 (First Sitting))

11. The value of $0.008 \times 0.01 \times 0.072 \div (0.12 \times 0.0004)$ is :

- (1) 1.2 (2) 0.12
 (3) 0.012 (4) 1.02

(SSC CGL Prelim Exam. 24.02.2002
 (First Sitting))

12. The value of

$$\frac{2}{3} \times \frac{3}{\frac{5}{6} \div \frac{2}{3} \text{ of } 1\frac{1}{4}}$$

- (1) 2 (2) 1
 (3) $\frac{1}{2}$ (4) $\frac{2}{3}$

(SSC CGL Prelim Exam. 24.02.2002
 (1st Sitting) & (SSC CGL Prelim
 Exam. 13.11.2005 (IInd Sitting))

13. Find the sum of the following :

$$\frac{1}{9} + \frac{1}{6} + \frac{1}{12} + \frac{1}{20} + \frac{1}{30} + \frac{1}{42} + \frac{1}{56} + \frac{1}{72}$$

- (1) $\frac{1}{2}$ (2) 0
 (3) $\frac{1}{9}$ (4) $\frac{1}{2520}$

(SSC CGL Prelim Exam. 24.02.2002
 (First Sitting))

14. The value of $25 - 5[2 + 3(2 - 2(5 - 3) + 5) - 10] \div 4$ is :

- (1) 5 (2) 23.25
 (3) 23.75 (4) 25

(SSC CGL Prelim Exam. 24.02.2002
 (Second Sitting))

SIMPLIFICATION

- 15.** Find the value of * in the following

$$1\frac{2}{3} \div \frac{2}{7} \times \frac{*}{7} = 1\frac{1}{4} \times \frac{2}{3} \div \frac{1}{6}$$

- (1) $\frac{1}{6}$ (2) 0.6

- (3) 0.006 (4) 6

(SSC CGL Prelim Exam. 24.02.2002
(Second Sitting)

- 16.** $9 - 1\frac{2}{9}$ of $3\frac{3}{11} \div 5\frac{1}{7}$ of $\frac{7}{9}$ is equal to :

- (1) 8 (2) 9

- (3) $8\frac{32}{81}$ (4) $\frac{3}{4}$

(SSC CGL Prelim Exam. 24.02.2002
(Second Sitting)

- 17.** The value of

$$\frac{5}{1\frac{7}{8} \text{ of } 1\frac{1}{3}} \times \frac{2\frac{1}{10}}{3\frac{1}{2}} \text{ of } 1\frac{1}{4}$$

- (1) $1\frac{1}{2}$ (2) 0.05

- (3) 1 (4) 2

(SSC CGL Prelim Exam. 24.02.2002
(Middle Zone)

- 18.** $\frac{9}{20} - \left[\frac{1}{5} + \left\{ \frac{1}{4} + \left(\frac{5}{6} - \frac{1}{3} + \frac{1}{2} \right) \right\} \right]$

is equal to

- (1) 0 (2) 1

- (3) $\frac{9}{20}$ (4) $\frac{9}{10}$

(SSC CGL Prelim Exam. 24.02.2002
(Middle Zone)

- 19.** $\frac{0.8\bar{3} \div 7.5}{2.\overline{321} - 0.09\bar{8}}$ is equal to

- (1) 0.6 (2) 0.1

- (3) 0.06 (4) 0.05

(SSC CGL Prelim Exam. 24.02.2002
(Middle Zone)

- 20.** For what value of *, statement

$$\left[\frac{(*)}{21} \times \frac{(*)}{189} \right] = 1 \text{ is correct ?}$$

- (1) 3969 (2) 147

- (3) 63 (4) 21

(SSC CGL Prelim Exam. 24.02.2002
(Middle Zone)

- 21.** If $\frac{1120}{\sqrt{P}} = 80$, then P is equal to

- (1) 14 (2) 140
(3) 196 (4) 225

(SSC CPO S.I. Exam. 12.01.2003)

$$22. \frac{3\frac{1}{4} - \frac{4}{5} \text{ of } \frac{5}{6}}{4\frac{1}{3} \div \frac{1}{5} - \left(\frac{3}{10} + 21\frac{1}{5} \right)} - \left(\frac{2}{3} \text{ of } 1\frac{1}{2} \right)$$

is equal to

- (1) 9 (2) $11\frac{1}{2}$
(3) 13 (4) $15\frac{1}{2}$

(SSC CPO S.I. Exam. 12.01.2003)

- 23.** Simplify

$$\left[\frac{3\frac{1}{4}}{4} \div \left\{ 1\frac{1}{4} - \frac{1}{2} \left(2\frac{1}{2} - \frac{1}{4} - \frac{1}{6} \right) \right\} \right] \div \left(\frac{1}{2} \text{ of } 4\frac{1}{3} \right)$$

- (1) 18 (2) 36
(3) 39 (4) 78

(SSC CPO S.I. Exam. 12.01.2003)

- 24.** The value of

$$\frac{0.1 \times 0.1 \times 0.1 + 0.2 \times 0.2 \times 0.2 + 0.3 \times 0.3 \times 0.3 - 3 \times 0.1 \times 0.2 \times 0.3}{0.1 \times 0.1 + 0.2 \times 0.2 + 0.3 \times 0.3 - 0.1 \times 0.2 - 0.2 \times 0.3 - 0.3 \times 0.1}$$

- is
(1) 0.006 (2) 0.6
(3) 0 (4) 0.2

(SSC CPO S.I. Exam. 12.01.2003)

- 25.**

$$\frac{1}{30} + \frac{1}{42} + \frac{1}{56} + \frac{1}{72} + \frac{1}{90} + \frac{1}{110} = ?$$

- (1) $\sqrt{2}\frac{2}{27}$ (2) $\frac{1}{9}$
(3) $\frac{5}{27}$ (4) $\frac{6}{55}$

(SSC CPO S.I. Exam. 12.01.2003)

- 26.** If $I = \frac{3}{4} \div \frac{5}{6}$, $II = 3 \div [(4 \div 5) \div 6]$,

$$III = [3 \div (4 \div 5)] \div 6, IV = 3 \div 4 (5 \div 6) \text{ then}$$

- (1) I and II are equal
(2) I and IV are equal
(3) I and III are equal
(4) All are equal

(SSC CPO S.I. Exam. 12.01.2003)

- 27.** The value of $1 \div [1 + 1 \div \{1 + 1 \div (1 + 1 \div 2)\}]$ is

- (1) 1 (2) $\frac{5}{8}$

- (3) 2 (4) $\frac{1}{2}$

(SSC CGL Prelim Exam. 11.05.2003
(First Sitting))

- 28.** The simplified value of

$$\frac{\frac{1}{3} \div \frac{1}{3} \times \frac{1}{3}}{\frac{1}{3} \div \frac{1}{3} \text{ of } \frac{1}{3}} - \frac{1}{9}$$

- (1) 0 (2) 1

- (3) $\frac{1}{3}$ (4) $\frac{1}{9}$

(SSC CGL Prelim Exam. 11.05.2003
(First Sitting))

- 29.** Simplify :

$$\frac{\frac{2}{4} \div \frac{7}{8} \times \left(\frac{1}{3} + \frac{1}{4} \right) + \frac{5}{7} \div \frac{3}{4} \text{ of } \frac{3}{7}}{\frac{1}{5}}$$

- (1) $\frac{56}{77}$ (2) $\frac{49}{80}$

- (3) $\frac{2}{3}$ (4) $3\frac{2}{9}$

(SSC CGL Prelim Exam. 11.05.2003
(First Sitting))

- 30.** The simplification of

$$3.\overline{36} - 2.\overline{05} + 1.\overline{33}$$

- equals : (1) 2.60 (2) 2. $\overline{61}$

- (3) 2.64 (4) 2. $\overline{64}$

(SSC CGL Prelim Exam. 11.05.2003
(First Sitting))

- 31.** The value of

$$0.9 \times 0.9 \times 0.9 + 0.2 \times 0.2 \times 0.2 + 0.3 \times 0.3$$

$$\times 0.3 - 3 \times 0.9 \times 0.2 \times 0.3$$

$$\frac{0.9 \times 0.9 + 0.2 \times 0.2 + 0.3 \times 0.3 - 0.9}{0.9 \times 0.9 + 0.2 \times 0.2 + 0.3 \times 0.3 - 0.9}$$

$$\times 0.2 - 0.2 \times 0.3 - 0.3 \times 0.9$$

is

- (1) 1.4 (2) 0.054

- (3) 0.8 (4) 1.0

(SSC CGL Prelim Exam. 11.05.2003
(Second Sitting))

SIMPLIFICATION

32. Simplify :

$$(0.\overline{1})^2 \left\{ 1 - 9 (0.\overline{16})^2 \right\}$$

$$(1) -\frac{1}{162} \quad (2) \frac{1}{108}$$

$$(3) \frac{7696}{10^6} \quad (4) \frac{1}{109}$$

(SSC CGL Prelim Exam. 11.05.2003
(Second Sitting)

33. Simplify :

$$\frac{1 + \frac{1}{2}}{1 - \frac{1}{2}} \div \frac{4}{7} \left(\frac{2}{5} + \frac{3}{10} \right) \text{ of } \frac{\frac{1}{2} + \frac{1}{3}}{\frac{1}{2} - \frac{1}{3}}$$

$$(1) \frac{2}{3} \quad (2) 37\frac{1}{2}$$

$$(3) \frac{3}{2} \quad (4) 18\frac{3}{8}$$

(SSC CGL Prelim Exam. 11.05.2003
(Second Sitting)

34. Simplify :

$$[0.9 - \{2.3 - 3.2 - (7.1 - 5.4 - 3.5)\}]$$

$$(1) 0.18 \quad (2) 1.8$$

$$(3) 0 \quad (4) 2.6$$

(SSC CGL Prelim Exam. 11.05.2003
(Second Sitting)

35. $(32)^3 + (79)^3 - (111)^3 + 3 \times 32 \times 79 \times 111$ is equal to

$$(1) 10000 \quad (2) 0$$

$$(3) 30007 \quad (4) 1$$

(SSC CPO S.I. Exam. 07.09.2003)

36. $\left(\frac{5}{2} + \frac{3}{2}\right) \left(\frac{25}{4} - \frac{15}{4} + \frac{9}{4}\right)$ is equal to

$$(1) 38 \quad (2) 19$$

$$(3) 37 \quad (4) 36$$

(SSC CPO S.I. Exam. 07.09.2003)

37. $(0.2 \times 0.2 + 0.01) (0.1 \times 0.1 + 0.02)^{-1}$ is equal to

$$(1) \frac{5}{3} \quad (2) \frac{41}{12}$$

$$(3) \frac{41}{4} \quad (4) \frac{9}{5}$$

(SSC Section Officer (Commercial Audit)
Exam. 16.11.2003)

38. $\frac{1}{2} + \left\{ 4 \frac{3}{4} - \left(3 \frac{1}{6} - 2 \frac{1}{3} \right) \right\}$ is equal to

$$(1) 3 \frac{2}{3} \quad (2) 1 \frac{1}{4}$$

$$(3) 4 \frac{5}{12} \quad (4) 1 \frac{2}{3}$$

(SSC Section Officer (Commercial Audit)
Exam. 16.11.2003)

39. The simplification of

$$\frac{1}{8} + \frac{1}{8^2} + \frac{1}{8^3} + \frac{1}{8^4} + \frac{1}{8^5} \text{ upto}$$

three-places of decimals yields

$$(1) 0.143 \quad (2) 0.163$$

$$(3) 0.215 \quad (4) 0.715$$

(SSC Section Officer (Commercial Audit)
Exam. 16.11.2003)

40. $8.7 - [7.6 - \{6.5 - (5.4 - 4.3 - 2)\}]$ is

simplified to :

$$(1) 2.5 \quad (2) 3.5$$

$$(3) 4.5 \quad (4) 5.5$$

(SSC CGL Prelim Exam. 08.02.2004
(Second Sitting)

41. The simplified value of

$$[(0.111)^3 + (0.222)^3 - (0.333)^3 + (0.333)^2 (0.222)]^3 \text{ is :}$$

$$(1) 0.999 \quad (2) 0$$

$$(3) 0.888 \quad (4) 0.111$$

(SSC CGL Prelim Exam. 08.02.2004
(Second Sitting)

42. $\frac{1 \frac{1}{4} \div 1 \frac{1}{2}}{\left(\frac{1}{15} + 1 - \frac{9}{10}\right)}$ is equal to :

$$(1) 3 \quad (2) 6$$

$$(3) \frac{2}{5} \quad (4) 5$$

(SSC CGL Prelim Exam. 08.02.2004
(Second Sitting)

43. $\frac{-\frac{1}{2} - \frac{2}{3} + \frac{4}{5} - \frac{1}{3} + \frac{1}{5} + \frac{3}{4}}{\frac{1}{2} + \frac{2}{3} - \frac{4}{3} + \frac{1}{3} - \frac{1}{5} - \frac{4}{5}}$ is sim-

plified to

$$(1) -\frac{10}{3} \quad (2) -\frac{3}{10}$$

$$(3) 1 \quad (4) -2$$

(SSC CGL Prelim Exam. 08.02.2004
(Second Sitting)

44. The simplification of

$$(0.\overline{63} + 0.\overline{37} + 0.\overline{80}) \text{ yields the result}$$

$$(1) 1.\overline{80} \quad (2) 1.\overline{81}$$

$$(3) 1.\overline{79} \quad (4) 1.80$$

(SSC CGL Prelim Exam. 08.02.2004
(Second Sitting)

$$45. \frac{(4.53 - 3.07)^2}{(3.07 - 2.15)(2.15 - 4.53)} +$$

$$\frac{(3.07 - 2.15)^2}{(2.15 - 4.53)(4.53 - 3.07)} +$$

$$\frac{(2.15 - 4.53)^2}{(4.53 - 3.07)(3.07 - 2.15)} \text{ is}$$

simplified to

$$(1) 0 \quad (2) 1$$

$$(3) 2 \quad (4) 3$$

(SSC CPO S.I. Exam. 05.09.2004)

$$46. \frac{17}{15} \times \frac{17}{15} + \frac{2}{15} \times \frac{2}{15} - \frac{17}{15} \times \frac{4}{15} \text{ is equal to}$$

$$(1) 0 \quad (2) 1$$

$$(3) 10 \quad (4) 11$$

(SSC CPO S.I. Exam. 05.09.2004)

$$47. \left(4 \frac{11}{15} + \frac{15}{71}\right)^2$$

$$-\left(4 \frac{11}{15} - \frac{15}{71}\right)^2 \text{ is equal to :}$$

$$(1) 1 \quad (2) 2$$

$$(3) 3 \quad (4) 4$$

(SSC CPO S.I. Exam. 26.05.2005)

48. The value of

$$\frac{0.1 \times 0.1 \times 0.1 + 0.02 \times 0.02 \times 0.02}{0.2 \times 0.2 \times 0.2 + 0.04 \times 0.04 \times 0.04} \text{ is :}$$

$$(1) 0.0125 \quad (2) 0.125$$

$$(3) 0.25 \quad (4) 0.5$$

(SSC CGL Prelim Exam. 13.11.2005
(First Sitting)

49. If * represents a number, then

the value of * in $5 \frac{3}{*} \times 3 \frac{1}{2} = 19$ is :

$$(1) 7 \quad (2) 4$$

$$(3) 6 \quad (4) 2$$

(SSC CGL Prelim Exam. 13.11.2005
(First Sitting)

$$50. \left(\sqrt{2} + \frac{1}{\sqrt{2}}\right)^2 \text{ is equal to :}$$

$$(1) 2 \frac{1}{2} \quad (2) 3 \frac{1}{2}$$

$$(3) 4 \frac{1}{2} \quad (4) 5 \frac{1}{2}$$

(SSC CGL Prelim Exam. 13.11.2005
(Ist Sitting) & (SSC CISF ASI
Exam. 29.08.2010)

SIMPLIFICATION

- 51.** The value of $(0.98)^3 + (0.02)^3 + 3 \times 0.98 \times 0.02 - 1$ is :
 (1) 1.98 (2) 1.09
 (3) 1 (4) 0
 (SSC CGL Prelim Exam. 13.11.2005
 (First Sitting)

- 52.** $(71 \times 29 + 27 \times 15 + 8 \times 4)$ equals
 (1) 3450 (2) 3458
 (3) 2496 (4) None of these
 (SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting)

- 53.** $(0.05 \times 5 - 0.005 \times 5)$ equals
 (1) 2.250 (2) 0.225
 (3) 0.0225 (4) 0.275
 (SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting)

- 54.** The value of

$$\sqrt[3]{\frac{0.2 \times 0.2 \times 0.2 + 0.04 \times 0.04 \times 0.04}{0.4 \times 0.4 \times 0.4 + 0.08 \times 0.08 \times 0.08}}$$

is

- (1) 0.5 (2) 0.25
 (3) 0.75 (4) 0.125

(SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting))

- 55.** $(256)^{0.16} \times (16)^{0.18}$ is equal to
 (1) 4 (2) 16
 (3) 64 (4) 256.25
 (SSC CGL Prelim Exam. 04.02.2007
 (First Sitting))

- 56.** $\left(\frac{1}{3.5} + \frac{1}{5.7} + \frac{1}{7.9} + \frac{1}{9.11} + \frac{1}{11.13} + \frac{1}{13.15} \right)$
 is equal to
 (1) $\frac{2}{45}$ (2) $\frac{4}{45}$
 (3) $\frac{7}{45}$ (4) $\frac{2}{15}$

(SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting))

- 57.** $(53 \times 87 + 159 \times 21 + 106 \times 25)$ is equal to
 (1) 16000 (2) 1060
 (3) 10600 (4) 60100
 (SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting))

- 58.** The value of $\frac{0.125 + 0.027}{0.25 - 0.15 + 0.09}$ is
 (1) 0.2 (2) 0.25
 (3) 0.3 (4) 0.8

(SSC CGL Prelim Exam. 27.07.2008 (IInd
 Sitting) & (SSC CGL Tier-I Exam.
 16.05.2010 (Ist Sitting))

- 59.** $\frac{8(3.75)^3 + 1}{(7.5)^2 - 6.5}$ is equal to

- (1) 2.75 (2) $\frac{9}{5}$

- (3) 4.75 (4) 8.5
 (SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting))

- 60.** The value of

$$\frac{(2.697 - 0.498)^2 + (2.697 + 0.498)^2}{2.697 \times 2.697 + 0.498 \times 0.498}$$

- (1) 4 (2) 2
 (3) 2.199 (4) 3.195
 (SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting))

- 61.** The least fraction to be subtracted from the expression

$$\frac{3\frac{1}{4} - \frac{4}{5} \text{ of } \frac{5}{6}}{4\frac{1}{3} \div \frac{1}{5} - \left(\frac{3}{10} + 21\frac{1}{5} \right)}$$

to make it an integer.

- (1) $\frac{1}{2}$ (2) $\frac{5}{6}$
 (3) $\frac{1}{4}$ (4) $\frac{3}{10}$

(SSC CPO S.I. Exam. 06.09.2009)

- 62.** If $\sqrt[2]{0.014 \times 0.14x} = 0.014 \times 0.14 \sqrt[2]{y}$, find the value of $\frac{x}{y}$.

- (1) 0.000196 (2) 0.00196
 (3) 0.0196 (4) 0.196

(SSC CPO S.I. Exam. 06.09.2009)

- 63.** $\frac{4.41 \times 0.16}{2.1 \times 1.6 \times 0.21}$ is simplified to

- (1) 1 (2) 0.1
 (3) 0.01 (4) 10
 (SSC CGL Tier-I Exam. 16.05.2010
 (First Sitting))

- 64.** $(0.1 \times 0.01 \times 0.001 \times 10^7)$ is equal to

- (1) 100 (2) $\frac{1}{10}$
 (3) $\frac{1}{100}$ (4) 10

(SSC CGL Tier-I Exam. 16.05.2010
 (Second Sitting))

- 65.** $\frac{3.25 \times 3.20 - 3.20 \times 3.05}{0.064}$ is equal to :

- (1) 1 (2) $\frac{1}{2}$

- (3) $\frac{1}{10}$ (4) 10

(SSC CGL Tier-I Exam. 16.05.2010
 (Second Sitting))

- 66.** $\left\{ \frac{(0.1)^2 - (0.01)^2}{0.0001} + 1 \right\}$ is equal to

- (1) 1010 (2) 110
 (3) 101 (4) 100

(SSC CGL Tier-I Exam. 16.05.2010
 (Second Sitting))

- 67.** $(0.5 \times 5 + 0.25 \times 0.5 + 0.5 \times 4 + 0.5 \times 0.75)$ is equal to

- (1) 5 (2) 10
 (3) 15 (4) 20

(SSC CISF ASI Exam. 29.08.2010
 (Paper-1))

- 68.** $\frac{(5+5+5+5) \div 5}{3+3+3+3 \div 3}$ is equal to

- (1) 1 (2) $\frac{3}{10}$
 (3) $\frac{4}{9}$ (4) $\frac{2}{5}$

(SSC (South Zone) Investigator
 Exam. 12.09.2010)

- 69.**

$$\frac{(100-1)(100-2)(100-3)\dots(100-200)}{100 \times 99 \times 98 \times \dots \times 3 \times 2 \times 1}$$

is equal to

- (1) $\frac{100}{99 \times 98 \times 97 \times \dots \times 3 \times 2 \times 1}$

- (2) $-\frac{1}{99 \times 98 \times 97 \times \dots \times 3 \times 2 \times 1}$

- (3) 0

- (4) $-\frac{2}{99 \times 98 \times 97 \times \dots \times 3 \times 2 \times 1}$

(SSC CPO S.I. Exam. 12.12.2010
 (Paper-I))

- 70.** $(0.9 \times 0.9 \times 0.9 + 0.1 \times 0.1 \times 0.1)$ is equal to

- (1) 0.73 (2) 0.82
 (3) 0.91 (4) 1.00

(SSC CPO S.I. Exam. 12.12.2010
 (Paper-I))

SIMPLIFICATION

71. Simplify:

$$\frac{0.0347 \times 0.0347 \times 0.0347 + (0.9653)^3}{(0.0347)^2 - (0.347)(0.09653) + (0.9653)^2}$$

- (1) 0.9306 (2) 1.0009
 (3) 1.0050 (4) 1

(SSC CGL Tier-1 Exam. 19.06.2011
 (First Sitting)

$$72. \text{ The value of } \frac{(3.2)^3 - 0.008}{(3.2)^2 + 0.64 + 0.04}$$

is

- (1) 0 (2) 2.994
 (3) 3.208 (4) 3

(SSC CGL Tier-1 Exam. 26.06.2011
 (Second Sitting)

73. Simplify:

$$\frac{\frac{1}{3} + \frac{1}{4} \left[\frac{2}{5} - \frac{1}{2} \right]}{1 \frac{2}{3} \text{ of } \frac{3}{4} - \frac{3}{4} \text{ of } \frac{4}{5}}$$

- (1) $\frac{37}{78}$ (2) $\frac{37}{13}$

- (3) $\frac{74}{78}$ (4) $\frac{74}{13}$

(SSC Multi-Tasking (Non-Technical)
 Staff Exam. 20.02.2011)

$$74. \frac{0.04}{0.03} \text{ of } \frac{\left(3 \frac{1}{3} - 2 \frac{1}{2}\right) \div \frac{1}{2} \text{ of } 1 \frac{1}{4}}{\frac{1}{3} + \frac{1}{5} \text{ of } \frac{1}{9}}$$

- (1) 1 (2) 5
 (3) $\frac{1}{5}$ (4) $\frac{1}{2}$

(SSC Multi-Tasking (Non-Technical)
 Staff Exam. 27.02.2011)

$$75. \frac{0.3555 \times 0.5555 \times 2.025}{0.225 \times 1.7775 \times 0.2222} \text{ is equal to :}$$

- (1) 5.4 (2) 4.58
 (3) 4.5 (4) 5.45

(SSC CHSL DEO & LDC Exam.
 04.11.2012 (IInd Sitting))

$$76. 100 \times 10 - 100 + 2000 \div 100 = ?$$

- (1) 29 (2) 920
 (3) 980 (4) 1000

(SSC Graduate Level Tier-I Exam.
 11.11.2012 (Ist Sitting))

$$77. \text{ If } \frac{547.527}{0.0082} = x, \text{ then the}$$

value of $\frac{547527}{82}$ is

- (1) $10x$ (2) $100x$

- (3) $\frac{x}{100}$ (4) $\frac{x}{10}$

(SSC CHSL DEO & LDC Exam.
 04.11.2012 Ist Sitting)

$$78. \frac{1}{1+2^{a-b}} + \frac{1}{1+2^{b-a}} \text{ is}$$

- (1) $a - b$ (2) $b - a$
 (3) 1 (4) 0

(SSC Graduate Level Tier-I
 Exam. 21.04.2013 IInd Sitting)

79. The value of

$$3 \frac{1}{2} - \left[2 \frac{1}{4} \div \left\{ 1 \frac{1}{4} - \frac{1}{2} \left(1 \frac{1}{2} - \frac{1}{3} - \frac{1}{6} \right) \right\} \right]$$

is

- (1) $\frac{1}{2}$ (2) $2 \frac{1}{2}$

- (3) $3 \frac{1}{2}$ (4) $9 \frac{1}{2}$

(SSC CHSL DEO & LDC Exam.
 27.10.2013 IInd Sitting)

$$80. 3 \frac{3}{5} \times 3 \frac{3}{5} + 2 \times 3 \frac{3}{5} \times \frac{2}{5} +$$

$$\frac{2}{5} \times \frac{2}{5} = ?$$

- (1) 15 (2) 16
 (3) 17 (4) 18

(SSC Constable (GD)
 Exam. 12.05.2013)

81. Find the sum of

$$\left(1 - \frac{1}{n+1}\right) + \left(1 - \frac{2}{n+1}\right) +$$

$$\left(1 - \frac{3}{n+1}\right) + \dots \dots \left(1 - \frac{n}{n+1}\right)$$

- (1) n (2) $\frac{1}{2}n$

- (3) $(n+1)$ (4) $\frac{1}{2}(n+1)$

(SSC Graduate Level Tier-II
 Exam. 29.09.2013)

82. The value of

$$5 \frac{1}{3} \div 1 \frac{2}{9} \times \frac{1}{4} \left(10 + \frac{3}{1 - \frac{1}{5}} \right) \text{ is}$$

- (1) 15 (2) $\frac{67}{25}$

- (3) $\frac{128}{11}$ (4) $\frac{128}{99}$

(SSC CGL Tier-I Re-Exam. (2013)
 20.07.2014 (Ist Sitting))

83. If $x [-2 \{-4 (-a)\}] + 5 [-2 \{-2 (-a)\}] = 4a$, then $x =$

- (1) -2 (2) -3
 (3) -4 (4) -5

(SSC CGL Tier-I Exam.
 19.10.2014 (Ist Sitting))

84. The value of

$$3 \div \left[(8 - 5) \div \left\{ (4 - 2) + \left(2 + \frac{8}{13} \right) \right\} \right] \text{ is}$$

- (1) $\frac{15}{17}$ (2) $\frac{13}{17}$

- (3) $\frac{15}{19}$ (4) $\frac{13}{19}$

(SSC CAPFs SI, CISF ASI & Delhi
 Police SI Exam. 22.06.2014
 TF No. 999 KPO)

85. If '+' means ' \div ', ' \times ' means ' $-$ ', ' \div ' means ' \times ' and ' $-$ ' means ' $+$ ', what will be the value of the following expression?

$$9 + 3 \div 4 - 8 \times 2 = ?$$

- (1) $6 \frac{1}{4}$ (2) $6 \frac{3}{4}$

- (3) $-1 \frac{3}{4}$ (4) 18

(SSC CAPFs SI, CISF ASI & Delhi
 Police SI Exam. 22.06.2014
 TF No. 999 KPO)

86. The simplified value of

$$\frac{4}{15} \text{ of } \frac{5}{8} \times 6 + 15 - 10 \text{ is}$$

- (1) 6 (2) 3
 (3) 5 (4) 4

(SSC CAPFs SI, CISF ASI & Delhi
 Police SI Exam. 21.06.2015
 IIInd Sitting))

SIMPLIFICATION

87. The value of the following is :

$$\frac{0.2 \times 0.02 \times 0.002 \times 32}{0.4 \times 0.04 \times 0.004 \times 16}$$

- (1) 0.20 (2) 0.50
 (3) 0.40 (4) 0.25

(SSC CAPFs (CPO) SI & ASI,
 Delhi Police Exam. 20.03.2016)
 (IIInd Sitting)

88. $(113^2 + 115^2 + 117^2 - 113 \times 115 - 115 \times 117 - 117 \times 113)$ is equal to

- (1) 0 (2) 4
 (3) 8 (4) 12

(SSC CGL Tier-I (CBE)
 Exam. 31.08.2016) (IIInd Sitting)

TYPE-III

1. Assume that

$$\sqrt{13} = 3.605 \text{ (approximately)}$$

$$\sqrt{130} = 11.40 \text{ (approximately)}$$

Find the value of :

$$\sqrt{1.3} + \sqrt{1300} + \sqrt{0.013}$$

- (1) 36.164 (2) 36.304
 (3) 37.304 (4) 37.164
 (SSC CGL Prelim Exam. 04.07.1999
 (First Sitting))

2. On simplification of

$$\frac{(2.644)^2 - (2.356)^2}{0.288}$$

we get :

- (1) 1 (2) 4
 (3) 5 (4) 6
 (SSC CGL Prelim Exam. 04.07.1999
 (First Sitting))

3. Simplification of

$$\frac{(3.4567)^2 - (3.4533)^2}{0.0034}$$

yields the result :

- (1) 6.91 (2) 7
 (3) 6.81 (4) 7.1
 (SSC CGL Prelim Exam. 04.07.1999
 (Second Sitting))

4. The value of $\frac{(0.03)^2 - (0.01)^2}{0.03 - 0.01}$ is:

- (1) 0.02 (2) 0.004
 (3) 0.4 (4) 0.04
 (SSC CGL Prelim Exam.
 04.07.1999 (Second Sitting))

5. $(\sqrt{72} - \sqrt{18}) \div \sqrt{12}$ is equal to:

- (1) $\sqrt{6}$ (2) $\sqrt{3}/2$
 (3) $\sqrt{2}/3$ (4) $\sqrt{6}/2$

(SSC CGL Prelim Exam. 27.02.2000
 (First Sitting))

6. The value of $\frac{\sqrt{80} - \sqrt{112}}{\sqrt{45} - \sqrt{63}}$ is :

- (1) $\frac{3}{4}$ (2) $1\frac{3}{4}$
 (3) $1\frac{1}{3}$ (4) $1\frac{7}{9}$

(SSC CGL Prelim Exam. 27.02.2000
 (First Sitting))

7. The value of

$$\sqrt{\frac{(0.1)^2 + (0.01)^2 + (0.009)^2}{(0.01)^2 + (0.001)^2 + (0.0009)^2}}$$

is :
 (1) 10^2 (2) 10
 (3) 0.1 (4) 0.01
 (SSC CGL Prelim Exam. 24.02.2002
 (First Sitting))

8. The value of

$$\sqrt{\frac{(0.03)^2 + (0.21)^2 + (0.065)^2}{(0.003)^2 + (0.021)^2 + (0.0065)^2}}$$

is :
 (1) 0.1 (2) 10
 (3) 10^2 (4) 10^3
 (SSC CGL Prelim Exam. 24.02.2002
 (Second Sitting))

9. The sum of

$$\sqrt{0.01} + \sqrt{0.81} + \sqrt{1.21} + \sqrt{0.0009}$$

is :
 (1) 2.1 (2) 2.13
 (3) 2.03 (4) 2.11
 (SSC CGL Prelim Exam. 24.02.2002
 (Second Sitting))

10. The value of

$$\sqrt{\frac{(6.1)^2 + (61.1)^2 + (611.1)^2}{(0.61)^2 + (6.11)^2 + (61.11)^2}}$$

is :
 (1) 0.1 (2) 1.1
 (3) 10 (4) 100
 (SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone))

11. Simplify

$$\sqrt{[(12.1)^2 - (8.1)^2] + [(0.25)^2 + (0.25)(19.95)]}$$

- (1) 1 (2) 2
 (3) 3 (4) 4

(SSC CPO S.I. Exam. 12.01.2003)

12. The value of

$$\frac{0.051 \times 0.051 \times 0.051 + 0.041 \times 0.041 \times 0.041}{0.051 \times 0.051 - 0.051 \times 0.041 + 0.041 \times 0.041}$$

- is :
 (1) 0.92 (2) 0.092
 (3) 0.0092 (4) 0.00092

(SSC CGL Prelim Exam. 11.05.2003
 (First Sitting))

13. The value of

$$\sqrt{5 + \sqrt{11 + \sqrt{19 + \sqrt{29 + \sqrt{49}}}}}$$

- is :
 (1) 3 (2) 9
 (3) 7 (4) 5
 (SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting))

14. The value of $\frac{(75.8)^2 - (55.8)^2}{20}$ is

- (1) 20 (2) 40
 (3) 121.6 (4) 131.6
 (SSC CPO S.I. Exam. 07.09.2003)

15. $\sqrt{\frac{0.25}{0.0009}} \times \sqrt{\frac{0.09}{0.36}}$ is equal to :

- (1) $\frac{5}{6}$ (2) $7\frac{1}{6}$
 (3) $7\frac{1}{3}$ (4) $8\frac{1}{3}$
 (SSC CGL Prelim Exam. 08.02.2004
 (First Sitting))

16. $\frac{(3.63)^2 - (2.37)^2}{3.63 + 2.37}$ is simplified to

- (1) 6 (2) 1.36
 (3) 2.26 (4) 1.26
 (SSC CPO S.I. Exam. 03.09.2006)

17. $\sqrt{\frac{0.081 \times 0.484}{0.0064 \times 6.25}}$ is equal to

- (1) 9 (2) 0.9
 (3) 99 (4) 0.99
 (SSC CPO S.I. Exam. 09.11.2008)

18. The simplified value of

$$\sqrt{900} + \sqrt{0.09} - \sqrt{0.000009}$$

- is :
 (1) 30.27 (2) 30.297
 (3) 30.097 (4) 30.197

(SSC CPO S.I. Exam. 06.09.2009)

SIMPLIFICATION

19. $\sqrt{\frac{0.009 \times 0.036 \times 0.016 \times 0.08}{0.002 \times 0.0008 \times 0.0002}}$

is equal to

- (1) 34 (2) 36
 (3) 38 (4) 39

(SSC CGL Tier-I Exam. 16.05.2010
 (First Sitting)

20. $\sqrt{1 \frac{1}{4} \times \frac{64}{125} \times 1.44}$ is equal to

- (1) $1 \frac{1}{25}$ (2) $\frac{24}{25}$
 (3) $\frac{23}{25}$ (4) $\frac{21}{25}$

(SSC CISF ASI Exam. 29.08.2010
 (Paper-1)

21. $\left[2\sqrt{54} - 6\sqrt{\frac{2}{3}} - \sqrt{96} \right]$ is equal to

- (1) 0 (2) 1
 (3) 2 (4) $\sqrt{6}$

(SSC CISF ASI Exam. 29.08.2010
 (Paper-1)

22. $\frac{\sqrt{24} + \sqrt{216}}{\sqrt{96}}$ is equal to

- (1) $\frac{2}{\sqrt{6}}$ (2) $2\sqrt{6}$
 (3) $4\sqrt{6}$ (4) 2

(SSC CPO Sub-Inspector
 Exam. 12.12.2010 (Paper-I)

23. The value of $\frac{4 - \sqrt{0.04}}{4 + \sqrt{0.4}}$ is close to

- (1) 0.4 (2) 0.8
 (3) 1.0 (4) 1.4

(SSC CPO S.I. Exam. 12.01.2003)

24. The value of

$$(3 + \sqrt{8}) + \frac{1}{3 - \sqrt{8}} - (6 + 4\sqrt{2})$$

- (1) 8 (2) 1
 (3) $\sqrt{2}$ (4) 0

(SSC FCI Assistant Grade-III Main
 Exam. 07.04.2013)

25. What is the square root of 0.09?

- (1) 0.3 (2) 0.03
 (3) 0.003 (4) 3.0

(SSC CGL Prelim Exam. 04.07.1999
 (First Sitting)

26. The square root of :

$$\frac{(0.75)^3}{1 - 0.75} + \left[0.75 + (0.75)^2 + 1 \right]$$

is :

- (1) 4 (2) 3
 (3) 2 (4) 1

(SSC CGL Prelim Exam. 04.07.1999
 (Second Sitting)

27. The square root of $(272^2 - 128^2)$ is :

- (1) 256 (2) 200
 (3) 240 (4) 144

(SSC CGL Prelim Exam. 27.02.2000
 (Second Sitting)

28. The value of $\sqrt{0.000441}$ is equal

- to :
 (1) 0.21 (2) 0.0021
 (3) 0.021 (4) 0.00021

(SSC CGL Prelim Exam. 24.02.2002
 (First Sitting)

29. The value of $\frac{\sqrt{0.441}}{\sqrt{0.625}}$ is equal

- to :
 (1) 0.048 (2) 0.84
 (3) 0.48 (4) 0.084

(SSC CGL Prelim Exam. 24.02.2002
 (Second Sitting)

30. The square root of

$$\frac{0.342 \times 0.684}{0.000342 \times 0.000171}$$

- is :
 (1) 250 (2) 2500
 (3) 2000 (4) 4000

(SSC CGL Prelim Exam. 24.02.2002
 (Second Sitting)

31. $\sqrt{0.00060516}$ is equal to

- (1) 0.0246 (2) 0.00246
 (3) 0.246 (4) 0.000246

(SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone))

32. The Square root of

$$\frac{9.5 \times 0.085}{0.017 \times 0.019}$$

- is :
 (1) 0.5 (2) 5
 (3) 50 (4) 500

(SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone) & SSC MTS Exam.
 17.03.2013 (IIInd Sitting)

33. Find the value of

$$\sqrt{248 + \sqrt{52 + \sqrt{144}}}$$

- (1) -16 (2) ± 16
 (3) 16 (4) 16.2

(SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone) & SSC CGL Exam.
 08.02.2004 (IIInd Sitting))

34. If $(102)^2 = 10404$ then, the value of

$$\sqrt{104.04} + \sqrt{1.0404} + \sqrt{0.010404}$$

is equal to

- (1) 0.306 (2) 0.0306
 (3) 11.122 (4) 11.322

(SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone))

35. $\sqrt{0.00004761}$ equals

- (1) 0.069 (2) 0.0069
 (3) 0.00069 (4) 0.0609

(SSC CPO S.I. Exam. 12.01.2003)

36. If $\sqrt{2} = 1.414$, the square root

of $\frac{\sqrt{2} - 1}{\sqrt{2} + 1}$ is nearest to

- (1) 0.172 (2) 0.414
 (3) 0.586 (4) 1.414

(SSC CPO S.I. Exam. 12.01.2003)

37. $\sqrt{\frac{0.00001225}{0.00005392}}$ is equal to :

- (1) $\frac{25}{77}$ (2) $\frac{35}{73}$

- (3) $\frac{35}{77}$ (4) $\frac{25}{73}$

(SSC CGL Prelim Exam. 11.05.2003
 (First Sitting))

38. The square root of $0.\bar{4}$ is :

- (1) $0.\bar{8}$ (2) $0.\bar{6}$

- (3) $0.\bar{7}$ (4) $0.\bar{9}$

(SSC CGL Prelim Exam. 08.02.2004
 (First Sitting))

39. The square root of

$$\frac{\left(3\frac{1}{4}\right)^4 - \left(4\frac{1}{3}\right)^4}{\left(3\frac{1}{4}\right)^2 - \left(4\frac{1}{3}\right)^2}$$

- (1) $7\frac{1}{12}$ (2) $5\frac{5}{12}$

- (3) $1\frac{1}{12}$ (4) $1\frac{7}{12}$

(SSC CPO S.I. Exam. 26.05.2005)

40. The positive square root of

$$[0.6 \times 0.6 \times 0.6 + 0.4 \times 0.4 \times 0.4 + 3 \times 0.6 \times 0.4]$$

is equal to

- (1) 2.1736 (2) 1
 (3) 0.21736 (4) 0.072

(SSC SAS Exam. 26.06.2010 (Paper-1))

SIMPLIFICATION

41. $\sqrt{\frac{0.49}{0.25}} + \sqrt{\frac{0.81}{0.36}}$ is equal to :

- (1) $7\frac{9}{10}$ (2) $2\frac{9}{10}$
 (3) $\frac{9}{10}$ (4) $9\frac{9}{10}$

(SSC CGL Prelim Exam. 04.07.1999
 (First Sitting)

42. If $\sqrt{x} \div \sqrt{441} = 0.02$, then value of x is :

- (1) 1.64 (2) 2.64
 (3) 1.764 (4) 0.1764

(SSC CGL Prelim Exam. 04.07.1999
 (Second Sitting)

43. Find the value of

$$\sqrt{4 + \sqrt{44 + \sqrt{10000}}}$$

- (1) 12 (2) 8
 (3) 4 (4) -4

(SSC CGL Prelim Exam. 04.07.1999
 (Second Sitting)

44. Given that

$$\sqrt{574.6} = 23.97$$

$$\sqrt{5746} = 75.8$$

then $\sqrt{0.00005746}$ equals

- (1) 0.002397 (2) 0.0002397
 (3) 0.007580 (4) 0.00758
 (SSC CPO S.I. Exam. 12.01.2003)

45.

$$\sqrt{(0.798)^2 + 0.404 \times 0.798 + (0.202)^2}$$

$$+1 = 2 ?$$

- (1) 0 (2) 2
 (3) 1.596 (4) 0.404
 (SSC CGL Prelim Exam. 11.05.2003
 (First Sitting)

46. The value of

$$\sqrt{11.981 + 7\sqrt{1.2996}}$$

is closest to

- (1) 5.1 (2) 4.9
 (3) 4.5 (4) 4.1

(SSC Section Officer (Commercial Audit)
 Exam. 16.11.2003)

47. The value of

$\sqrt{32} - \sqrt{128} + \sqrt{50}$ correct to 3 places of decimal is :

- (1) 1.732 (2) 1.141
 (3) 1.414 (4) 1.441
 (SSC CGL Prelim Exam. 08.02.2004
 (First Sitting)

48. The square root of

$$(7 + 3\sqrt{5})(7 - 3\sqrt{5})$$

is :

- (1) 4 (2) $\sqrt{5}$
 (3) $3\sqrt{5}$ (4) 2

(SSC CGL Prelim Exam. 08.02.2004
 (First Sitting)

49. The value of

$$\sqrt{400} + \sqrt{0.0400} + \sqrt{0.000004}$$

is

- (1) 0.222 (2) 20.22
 (3) 20.202 (4) 2.022

(SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting)

50. If $\sqrt{3} = 1.7321$, the value of

$$\sqrt{192} - \frac{1}{2}\sqrt{48} - \sqrt{75},$$

correct to 3

places of decimal, is

- (1) 8.661 (2) 4.331
 (3) 1.7321 (4) -1.732

(SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting)

51. $\sqrt{\frac{48.4}{0.289}}$ is equal to

- (1) $129\frac{7}{17}$ (2) $1\frac{5}{17}$

- (3) $12\frac{16}{17}$ (4) $12\frac{1}{17}$

(SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting)

52. The sum of the squares of 3 consecutive positive numbers is

365. The sum of the numbers is

- (1) 30 (2) 33
 (3) 36 (4) 45

(SSC Multi-Tasking (Non-Technical)
 Staff Exam. 20.02.2011)

53. If $\sqrt{4096} = 64$, then the value of

$$\sqrt{40.96} + \sqrt{0.4096}$$

$$+\sqrt{0.004096} + \sqrt{0.00004096}$$

up to two places of decimals is :

- (1) 7.09 (2) 7.10
 (3) 7.11 (4) 7.12

(SSC CGL Prelim Exam. 24.02.2002 (Ist
 Sitting) & SSC CGL Prelim Exam.
 13.11.2005 (Ist Sitting) & FCI Assistant
 Grade III Exam. 25.02.2012 (Paper-I)

North Zone (Ist Sitting)

54. Given that $\sqrt{13} = 3.6$ and

$\sqrt{130} = 11.4$, then the value of

$\sqrt{1.3} + \sqrt{1300} + \sqrt{0.013}$ is equal to

- (1) 36.164 (2) 37.254

- (3) 36.254 (4) 37.154

(SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting)

55. The simplified value of

$$\sqrt{5 + \sqrt{11 + \sqrt{19 + \sqrt{29 + \sqrt{49}}}}}$$

- (1) 3 (2) 2
 (3) 4 (4) 6

(SSC CPO S.I. Exam. 06.09.2009)

56. $\sqrt{110\frac{1}{4}}$ is equal to

- (1) 12.0 (2) 11.5
 (3) 11.0 (4) 10.5

(SSC CPO Sub-Inspector
 Exam 12.12.2010 (Paper-I))

57. $\sqrt{8 + \sqrt{57 + \sqrt{38 + \sqrt{108 + \sqrt{169}}}}} = ?$

- (1) 4 (2) 6
 (3) 8 (4) 10

(SSC CGL Tier-1 Exam 19.06.2011
 (First Sitting))

58. If $(10.15)^2 = 103.0225$, then the value of $\sqrt{1.030225} +$

$$\sqrt{10302.25}$$

- (1) 1025.15 (2) 103.515
 (3) 102.515 (4) 102.0515

(SSC CPO (SI, ASI & Intelligence Officer)
 Exam 28.08.2011 (Paper-I))

59. The number of digits in the square root of 625686734489 is

- (1) 4 (2) 5

- (3) 6 (4) 7

(SSC CGL Prelim Exam. 04.02.2007
 (First Sitting))

60. If the square root of 841 is 29, then 0.00000841 is equal to :

- (1) 0.029 (2) 0.0029

- (3) 0.00029 (4) 0.29

(SSC CGL Prelim Exam. 04.07.1999
 (First Sitting) & Tier-1 Exam, 16.05.2010
 (First Sitting))

61. The square root of

$$\frac{0.324 \times 0.081 \times 4.624}{1.5625 \times 0.0289 \times 72.9 \times 64}$$

is

- (1) 24 (2) 2.4

- (3) 0.024 (4) 1.2

(SSC Constable (GD) & Rifleman
 (GD) Exam. 22.04.2012 (Ist Sitting))

SIMPLIFICATION

62. The simplified value of

$\sqrt{0.25 \times 2.25}$ is

- (1) 0.075 (2) 0.705
- (3) 0.750 (4) 7.500

(SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (IInd Sitting))

63. $\sqrt{64} - \sqrt{36}$ is equal to

- (1) -2 (2) 2
- (3) 0 (4) 1

(SSC CISF Constable (GD) Exam.)

64. If $\sqrt{18225} = 135$, then the value of

$$\sqrt{18225} + \sqrt{182.25} + \sqrt{1.8225}$$

+ $\sqrt{0.018225}$ is

- (1) 14.9985 (2) 149.985
- (3) 1499.85 (4) 1.49985

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting))

65. The square root of $21\frac{51}{169}$ is

- (1) $5\frac{8}{13}$ (2) $4\frac{8}{13}$

- (3) $4\frac{3}{13}$ (4) $5\frac{5}{13}$

(SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting))

66. If $(1101)^2 = 1212201$, find the value of $\sqrt{121.2201}$.

- (1) 110.1 (2) 11.01
- (3) 1.101 (4) 11.001

(SSC CGL Tier-I Exam. 11.11.2012 (Ist Sitting))

67. The value of

$$\sqrt{\frac{0.064 \times 0.256 \times 15.625}{0.025 \times 0.625 \times 4.096}}$$

- (1) 2 (2) 2.4
- (3) 0.24 (4) 4.2

(SSC Delhi Police Sub-Inspector (SI) Exam. 19.08.2012)

68. The value of

$$\sqrt{19.36} + \sqrt{0.1936} + \sqrt{0.001936}$$

+ $\sqrt{0.00001936}$ is :

- (1) 4.8484 (2) 4.8694
- (3) 4.8884 (4) 4.8234

(SSC CAPFs SI & CISF ASI Exam. 23.06.2013)

69. The number of pairs of natural numbers, the difference of whose squares is 45 will be

- (1) 2 (2) 3
- (3) 6 (4) 5

(SSC CHSL DEO & LDC Exam. 04.11.2012, IIInd Sitting)

70. What is the value of

$$\frac{\sqrt{24} + \sqrt{216}}{\sqrt{96}} ?$$

- (1) $2\sqrt{6}$ (2) $4\sqrt{6}$
- (3) 2 (4) 4

(SSC Multi-Tasking Staff Exam. 10.03.2013)

71. Simplify :

$$\sqrt{\frac{3}{64}} \div \sqrt{9\frac{1}{7}} \times 2\sqrt{3\frac{1}{9}}$$

- (1) $\frac{45}{256}$ (2) $1\frac{17}{28}$

- (3) $4\frac{3}{8}$ (4) $2\frac{3}{16}$

(SSC Multi-Tasking Staff Exam. 17.03.2013, Ist Sitting)

72. The simplified value of

$$\frac{\sqrt{32} + \sqrt{48}}{\sqrt{8} + \sqrt{12}} \text{ is}$$

- (1) 3 (2) 2
- (3) 6 (4) 4

(SSC Multi-Tasking Staff Exam. 17.03.2013, IIInd Sitting)

73. Number of digits in the square root of 62478078 is:

- (1) 4 (2) 5
- (3) 6 (4) 3

(SSC CGL Tier-I Exam. 21.04.2013, Ist Sitting)

74. If $\left(n^r - t n + \frac{1}{4}\right)$ be a perfect

square, then the values of t are:

- (1) ± 2 (2) 1, 2
- (3) 2, 3 (4) ± 1

(SSC CGL Tier-I Exam. 21.04.2013, Ist Sitting)

75. The square root of $33 - 4\sqrt{35}$ is :

$$(1) \pm(2\sqrt{7} + \sqrt{5})$$

$$(2) \pm(\sqrt{7} + 2\sqrt{5})$$

$$(3) \pm(\sqrt{7} - 2\sqrt{5})$$

$$(4) \pm(2\sqrt{7} - \sqrt{5})$$

(SSC CGL Tier-I Exam. 21.04.2013)

76. Find the value of

$$\sqrt{156.25} + \sqrt{0.0081} - \sqrt{0.0361}$$

- (1) 13.4 (2) 15.4
- (3) 12.4 (4) 17.4

(SSC Constable (GD) Exam. 12.05.2013)

77. The fourth root of 24010000 is

- (1) 7 (2) 49
- (3) 490 (4) 70

(SSC CGL Tier-I Exam. 19.05.2013)

78. The digit at the unit's place in the square-root of 15876 is :

- (1) 8 (2) 6
- (3) 4 (4) 2

(SSC CGL Prelim Exam. 27.02.2000 (First Sitting))

79. The digit at unit's place of the number $(1570)^2 + (1571)^2 + (1572)^2 + (1573)^2$ is :

- (1) 4 (2) 1
- (3) 2 (4) 3

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting))

80. The smallest 4-digit number, which is a perfect square, is

- (1) 1009 (2) 1016
- (3) 1024 (4) 1025

(SSC CPO Sub-Inspector Exam. 05.09.2004 & SAS Exam. 26.06.2010)

81. The smallest number added to 680621 to make the sum a perfect square is :

- (1) 4 (2) 5
- (3) 6 (4) 8

(SSC CGL Prelim Exam. 13.11.2005 (First Sitting))

82. The smallest positive integer, when multiplied by 392, the product is a perfect square, is

- (1) 6 (2) 5
- (3) 3 (4) 2

(SSC CGL Prelim Exam. 13.11.2005 (Second Sitting))

83. Which smallest number must be added to 2203 so that we get a perfect square?

- (1) 1 (2) 3
- (3) 6 (4) 8

(SSC CGL Prelim Exam. 13.11.2005 (Second Sitting))

84. The number of perfect square numbers between 50 and 1000 is

- (1) 21 (2) 22
- (3) 23 (4) 24

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006 (Second Sitting))

SIMPLIFICATION

- 85.** The smallest number which should be added to the number 8958 so that the result is a perfect square is
 (1) 69 (2) 67
 (3) 77 (4) 79
 (SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting)
- 86.** The largest number of five digits, which is a perfect square is
 (1) 99999 (2) 99976
 (3) 99856 (4) 99764
 (SSC CGL Prelim Exam. 27.07.2008
 (First Sitting)
- 87.** How many perfect squares lie between 120 and 300 ?
 (1) 5 (2) 6
 (3) 7 (4) 8
 (SSC CGL Tier-I Exam. 16.05.2010
 (Second Sitting)
- 88.** The smallest number that must be subtracted from 1000 to make the resulting number a perfect square is
 (1) 37 (2) 38
 (3) 39 (4) 40
 (SSC Data Entry Operator Exam. 02.08.2009)
- 89.** The least integer which should be added to 1000 so as to make it a perfect square is
 (1) 10 (2) 18
 (3) 24 (4) 89
 (SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (1st Sitting)
- 90.** The greatest 4 digit number which is a perfect square, is
 (1) 9999 (2) 9909
 (3) 9801 (4) 9081
 (SSC CGL Tier-I Exam. 19.05.2013)
- 91.** What number must be added to the expression $16a^2 - 12a$ to make it a perfect square ?
 (1) $\frac{9}{4}$ (2) $\frac{11}{2}$
 (3) $\frac{13}{2}$ (4) 16
 (SSC CGL Tier-I Exam. 19.05.2013)
- 92.** If the number p is 5 more than q and the sum of the squares of p and q is 55, then the product of p and q is
 (1) 10 (2) -10
 (3) 15 (4) -15
 (SSC Multi-Tasking (Non-Technical) Staff Exam. 20.02.2011)
- 93.** The square root of a positive number less than 100 lies between :
 (1) 0 and 1000
 (2) 0 and 10
 (3) -10 and 10
 (4) -100 and 100
 (SSC CGL Prelim Exam. 04.07.1999
 (First Sitting)
- 94.** If the sum of two numbers is 22 and the sum of their squares is 404, then the product of the numbers is :
 (1) 40 (2) 44
 (3) 80 (4) 88
 (SSC CGL Prelim Exam. 27.02.2000
 (First Sitting)
- 95.** One-third of the square root of which number is 0.001?
 (1) 0.0009 (2) 0.000001
 (3) 0.00009 (4) None of the above
 (SSC CGL Prelim Exam. 27.02.2000
 (Second Sitting))
- 96.** Three fifth of the square of a certain number is 126.15. What is the number?
 (1) 210.25 (2) 75.69
 (3) 14.5 (4) 145
 (SSC CGL Prelim Exam. 24.02.2002
 (First Sitting) & SSC CGL Prelim Exam. 13.11.2005)
- 97.** How many positive integers less than 1000 are multiples of 11 whose square roots are whole numbers.
 (1) 2 (2) 4
 (3) 8 (4) 11
 (SSC CPO S.I. Exam. 07.09.2003)
- 98.** The number, whose square is equal to the difference of the squares of 75.15 and 60.12, is
 (1) 46.09 (2) 48.09
 (3) 45.09 (4) 47.09
 (SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting))
- 99.** The sum of the squares of two numbers is 386. If one of the numbers is 5, the other will be :
 (1) 18 (2) 19
 (3) 15 (4) 20
 (SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting))
- 100.** The number, whose square is equal to the difference between the squares of 975 and 585, is :
 (1) 780 (2) 390
 (3) 1560 (4) 130
 (SSC CPO S.I. Exam. 26.05.2005)
- 101.** If the sum and difference of two numbers are 20 and 8 respectively, then the difference of their squares is :
 (1) 12 (2) 28
 (3) 80 (4) 160
 (SSC CGL Prelim Exam. 13.11.2005
 (First Sitting))
- 102.** The sum of the squares of two positive integers is 100 and the difference of their squares is 28. The sum of the numbers is :
 (1) 12 (2) 13
 (3) 14 (4) 15
 (SSC CGL Prelim Exam. 13.11.2005
 (First Sitting))
- 103.** If x is a perfect square integer such that $7 < (2x - 3) < 17$, then the value of x is :
 (1) 25 (2) 16
 (3) 9 (4) 4
 (SSC CHSL DEO & LDC Exam. 27.11.2010)
- 104.** If the product of four consecutive natural numbers increased by a natural number p, is a perfect square; then the value of p is
 (1) 8 (2) 4
 (3) 2 (4) 1
 (SSC CPO S.I. Exam. 03.09.2006)
- 105.** Given that $\sqrt{24}$ is approximately equal to 4.898. $\sqrt{\frac{8}{3}}$ is nearly equal to
 (1) 0.544 (2) 1.333
 (3) 1.633 (4) 2.666
 (SSC CGL Prelim Exam. 04.02.2007
 (First Sitting))
- 106.** There are some boys and girls in a room. The square of the number of the girls is less than the square of the number of boys by 28. If there were two more girls, the number of boys would have been the same as that of the girls. The total number of the boys and girls in the room are
 (1) 56 (2) 14
 (3) 10 (4) 7
 (SSC CPO S.I. Exam. 16.12.2007)
- 107.** If the sum of the squares of three consecutive natural numbers is 110, then the smallest of these natural numbers is :
 (1) 8 (2) 6
 (3) 7 (4) 5
 (SSC CPO S.I. Exam. 16.12.2007)

SIMPLIFICATION

108. The product of two whole numbers is 37. The square root of the difference of the numbers is

- (1) 8 (2) 7.5
(3) 6 (4) 4.5

(SSC CPO S.I. Exam. 16.12.2007)

109. The number, whose square is equal to the difference of the squares of the numbers 68 and 32, is

- (1) 36 (2) 48
(3) 60 (4) 64

(SSC CGL Prelim Exam. 27.07.2008
(Second Sitting)

110. The sum of a positive integer and its square is 2450. The positive integer is

- (1) 45 (2) 48
(3) 49 (4) 50

(SSC (South Zone) Investigator Exam 12.09.2010)

111. The product of two numbers is 45 and their difference is 4. The sum of squares of the two numbers is

- (1) 135 (2) 240
(3) 73 (4) 106

(SSC CGL Tier-I Exam 19.06.2011
(First Sitting)

112. 1008 divided by which single digit number gives a perfect square?

- (1) 9 (2) 4
(3) 8 (4) 7

(SSC CGL Exam. 27.02.2000
(Ist Sitting)

113. The least number that must be subtracted from 63520 to make the result a perfect square is :

- (1) 16 (2) 20
(3) 24 (4) 30

(SSC CGL Exam. 24.02.2002
(IIInd Sitting)

114. What is the least number which should be subtracted from 0.000326, to have perfect square?

- (1) 0.000004 (2) 0.000002
(3) 0.04 (4) 0.02

(SSC CGL Prelim Exam. 11.05.2003 (First Sitting)

115. By which smallest number should 5808 be multiplied so that it becomes a perfect square?

- (1) 2 (2) 7
(3) 11 (4) 3

(SSC CGL Exam. 04.07.1999
(Ist Sitting)

116. By which smallest number should 20184 be multiplied so that it becomes a perfect square?

- (1) 2 (2) 3
(3) 5 (4) 6

(SSC CGL Prelim Exam. 24.02.2002
(Middle Zone)

117. The least number which must be added to 1728 to make it a perfect square is _____.

- (1) 36 (2) 32
(3) 38 (4) 30

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014

118. If $a = 64$ and $b = 289$, then the value of

$$\left(\sqrt{\sqrt{a} + \sqrt{b}} - \sqrt{\sqrt{b} - \sqrt{a}} \right)^{\frac{1}{2}}$$

- (1) $2^{\frac{1}{2}}$ (2) 2
(3) 4 (4) -2

(SSC CGL Tier-II Exam. 21.09.2014

119. $\sqrt{64009}$ is equal to

- (1) 352 (2) 523
(3) 253 (4) 532

(SSC CGL Tier-II Exam. 21.09.2014

120. A tourist spends daily as many rupees as the number of days of his total tour. If his total expenses were ₹ 361, then how many days did his tour last?

- (1) 17 days (2) 19 days
(3) 21 days (4) 31 days

121. The value of $\sqrt{10^{-6} \times 0.25}$ is

- (1) 0.0025 (2) 0.0005
(3) 0.25 (4) 0.50

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014

122. The simplified value of

$$\frac{3\sqrt{2}}{\sqrt{3} + \sqrt{6}} - \frac{4\sqrt{3}}{\sqrt{6} + \sqrt{2}}$$

$$+ \frac{\sqrt{6}}{\sqrt{3} + \sqrt{2}}$$

- (1) $\sqrt{2}$ (2) $\frac{1}{\sqrt{2}}$

- (3) $\sqrt{3} - \sqrt{2}$ (4) 0

(SSC CHSL DEO & LDC Exam. 02.11.2014 (IIInd Sitting)

123. The value of $\frac{4 - \sqrt{0.04}}{4 + \sqrt{0.4}}$ is close to

- (1) 0.4 (2) 0.8
(3) 1.0 (4) 1.4

(SSC CHSL DEO & LDC Exam. 02.11.2014 (IIInd Sitting)

124. If $\sqrt{0.05 \times 0.5 \times a} = 0.5 \times 0.05$

$\times \sqrt{b}$, then $\frac{a}{b}$ is equal to

- (1) 0.0025 (2) 0.025
(3) 0.25 (4) 0.00025

(SSC CHSL DEO & LDC Exam. 02.11.2014 (IIInd Sitting)

125. A teacher wants to arrange his students in an equal number of rows and columns. If there are 1369 students, the number of students in the last row are

- (1) 37 (2) 33
(3) 63 (4) 47

(SSC CHSL DEO & LDC Exam. 9.11.2014)

126. Which of the following is true?

- (1) $\sqrt{5} + \sqrt{3} > \sqrt{6} + \sqrt{2}$
(2) $\sqrt{5} + \sqrt{3} < \sqrt{6} + \sqrt{2}$
(3) $\sqrt{5} + \sqrt{3} = \sqrt{6} + \sqrt{2}$
(4) $(\sqrt{5} + \sqrt{3})(\sqrt{6} + \sqrt{2}) = 1$

(SSC CHSL DEO & LDC Exam. 9.11.2014)

127. The least number by which 20184 must be multiplied so as to make the product a perfect square is

- (1) 2 (2) 3
(3) 5 (4) 6

(SSC CHSL DEO Exam. 16.11.2014
(Ist Sitting)

128. 1008 divided by which single digit number gives a perfect square?

- (1) 9 (2) 4
(3) 8 (4) 7

(SSC Constable (GD) Exam. 04.10.2015, Ist Sitting)

129. The sum of two numbers is 37 and the difference of their squares is 185, then the difference between the two numbers is :

- (1) 10 (2) 4
(3) 5 (4) 3

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 15.11.2015
(Ist Sitting) TF No. 6636838)

SIMPLIFICATION

130. A General of Army wants to form a square from 36562 armies. After arrangement, he found some armies left. How many armies were left?

- (1) 81 (2) 36
 (3) 97 (4) 65

(SSC CGL Tier-II Exam. 12.04.2015
 TF No. 567 TL 9)

131. The square root of $\frac{2 + \sqrt{3}}{2}$ is

- (1) $\pm \frac{1}{\sqrt{2}}(\sqrt{3} + 1)$
 (2) $\pm \frac{1}{2}(\sqrt{3} - 2)$
 (3) None of these
 (4) $\pm \frac{1}{2}(\sqrt{3} - 1)$

(SSC CGL Tier-II Exam. 12.04.2015
 TF No. 567 TL 9)

132. The value of $(11111)^2$ is

- (1) 12344321 (2) 121212121
 (3) 123454321 (4) 11344311
 (SSC CGL Tier-II Exam. 12.04.2015
 TF No. 567 TL 9)

133. The smallest whole number that is to be multiplied with 59535 to make a perfect square number is x . The sum of digits of x is

- (1) 9 (2) 5
 (3) 7 (4) 6

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
 (Ist Sitting) TF No. 8037731)

134. The digit in the unit place in the square root of 66049 is

- (1) 3 (2) 7
 (3) 8 (4) 2
 (SSC CGL Tier-I
 Re-Exam, 30.08.2015)

135. The value of $\sqrt{0.000441}$ is equal to

- (1) 0.21 (2) 0.00021
 (3) 0.0021 (4) 0.021
 (SSC Constable (GD)
 Exam, 04.10.2015, Ist Sitting)

136. The sum of the perfect squares between 120 and 300 is

- (1) 1400 (2) 1296
 (3) 1024 (4) 1204
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IIInd Sitting)

137. The least number that should be subtracted from the number 32146 to make it a perfect square is :

- (1) 305 (2) 105
 (3) 205 (4) 405

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015
 (Ist Sitting) TF No. 1375232)

138. If $5416 * 6$ is a perfect square, then the digit at '*' is :

- (1) 9 (2) 4
 (3) 6 (4) 5

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015
 (Ist Sitting) TF No. 1375232)

139. A number of boys raised Rs. 12,544 for a famine fund, each boy has given as many rupees as there were boys. The number of boys was :

- (1) 102 (2) 112
 (3) 122 (4) 132

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015
 (IIInd Sitting) TF No. 3441135)

140. The sum of three positive numbers is 18 and their product is 162. If the sum of two numbers is equal to the third number, then the sum of squares of the numbers is

- (1) 120 (2) 126
 (3) 132 (4) 138

(SSC CGL Tier-II Online Exam.01.12.2016)

141. three numbers are such that their sum is 50, product is 3750 and the sum of their reciprocals

is $\frac{31}{150}$. Find the sum of the squares of the three numbers.

- (1) 2500 (2) 1250
 (3) 950 (4) 122

(SSC CPO SI & ASI, Online Exam. 06.06.2016) (IIInd Sitting)

142. The greatest perfect square number of 6 digits is

- (1) 999001 (2) 998001
 (3) 998009 (4) 998101

(SSC CGL Tier-I (CBE) Exam. 27.08.2016) (Ist Sitting)

143. If a perfect square, not divisible by 6, be divided by 6, the remainder will be

- (1) 1, 3 or 5 (2) 1, 2 or 5
 (3) 1, 3 or 4 (4) 1, 2 or 4

(SSC CGL Tier-I (CBE) Exam. 02.09.2016) (Ist Sitting)

144. Find the least number which must be subtracted from 18265 to make it a perfect square.

- (1) 30 (2) 38
 (3) 40 (4) 45

(SSC CGL Tier-I (CBE) Exam. 07.09.2016) (Ist Sitting)

145. If the sum of squares of two real numbers is 41 and their sum is 9, then the sum of cubes of these two numbers is

- (1) 169 (2) 209
 (3) 189 (4) 198

(SSC CGL Tier-II (CBE) Exam. 30.11.2016)

146. The product of two positive integers is 2048 and one of them is twice the other. The smaller number is

- (1) 32 (2) 64
 (3) 16 (4) 1024

(SSC CGL Tier-I (CBE) Exam. 30.08.2016) (Ist Sitting)

147. A number when divided by 6 leaves remainder 3. When the square of the same number is divided by 6, the remainder is:

- (1) 0 (2) 2
 (3) 1 (4) 3

(SSC CGL Tier-I (CBE) Exam. 02.09.2016) (IIInd Sitting)

148. Each member of a club contributes as much rupees and as much paise as the number of members of the club. If the total contribution is Rs. 2525, then the number of members of the club is

- (1) 60 (2) 45
 (3) 55 (4) 50

(SSC CGL Tier-II (CBE) Exam. 30.11.2016)

149. The sum of squares of three positive integers is 323. If the sum of squares of two numbers is twice the third, their product is

- (1) 255 (2) 260
 (3) 265 (4) 270

(SSC CGL Tier-II (CBE) Exam. 30.11.2016)

150. The difference between two numbers is 9 and the difference between their squares is 207. The numbers are :

- (1) 17 and 8 (2) 16 and 7
 (3) 15 and 6 (4) 23 and 14

(SSC CGL Tier-I (CBE) Exam. 28.08.2016 (IST Sitting))

SIMPLIFICATION

151. The least number that must be subtracted from 63520 to make the result a perfect square is

- (1) 30 (2) 24
 (3) 14 (4) 16
 (SSC CGL Tier-I (CBE)

Exam. 30.08.2016 (IIIrd Sitting)

152. The least six digit number which is a perfect square is

- (1) 100489 (2) 100000
 (3) 100256 (4) 100225
 (SSC CGL Tier-I (CBE)

Exam. 01.09.2016 (IIIrd Sitting)

153. The sum of two positive integers is 80 and the difference between them is 20. What is the difference between squares of those numbers?

- (1) 1400 (2) 1600
 (3) 1800 (4) 2000
 (SSC CGL Tier-I (CBE)

Exam. 03.09.2016 (IIIrd Sitting)

154. Twenty one times of a positive number is less than its square by 100. The value of the positive number is

- (1) 25 (2) 26
 (3) 42 (4) 41
 (SSC CGL Tier-II (CBE)

Exam. 12.01.2017)

155. A General of an Army wants to create a formation of square from 36562 army men. After arrangement, he found some army men remained unused. Then the number of such army men remained unused was

- (1) 36 (2) 65
 (3) 81 (4) 97
 (SSC CGL Tier-II (CBE)

Exam. 12.01.2017)

156. The least number to be subtracted from 16800 to make it a perfect square is

- (1) 169 (2) 219
 (3) 159 (4) 249
 (SSC Multi-Tasking Staff Exam. 30.04.2017)

TYPE-IV

1. The sum of the cubes of the numbers 22, -15 and -7 is equal to

- (1) 6930 (2) 9630
 (3) 3 (4) 0
 (SSC CPO S.I. Exam. 05.09.2004)

2. $\frac{\sqrt[3]{8}}{\sqrt{16}} \div \sqrt{\frac{100}{49}} \times \sqrt[3]{125}$ is equal to :

- (1) 7 (2) $1\frac{3}{4}$
 (3) $\frac{7}{100}$ (4) $\frac{4}{7}$
 (SSC CGL Prelim Exam. 04.07.1999
 (Second Sitting)

3. $\sqrt[3]{\frac{72.9}{0.4096}}$ is equal to :

- (1) 0.5625 (2) 5.625
 (3) 182 (4) 13.6
 (SSC CGL Prelim Exam. 27.02.2000
 (First Sitting))

4. $(5.5)^3 - (4.5)^3$ is equal to :

- (1) 1 (2) 75
 (3) 74.25 (4) 75.25
 (SSC CGL Prelim Exam. 27.02.2000
 (First Sitting))

5. The value of $\sqrt[3]{\frac{7}{875}}$ is equal to

- (1) $\frac{1}{3}$ (2) $\frac{1}{15}$
 (3) $\frac{1}{4}$ (4) $\frac{1}{5}$
 (SSC CPO S.I. Exam. 07.09.2003)

6. $\sqrt[3]{\frac{19}{513}}$ is equal to

- (1) $\frac{1}{9}$ (2) $\frac{1}{3}$
 (3) $\frac{1}{\sqrt{27}}$ (4) $\frac{1}{\sqrt{3}}$
 (SSC CPO S.I. Exam. 05.09.2004)

7.

$\sqrt[3]{(333)^3 + (333)^3 + (334)^3 - 3 \times 333 \times 333 \times 334}$ is equal to

- (1) 12 (2) 11
 (3) 10 (4) 15
 (SSC Section Officer (Commercial Audit) Exam. 30.09.2007
 (Second Sitting))

8. If cube root of 175616 is 56, then the value of

$\sqrt[3]{175.616} + \sqrt[3]{0.175616} + \sqrt[3]{0.000175616}$ is equal to :

- (1) 0.168 (2) 62.16
 (3) 6.216 (4) 6.116
 (SSC CGL Prelim Exam. 24.02.2002
 (Second Sitting))

9. $\sqrt[3]{0.000064}$ is equal to

- (1) 0.0002 (2) 0.002
 (3) 0.02 (4) 0.2
 (SSC CISF ASI Exam 29.08.2010
 (Paper-1))

10. $\sqrt[3]{15612 + \sqrt{154 + \sqrt{225}}}$ is equal

- to
 (1) 15 (2) 25
 (3) 75 (4) 125
 (SSC (South Zone) Investigator Exam 12.09.2010)

11. $\sqrt[3]{0.000125}$ is equal to

- (1) 0.5 (2) 0.15
 (3) 0.05 (4) 0.005
 (SSC (South Zone) Investigator Exam 12.09.2010)

12. The sum of the squares of 2 numbers is 146 and the square root of one of them is $\sqrt{5}$. The cube of the other number is

- (1) 1111 (2) 1221
 (3) 1331 (4) 1441
 (SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting))

13. $(\sqrt[3]{1000} + \sqrt[3]{0.008} - \sqrt[3]{0.125})$ is equal to

- (1) 9.7 (2) 9.97
 (3) 9.997 (4) 9.9997
 (SSC CPO S.I.
 Exam 12.12.2010 (Paper-I))

14. $\sqrt[3]{1 - \frac{127}{343}}$ is equal to

- (1) $\frac{5}{9}$ (2) $1 - \frac{1}{7}$
 (3) $\frac{4}{7}$ (4) $1 - \frac{2}{7}$
 (SSC CGL Tier-1 Exam 26.06.2011
 (First Sitting))

15. If $\sqrt[3]{3^n} = 27$, then the value of n is :

- (1) 9 (2) 6
 (3) 1 (4) 3
 (SSC CHSL DEO & LDC Exam.
 04.11.2012, Ist Sitting)

16. The value of $\sqrt[3]{0.000729}$ is

- (1) 0.9 (2) 0.3
 (3) 0.03 (4) 0.09
 (SSC Multi-Tasking Staff Exam.
 10.03.2013, Ist Sitting : Patna)

17. The value of $\left(\sqrt{4^3 + 15^2}\right)^3$ is :

- (1) 4913 (2) 4313
 (3) 4193 (4) 3943
 (SSC Multi-Tasking Staff Exam.
 10.03.2013)

18. $\sqrt[3]{4\frac{12}{125}}$ is equal to

- (1) 1.4 (2) 1.6
 (3) 1.8 (4) 2.4
 (SSC CPO Sub Inspector Exam. 06.09.2009) & SSC CPO S.I.
 Exam. 12.12.2010 (Paper-I) & SSC MTS Exam. 17.03.2013 (Ist Sitting))

19. By which smallest number 1323 must be multiplied, so that it becomes a perfect cube?

- (1) 2 (2) 3
 (3) 5 (4) 7
 (SSC CGL Prelim Exam. 04.07.1999
 (Second Sitting))

SIMPLIFICATION

- 20.** Sum of digits of the smallest number by which 1440 be multiplied so that it becomes a perfect cube, is
 (1) 4 (2) 6
 (3) 7 (4) 8
 (SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting)
- 21.** The sum of the digits of the smallest number which, when multiplied by 1800, gives a perfect cube, is :
 (1) 2 (2) 3
 (3) 6 (4) 8
 (SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting)
- 22.** Which smallest number must be added to 710 so that the sum is a perfect cube ?
 (1) 29 (2) 19
 (3) 11 (4) 21
 (SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting)
- 23.** The least number, by which 1944 must be multiplied so as to make the result a perfect cube, is
 (1) 2 (2) 3
 (3) 6 (4) 13
 (SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting)
- 24.** The smallest natural number, by which 3000 must be divided to make the quotient a perfect cube, is :
 (1) 3 (2) 4
 (3) 5 (4) 6
 (SSC CPO S.I. Exam. 16.12.2007)
- 25.** The smallest positive integer n , for which $864n$ is a perfect cube, is :
 (1) 1 (2) 2
 (3) 3 (4) 4
 (SSC CPO S.I. Exam. 16.12.2007)
- 26.** By what least number should 675 be multiplied so as to obtain a perfect cube number ?
 (1) 3 (2) 5
 (3) 24 (4) 40
 (SSC CGL Tier-I Exam. 16.05.2010
 (First Sitting)
- 27.** The least number, that must be added to 1720 so as to obtain a perfect cube, is
 (1) 7 (2) 8
 (3) 11 (4) 13
 (SSC SAS Exam 26.06.2010
 (Paper-1))
- 28.** By what least number should 4320 be multiplied so as to obtain a number which is a perfect cube ?
 (1) 40 (2) 50
 (3) 60 (4) 80
 (SSC CPO S.I. Exam. 12.12.2010
 (Paper-I))
- 29.** Which of the following is a perfect square as well as a cube?
 343, 125, 81, or 64
 (1) 81 (2) 125
 (3) 343 (4) 64
 (SSC CGL Prelim Exam. 27.02.2000
 (First Sitting))
- 30.** The square of a natural number subtracted from its cube is 48. The number is :
 (1) 8 (2) 6
 (3) 5 (4) 4
 (SSC CGL Prelim Exam. 27.02.2000
 (Second Sitting))
- 31.** The least possible value of A for which $90 \times A$ is a perfect cube is
 (1) 200 (2) 300
 (3) 500 (4) 600
 (SSC CPO S.I. Exam. 12.01.2003)
- 32.** If the square root of x is the cube root of y , then the relation between x and y is
 (1) $x^3 = y^2$ (2) $x^2 = y^3$
 (3) $x = y$ (4) $x^6 = y^5$
 FCI Assistant Grade-III
 Exam. 25.02.2012 (Paper-I)
 North Zone (Ist Sitting)
- 33.** If $x = \sqrt{3} + \sqrt{2}$ then the value of
 $x^3 - \frac{1}{x^3}$ is
 (1) $10\sqrt{2}$ (2) $14\sqrt{2}$
 (3) $22\sqrt{2}$ (4) $8\sqrt{2}$
 (SSC CGL Tier-I
 Re-Exam. (2013) 27.04.2014)
- 34.** The value of $(1001)^3$ is
 (1) 1003003001
 (2) 100303001
 (3) 100300301
 (4) 103003001
 (SSC CGL Tier-I Exam. 26.10.2014)
- 35.** What is the smallest number by which 625 must be divided so that the quotient is a perfect cube ?
 (1) 25 (2) 5
 (3) 2 (4) 3
 (SSC CGL Tier-II Exam. 21.09.2014)
- 36.** The sum of the cubes of two numbers is 793. The sum of the numbers is 13. Then the difference of the two numbers is
 (1) 7 (2) 6
 (3) 5 (4) 8
 (SSC CGL Tier-II Exam.
 2014 12.04.2015 (Kolkata Region)
 TF No. 789 TH 7)
- 37.** The smallest number by which 243000 be divided so that the quotient is a perfect cube is
 (1) 3 (2) 27
 (3) 9 (4) 1
 (SSC Constable (GD)
 Exam. 04.10.2015, 1st Sitting)
- 38.** When simplified, the product
 $\left(2 - \frac{1}{3}\right)\left(2 - \frac{3}{5}\right)\left(2 - \frac{5}{7}\right) \dots \left(2 - \frac{997}{999}\right)$
 equals
 (1) $\frac{5}{999}$ (2) $\frac{5}{3}$
 (3) $\frac{1001}{999}$ (4) $\frac{1001}{3}$
 (SSC CAPFs SI, CISF ASI & Delhi
 Police SI Exam, 21.06.2015
 IIInd Sitting)
- 39.** If the cube root of 79507 is 43, then the value of
 $\sqrt[3]{79507} + \sqrt[3]{0.079507} + \sqrt[3]{0.000079507}$
 is
 (1) 0.4773 (2) 477.3
 (3) 47.73 (4) 4.773
 (SSC CGL Tier-I Exam, 09.08.2015
 (IIInd Sitting) TF No. 4239378)
- 40.** Find the cube root of (-13824) .
 or
 Find the value of $\sqrt[3]{-13824}$.
 (1) 38 (2) -38
 (3) 24 (4) -24
 (SSC CGL Tier-II Online
 Exam. 01.12.2016)
- 41.** The cube of 105 is
 (1) 1157625 (2) 1175625
 (3) 1185625 (4) 1158625
 (SSC CGL Tier-I (CBE)
 Exam. 09.09.2016) (Ist Sitting)
- 42.** The least number which when divides 37044, gives the result a perfect cube, is :
 (1) 2 (2) 4
 (3) 14 (4) 21
 (SSC CGL Tier-I (CBE)
 Exam. 07.09.2016 (IIInd Sitting))
- 43.** The cube of 997 is :
 (1) 991026973 (2) 991029673
 (3) 991029773 (4) 991097273
 (SSC CGL Tier-I (CBE)
 Exam. 10.09.2016 (IIInd Sitting))
- 44.** The sum of the cubes of two numbers in the ratio 3 : 4 is 5824. The sum of the numbers is :
 (1) $(5824)^{\frac{1}{3}}$ (2) 28
 (3) 24 (4) 14
 (SSC CGL Tier-I (CBE)
 Exam. 11.09.2016 (IIInd Sitting))

4

POWER, INDICES AND SURDS

Importance : 1 or 2 questions from 'Surds and Indices' have essentially been asked in every exam. In order to accuracy in your calculations you will require complete practice of this chapter.

Scope of questions : Asked questions are based on basic concepts, completely arithmetic and without language like to evaluate/simplify, greatest/lowest number, increasing/ decreasing order, square, cube, square root, cube root and higher powers starting from easier to tougher levels.

Way to success : Note that practice to solve these questions with full concentration and accuracy is essential. Only because of small mistake or not understanding the basic concepts many students are unable to solve these questions.

INDICES

In seventeenth century a French mathematician Reni Dakata' multiplied a number several times and showed the obtained product by a special rule, which called 'indices' and the converse of indices is called surds.

Rule 1 : If any number is multiplied by the same number 'n' times, then,

$$a \times a \times a \times a \dots \times a \text{ (n times)} = a^n$$

(I) where n and a are real numbers. (including fractions)

(ii) a is called base.

(iii) n is called indices.

Rule 2 : $a^m \times a^n = a^{m+n}$

and $a^m \times a^n \times a^p = a^{m+n+p}$

While multiplying. If base is same then powers get added.

Rule 3 : While multiplying, if bases are different but powers are same then,

$$a^x \times b^x \times c^x = (abc)^x$$

Rule 4 : While dividing, if base is same then powers get subtracted, as

$$a^m \div a^n = a^{m-n}$$

Rule 5 : If there is negative indices on a number, then

$$a^{-m} = \frac{1}{a^m} \text{ or, } a^m = \frac{1}{a^{-m}}$$

Rule 6 : If there are indices on indices, then indices are multiplied. as-

$$(i) (a^m)^n = a^{mn}$$

$$(ii) (a^m)^{\frac{1}{n}} = a^{\frac{m}{n}}$$

$$(iii) \left\{ (a^m)^n \right\}^p = a^{mnp}$$

Rule 7 : (i) $a^{m^n} \neq (a^m)^n$

$$(ii) a^{m^n} \neq (a^m)^{\frac{1}{n}} \quad (\text{NOTE})$$

$$(iii) a^{m^{np}} \neq \left\{ (a^m)^n \right\}^p \quad (\text{NOTE})$$

Rule 8 : Indices as fraction.

$$(i) \left(\frac{a}{b} \right)^m = \frac{a^m}{b^m} \quad (ii) \left(\frac{a}{b} \right)^{-m} = \left(\frac{b}{a} \right)^m$$

Rule 9 : If $a^x = a^y$ then $x = y$ and
if $x^n = y^n$ then $x = y$

Rule 10 : If the indices on any number is zero, the value of that number is 1, as

$$x^0 = 1, 5^0 = 1, 10^0 = 1, (50000)^0 = 1$$

Rule 11 : If 'a' is a rational number and n is a positive integer, then, nth root of 'a', $\frac{1}{a^n}$ or $\sqrt[n]{a}$ is an irrational number, $\sqrt[n]{a}$ is called the surd of n indices, it means $\sqrt[n]{a}$ is a surd where,

(i) 'a' is a rational number. (ii) 'n' is a positive integer.

(iii) $\sqrt[n]{a}$ is an irrational number.

Rule 12 : If $\sqrt[n]{a}$ is a surd, then n is called surd indices and a is called 'Radicand'. Every surd can be an irrational number, but every irrational number can not be a surd.

Rule 13 : Mixed Surds- A surd having a rational coefficient other than unity is called a mixed surd.

Rule 14 : Pure Surd : The surds whose one factor is 1 and other factor is an irrational number, then that type of surd is called pure surd or the surd which is completely under radical sign.

Rule 15 : Similar Surds-The surds whose irrational factor is same, that is called similar surds.

Rule 16 : Irrational numbers as - $\sqrt{2}$, $\sqrt{3}$, $\sqrt{5}$, $\sqrt{7}$ etc. have infinite recurring decimals.

$$\text{Rule 17 : } \sqrt[n]{a} = (a)^{\frac{1}{n}}$$

$$\text{Rule 18 : } (\sqrt[n]{a})^n = a$$

$$\text{Rule 19 : } \sqrt[n]{ab} = \sqrt[n]{a} \times \sqrt[n]{b} = (a)^{\frac{1}{n}} \times (b)^{\frac{1}{n}}$$

$$\text{Rule 20 : } \sqrt[n]{a} = \left((a)^{\frac{1}{n}} \right)^{\frac{1}{n}} = a^{\frac{1}{n^2}}$$

$$\text{Rule 21 : } \sqrt[n]{\frac{a}{b}} = \frac{\sqrt[n]{a}}{\sqrt[n]{b}} = \left(\frac{a}{b} \right)^{\frac{1}{n}}$$

$$\text{Rule 22 : } \sqrt[mn]{a} = \sqrt[m]{\sqrt[n]{a}}$$

$$\text{Rule 23 : } \sqrt{x \sqrt{x \sqrt{x \sqrt{x \dots n \text{ times}}}}} = x^{1 - \frac{1}{x^n}}$$

Rule 24 : If $\sqrt{x - \sqrt{x - \sqrt{x - \dots \infty}}}$, where $x=n(n+1)$

then, $\sqrt{x - \sqrt{x - \sqrt{x - \dots \infty}}} = n$

Rule 25 : If $\sqrt{x + \sqrt{x + \sqrt{x + \dots \infty}}}$ where, $x=n(n+1)$

then $\sqrt{x + \sqrt{x + \sqrt{x + \dots \infty}}} = (n+1)$

Rule 26 : $\sqrt[3]{b}, \sqrt[3]{y}, \sqrt[3]{m}, \sqrt[3]{q}$

To find smallest or greatest out of these, we should equate all the indices and compare the base. $\square \square \square$

QUESTIONS ASKED IN PREVIOUS SSC EXAMS

TYPE-I

- 1.** By how much does $\sqrt{12} + \sqrt{18}$ exceed $\sqrt{3} + \sqrt{2}$?
 (1) $2(\sqrt{3} - \sqrt{2})$ (2) $2(\sqrt{3} + \sqrt{2})$
 (3) $\sqrt{3} + 2\sqrt{2}$ (4) $\sqrt{2} - 4\sqrt{3}$
 (SSC CGL Prelim Exam. 04.07.1999 (First Sitting))
- 2.** The value of $\sqrt{5+2\sqrt{6}} - \frac{1}{\sqrt{5+2\sqrt{6}}}$ is :
 (1) $2\sqrt{2}$ (2) $2\sqrt{3}$
 (3) $1+\sqrt{5}$ (4) $\sqrt{5}-1$
 (SSC CGL Prelim Exam. 04.07.1999 (First Sitting))
- 3.** The value of $\sqrt{2^4} + \sqrt[3]{64} + \sqrt[4]{2^8}$ is :
 (1) 12 (2) 16
 (3) 18 (4) 24
 (SSC CGL Prelim Exam. 04.07.1999 (First Sitting))
- 4.** $2\sqrt[3]{32} - 3\sqrt[3]{4} + \sqrt[3]{500}$ is equal to :
 (1) $4\sqrt[3]{6}$ (2) $3\sqrt{24}$
 (3) $6\sqrt[3]{4}$ (4) 916
 (SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))
- 5.** $(\sqrt{8} - \sqrt{4} - \sqrt{2})$ equals :
 (1) $2 - \sqrt{2}$ (2) $\sqrt{2} - 2$
 (3) 2 (4) -2
 (SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))
- 6.** $8^{2/3}$ is equal to :
 (1) $5\frac{1}{2}$ (2) $21\frac{1}{3}$
 (3) 4 (4) $3\frac{1}{3}$
 (SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))
- 7.** The simplified form of $(16^{\frac{3}{4}} + 16^{\frac{3}{2}})$ is :
 (1) 0 (2) $\frac{4097}{64}$
 (3) 1 (4) $\frac{16}{4097}$
 (SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))

- 8.** $16^{\frac{3}{4}}$ is equal to :
 (1) $4\sqrt{2}$ (2) 8
 (3) $2\sqrt{2}$ (4) 16
 (SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))
- 9.** $(0.01024)^{\frac{1}{5}}$ is equal to :
 (1) 4.0 (2) 0.04
 (3) 0.4 (4) 0.00004
 (SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))
- 10.** $(16^{0.16} \times 2^{0.36})$ is equal to :
 (1) 2 (2) 16
 (3) 32 (4) 64
 (SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))
- 11.** The value of $(256)^{0.16} \times (16)^{0.18}$ is :
 (1) 4 (2) -4
 (3) 16 (4) 256
 (SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))
- 12.** The value of $\frac{(243)^{0.13} \times (243)^{0.07}}{(7)^{0.25} \times (49)^{0.075} \times (343)^{0.2}}$
 (1) $\frac{3}{7}$ (2) $\frac{7}{3}$
 (3) $1\frac{3}{7}$ (4) $2\frac{2}{7}$
 (SSC CPO S.I. Exam. 12.01.2003)
- 13.** The value of :
 $\sqrt{-\sqrt{3} + \sqrt{3 + 8\sqrt{7 + 4\sqrt{3}}}}$ is
 (1) 1 (2) 2
 (3) 3 (4) 8
 (SSC CGL Prelim Exam. 11.05.2003 (First Sitting))
- 14.** $\sqrt[3]{0.004096}$ is equal to :
 (1) 4 (2) 0.4
 (3) 0.04 (4) 0.004
 (SSC CGL Prelim Exam. 11.05.2003 (Second Sitting))
- 15.** The approximate value of $\frac{3\sqrt{12}}{2\sqrt{28}} \div \frac{2\sqrt{21}}{\sqrt{98}}$ is
 (1) 1.0727 (2) 1.0606
 (3) 1.6026 (4) 1.6007
 (SSC Section Officer (Commercial Audit) Exam. 16.11.2003)
- 16.** The value of $2 + \sqrt{0.09} - \sqrt[3]{0.008} - 75\%$ of 2.80 is :
 (1) 0 (2) 0.01
 (3) -1 (4) 0.001
 (SSC CGL Prelim Exam. 08.02.2004 (First Sitting))
- 17.** The value of $(\sqrt[3]{3.5} + \sqrt[3]{2.5})(\sqrt[3]{3.5}^2 - \sqrt[3]{8.75} + (\sqrt[3]{2.5})^2)$ is :
 (1) 5.375 (2) 1
 (3) 6 (4) 5
 (SSC CGL Prelim Exam. 08.02.2004 (First Sitting))
- 18.** The value of $(3 + 2\sqrt{2})^{-3} + (3 - 2\sqrt{2})^{-3}$ is
 (1) 189 (2) 180
 (3) 108 (4) 198
 (SSC CGL Prelim Exam. 08.02.2004 (First Sitting))
- 19.** $\frac{\sqrt{5}}{\sqrt{3} + \sqrt{2}} - \frac{3\sqrt{3}}{\sqrt{5} + \sqrt{2}} + \frac{2\sqrt{2}}{\sqrt{5} + \sqrt{3}}$ is equal to :
 (1) 0 (2) $2\sqrt{15}$
 (3) $2\sqrt{10}$ (4) $2\sqrt{6}$
 (SSC CGL Prelim Exam. 08.02.2004 (First Sitting))
- 20.** When $(4 + \sqrt{7})$ is presented in the form of perfect square it will be equal to
 (1) $(2 + \sqrt{7})^2$ (2) $\left(\frac{\sqrt{7}}{2} + \frac{1}{2}\right)^2$
 (3) $\left\{\frac{1}{\sqrt{2}}(\sqrt{7} + 1)\right\}^2$ (4) $(\sqrt{3} + \sqrt{4})^2$
 (SSC Section Officer (Commercial Audit) Exam. 25.09.2005)
- 21.** The value of
 $\frac{1}{\sqrt{3.25} + \sqrt{2.25}} + \frac{1}{\sqrt{4.25} + \sqrt{3.25}} + \frac{1}{\sqrt{5.25} + \sqrt{4.25}} + \frac{1}{\sqrt{6.25} + \sqrt{5.25}}$ is
 (1) 1.00 (2) 1.25
 (3) 1.50 (4) 2.25
 (SSC CPO S.I. Exam. 05.09.2004)

POWER, INDICES AND SURDS

22. The simplified form of

$$\frac{2}{\sqrt{7} + \sqrt{5}} + \frac{7}{\sqrt{12} - \sqrt{5}} - \frac{5}{\sqrt{12} - \sqrt{7}}$$

is :

- (1) 5 (2) 2
(3) 1 (4) 0

(SSC CPO S.I. Exam. 26.05.2005)

23. $\left(\frac{1}{2}\right)^{-\frac{1}{2}}$ is equal to

- (1) $\frac{1}{\sqrt{2}}$ (2) $2\sqrt{2}$
(3) $-\sqrt{2}$ (4) $\sqrt{2}$

(SSC Section Officer (Commercial Audit) Exam. 25.09.2005 & SSC HSL DEO & LDC Exam. 28.11.2010)

24. $\frac{1}{\sqrt{3} + \sqrt{4}} + \frac{1}{\sqrt{4} + \sqrt{5}} + \frac{1}{\sqrt{5} + \sqrt{6}} + \frac{1}{\sqrt{6} + \sqrt{7}} + \frac{1}{\sqrt{7} + \sqrt{8}} + \frac{1}{\sqrt{8} + \sqrt{9}}$ is equal to

- (1) $\sqrt{3}$ (2) $3\sqrt{3}$
(3) $3 - \sqrt{3}$ (4) $5 - \sqrt{3}$

(SSC Section Officer (Commercial Audit) Exam. 25.09.2005)

25. $(16)^{0.16} \times (16)^{0.04} \times (2)^{0.2}$ is equal to :

- (1) 1 (2) 2
(3) 4 (4) 16

(SSC CGL Prelim Exam. 13.11.2005
(First Sitting)

26. $\frac{12}{3 + \sqrt{5} + 2\sqrt{2}}$ is equal to

- (1) $1 - \sqrt{5} + \sqrt{2} + \sqrt{10}$
(2) $1 + \sqrt{5} + \sqrt{2} - \sqrt{10}$
(3) $1 + \sqrt{5} - \sqrt{2} + \sqrt{10}$
(4) $1 - \sqrt{5} - \sqrt{2} + \sqrt{10}$

(SSC CGL Prelim Exam. 04.02.2007
(First Sitting)

27. $\left(3 + \frac{1}{\sqrt{3}} + \frac{1}{3 + \sqrt{3}} + \frac{1}{\sqrt{3} - 3}\right)$ is equal to

- (1) 1 (2) 3
(3) $3 + \sqrt{3}$ (4) $3 - \sqrt{3}$

(SSC CGL Prelim Exam. 04.02.2007 (IInd Sitting) & SSC CGL Tier-I Exam. 19.06.2011 (IInd Sitting) & SSC (10+2) DEO & LDC Exam. 20.10.2013)

28. $\sqrt{8 - 2\sqrt{15}}$ is equal to :

- (1) $\sqrt{5} + \sqrt{3}$ (2) $5 - \sqrt{3}$
(3) $\sqrt{5} - \sqrt{3}$ (4) $3 - \sqrt{5}$

(SSC CPO S.I. Exam. 16.12.2007)

29. $(0.04)^{(-1.5)}$ is equal to

- (1) 25 (2) 125
(3) 60 (4) 5

(SSC CGL Prelim Exam. 27.07.2008
(Second Sitting)

30. The value of

$$\sqrt[3]{1372} \times \sqrt[3]{1458} \div \sqrt[3]{343}$$

- (1) 18 (2) 15
(3) 13 (4) 12

(SSC CGL Prelim Exam. 27.07.2008
(Second Sitting)

31. $\left(\frac{2}{\sqrt{5} + \sqrt{3}} - \frac{3}{\sqrt{6} - \sqrt{3}} + \frac{1}{\sqrt{6} + \sqrt{5}}\right)$ is equal to

- (1) $2\sqrt{6}$ (2) $2\sqrt{5}$
(3) $2\sqrt{3}$ (4) 0

(SSC CPO S.I. Exam. 09.11.2008)

32. $\frac{1}{3 - \sqrt{8}} - \frac{1}{\sqrt{8} - \sqrt{7}} + \frac{1}{\sqrt{7} - \sqrt{6}} - \frac{1}{\sqrt{6} - \sqrt{5}} + \frac{1}{\sqrt{5} - 2} =$

- (1) 5 (2) 4
(3) 3 (4) 2

(SSC CPO S.I. Exam. 06.09.2009
& SSC MTS (Non-Tech.)
Exam. 20.02.2011)

33. $\frac{3\sqrt{2} + 2\sqrt{3}}{3\sqrt{2} - 2\sqrt{3}}$ is equal to

- (1) $5 + 2\sqrt{6}$ (2) $\frac{3 + 2\sqrt{6}}{2}$
(3) $5 - 2\sqrt{3}$ (4) $5 + 2\sqrt{3}$

(SSC CISF ASI Exam 29.08.2010
(Paper-1))

34. The value of

$$\frac{2 + \sqrt{3}}{2 - \sqrt{3}} + \frac{2 - \sqrt{3}}{2 + \sqrt{3}} + \frac{\sqrt{3} + 1}{\sqrt{3} - 1}$$

- (1) $16 + \sqrt{3}$ (2) $4 - \sqrt{3}$
(3) $2 - \sqrt{3}$ (4) $2 + \sqrt{3}$

(SSC CGL Tier-I Exam 19.06.2011
(First Sitting))

35. The square root of $14 + 6\sqrt{5}$ is

- (1) $2 + \sqrt{5}$ (2) $3 + \sqrt{5}$
(3) $5 + \sqrt{3}$ (4) $3 + 2\sqrt{5}$

(SSC CGL Tier-I Exam. 19.06.2011
(First Sitting))

36. The value of

$$\frac{3\sqrt{2}}{\sqrt{3} + \sqrt{6}} - \frac{4\sqrt{3}}{\sqrt{6} + \sqrt{2}} + \frac{\sqrt{6}}{\sqrt{3} + \sqrt{2}}$$

- (1) 4 (2) 0

- (3) $\sqrt{2}$ (4) $3\sqrt{6}$

(SSC CGL Prelim Exam. 11.05.2003
(IInd Sitting) & SSC CPO S.I. 16.12.2007
& SSC CGL 27.07.2008 (Ist Sitting) &
SSC CGL Tier-I Exam. 26.06.2011
(Ist Sitting) & SSC CGL
Tier-II Exam. 29.09.2013)

37. Simplify : $\left(\frac{\frac{3}{2 + \sqrt{3}} - \frac{2}{2 - \sqrt{3}}}{2 - 5\sqrt{3}}\right)$

- (1) $\frac{1}{2} - 5\sqrt{3}$ (2) $2 - 5\sqrt{3}$

- (3) 1 (4) 0

(SSC CGL Prelim Exam. 04.07.1999
(Second Sitting))

38. $(64)^{-\frac{2}{3}} \times \left(\frac{1}{4}\right)^{-2}$ is equal to :

- (1) 1 (2) 2

- (3) $\frac{1}{2}$ (4) $\frac{1}{16}$

(SSC CGL Prelim Exam. 27.02.2000
(First Sitting))

39. $\left(\frac{1 + \sqrt{2}}{\sqrt{5} + \sqrt{3}} + \frac{1 - \sqrt{2}}{\sqrt{5} - \sqrt{3}}\right)$

simplifies to :

- (1) $\sqrt{5} + \sqrt{6}$ (2) $2\sqrt{5} + \sqrt{6}$

- (3) $\sqrt{5} - \sqrt{6}$ (4) $2\sqrt{5} - 3\sqrt{6}$

(SSC CGL Prelim Exam. 27.02.2000
(First Sitting))

40. $\left(\frac{2 + \sqrt{3}}{2 - \sqrt{3}} + \frac{2 - \sqrt{3}}{2 + \sqrt{3}} + \frac{\sqrt{3} - 1}{\sqrt{3} + 1}\right)$

simplifies to :

- (1) $2 - \sqrt{3}$ (2) $2 + \sqrt{3}$

- (3) $16 - \sqrt{3}$ (4) $40 - \sqrt{3}$

(SSC CGL Prelim Exam. 27.02.2000
(Second Sitting))

POWER, INDICES AND SURDS

- 41.** $\left(\frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}\right)^2 + \left(\frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}}\right)^2$
is equal to :
(1) 64 (2) 62
(3) 66 (4) 68
(SSC CGL Prelim Exam. 27.02.2000
(Second Sitting))
- 42.** The value of

$$\frac{\sqrt{(\sqrt{12}-\sqrt{8})(\sqrt{3}+\sqrt{2})}}{5+\sqrt{24}}$$
 is :
(1) $\sqrt{6}-\sqrt{2}$ (2) $\sqrt{6}+\sqrt{2}$
(3) $\sqrt{6}-2$ (4) $2-\sqrt{6}$
(SSC CGL Prelim Exam. 24.02.2002
(First Sitting))
- 43.** Simplify :

$$\left[64^{\frac{2}{3}} \times 2^{-2} \div 8^0\right]^{\frac{1}{2}}$$

(1) 0 (2) 1
(3) 2 (4) $\frac{1}{2}$
(SSC CGL Prelim Exam. 24.02.2002
(First Sitting))
- 44.** The value of

$$\frac{1}{\sqrt{(12-\sqrt{140})}} - \frac{1}{\sqrt{(8-\sqrt{60})}} - \frac{2}{\sqrt{10+\sqrt{84}}}$$

is :
(1) 0 (2) 1
(3) 2 (4) 3
(SSC CGL Prelim Exam. 24.02.2002 (IIInd
Sitting) & SSC CGL
Exam. 13.11.2005 (IIInd Sitting))
- 45.** The value of

$$\sqrt{11+2\sqrt{30}} - \frac{1}{\sqrt{11+2\sqrt{30}}}$$
 is
(1) $2\sqrt{5}$ (2) $2\sqrt{6}$
(3) $1+\sqrt{6}$ (4) $1+\sqrt{5}$
(SSC CGL Prelim Exam. 24.02.2002
(Middle Zone))
- 46.** The value of $(243)^{0.16} \times (243)^{0.04}$
is equal to :
(1) 0.16 (2) 3
(3) $\frac{1}{3}$ (4) 0.04
(SSC CGL Prelim Exam. 04.07.1999
(First Sitting))

- 47.** $\frac{3^0+3^{-1}}{3^{-1}-3^0}$ is simplified to
(1) -2 (2) -1
(3) 1 (4) 2
(SSC CPO S.I. Exam. 05.09.2004)
- 48.** Simplify

$$\frac{1}{\sqrt{100}-\sqrt{99}} - \frac{1}{\sqrt{99}-\sqrt{98}} +$$

$$\frac{1}{\sqrt{98}-\sqrt{97}} - \frac{1}{\sqrt{97}-\sqrt{96}} + \dots +$$

$$\frac{1}{\sqrt{2}-\sqrt{1}}$$

(1) 0 (2) 9
(3) 10 (4) 11
(SSC Section Officer (Commercial Audit)
Exam. 25.09.2005)
- 49.** $\left[\frac{1}{\sqrt{2}+\sqrt{3}-\sqrt{5}} + \frac{1}{\sqrt{2}-\sqrt{3}-\sqrt{5}}\right]$
in simplified form equals to :
(1) 1 (2) $\sqrt{2}$
(3) $\frac{1}{\sqrt{2}}$ (4) 0
(SSC CGL Prelim Exam. 13.11.2005
(First Sitting))
- 50.** $[\sqrt[3]{2} \times \sqrt{2} \times \sqrt[3]{3} \times \sqrt{3}]$ is equal to
(1) 6^5 (2) $6^{5/6}$
(3) 6
(4) None of these
(SSC CGL Prelim Exam. 13.11.2005
(Second Sitting))
- 51.** The value of $(256)^{0.16} \times (256)^{0.09}$
is :
(1) 256.25 (2) 64
(3) 16 (4) 4
(SSC CGL Prelim Exam. 04.07.1999
(Second Sitting))
- 52.** $\left[8 - \left(\frac{\frac{9}{4}\sqrt{2.2^2}}{2\sqrt{2^{-2}}}\right)^{\frac{1}{2}}\right]$ is equal to
(1) 32 (2) 8
(3) 1 (4) 0
(SSC CGL Prelim Exam. 04.02.2007
(First Sitting))

- 53.** $\frac{3\sqrt{2}}{\sqrt{6}+\sqrt{3}} - \frac{2\sqrt{6}}{\sqrt{3}+1} + \frac{2\sqrt{3}}{\sqrt{6}+2}$ is
equal to
(1) 3 (2) 2
(3) 0 (4) $\sqrt{3}$
(SSC CGL Prelim Exam. 04.02.2007
(Second Sitting))
- 54.** $(4)^{0.5} \times (0.5)^4$ is equal to :
(1) 1 (2) 4
(3) $\frac{1}{8}$ (4) $\frac{1}{32}$
(SSC CGL Prelim Exam. 27.02.2000
(Second Sitting))
- 55.** $\left[\frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}} - \frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}}\right]$
simplifies to
(1) $2\sqrt{6}$ (2) $4\sqrt{6}$
(3) $2\sqrt{3}$ (4) $3\sqrt{2}$
(SSC CGL Prelim Exam. 27.07.2008
(First Sitting))
- 56.** The value of $\sqrt{40+\sqrt{9\sqrt{81}}}$ is
(1) $\sqrt{111}$ (2) 9
(3) 7 (4) 11
(SSC CHSL DEO & LDC
Exam. 20.10.2013)
- 57.** $\frac{1}{\sqrt{9}-\sqrt{8}} - \frac{1}{\sqrt{8}-\sqrt{7}} + \frac{1}{\sqrt{7}-\sqrt{6}}$

$$- \frac{1}{\sqrt{6}-\sqrt{5}} + \frac{1}{\sqrt{5}-\sqrt{4}}$$

is equal to
(1) 5 (2) 1
(3) 3 (4) 0
(SSC CGL Prelim Exam. 27.07.2008
(Second Sitting))
- 58.** Simplified form of

$$\left[\left(\sqrt[5]{x^{-3/5}}\right)^{-5/3}\right]^5$$

(1) x^5 (2) x^{-5}
(3) x (4) $\frac{1}{x}$
(SSC CGL Tier-I Exam. 16.05.2010
(Second Sitting))
- 59.** $\left[\frac{\sqrt{3}+1}{\sqrt{3}-1} + \frac{\sqrt{2}+1}{\sqrt{2}-1} + \frac{\sqrt{3}-1}{\sqrt{3}+1} + \frac{\sqrt{2}-1}{\sqrt{2}+1}\right]$
is simplified to
(1) 10 (2) 12
(3) 14 (4) 18
(SSC (South Zone) Investigator
Exam. 12.09.2010)

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- 60.** $\frac{3+\sqrt{6}}{5\sqrt{3}-2\sqrt{12}-\sqrt{32}+\sqrt{50}}$ is equal to
 (1) 3 (2) $\sqrt{3}$
 (3) $3\sqrt{2}$ (4) $2\sqrt{3}$

(SSC (South Zone) Investigator Exam. 12.09.2010)

- 61.** $\left(\frac{1+\sqrt{2}}{\sqrt{5}+\sqrt{3}} + \frac{1-\sqrt{2}}{\sqrt{5}-\sqrt{3}} \right)$ simplifies to

- (1) $\sqrt{5}+\sqrt{6}$ (2) $2\sqrt{5}+\sqrt{6}$
 (3) $\sqrt{5}-\sqrt{6}$ (4) $2\sqrt{5}-3\sqrt{6}$

FCI Assistant Grade-III Exam. 25.02.2012 (Paper-I)
North Zone (Ist Sitting)

- 62.** When simplified equal to

$$(256)^{-\left(\frac{3}{2}\right)} \text{ is}$$

(1) 8 (2) $\frac{1}{8}$
 (3) 2 (4) $\frac{1}{2}$

FCI Assistant Grade-III Exam. 25.02.2012 (Paper-I)
North Zone (Ist Sitting)

- 63.** $\left\{(-2)^{(-2)}\right\}^{(-2)}$ is equal to :
 (1) 16 (2) 8
 (3) -8 (4) -1

(SSC CGL Prelim Exam. 13.11.2005 (First Sitting))

- 64.** $\left(\sqrt{2} + \sqrt{7-2\sqrt{10}}\right)$ is equal to
 (1) $\sqrt{2}$ (2) $\sqrt{7}$
 (3) $\sqrt{5}$ (4) $2\sqrt{5}$

(SSC Data Entry Operator Exam. 31.08.2008)

- 65.** $(256)^{0.16} \times (4)^{0.36}$ is equal to
 (1) 64 (2) 16
 (3) 256.25 (4) 4

(SSC Data Entry Operator Exam. 02.08.2009)

- 66.** By how much does $5\sqrt{7}-2\sqrt{5}$ exceed $3\sqrt{7}-4\sqrt{5}$?

- (1) $5(\sqrt{7}+\sqrt{5})$ (2) $\sqrt{7}+\sqrt{5}$
 (3) $2(\sqrt{7}+\sqrt{5})$ (4) $7(\sqrt{2}+\sqrt{5})$

(SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))

- 67.** $\frac{\sqrt{7}-\sqrt{5}}{\sqrt{7}+\sqrt{5}} + \frac{\sqrt{7}+\sqrt{5}}{\sqrt{7}-\sqrt{5}}$ is equal to :
 (1) 12 (2) $6\sqrt{35}$
 (3) 6 (4) $2\sqrt{35}$

(SSC HSL DEO & LDC Exam. 28.11.2010 (Ist Sitting))

- 68.** $\left(\frac{2}{\sqrt{6}+2} + \frac{1}{\sqrt{7}+\sqrt{6}} + \frac{1}{\sqrt{8}-\sqrt{7}} + 2 - 2\sqrt{2} \right)$ is equal to

- (1) 0 (2) $2\sqrt{2}$
 (3) $\sqrt{6}$ (4) $2\sqrt{7}$

(SSC HSL DEO & LDC Exam. 28.11.2010 (IIInd Sitting))

- 69.** By how much does $(\sqrt{12} + \sqrt{18})$ exceed $(2\sqrt{3} + 2\sqrt{2})$?

- (1) 2 (2) $\sqrt{3}$
 (3) $\sqrt{2}$ (4) 3

(SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))

- 70.** The value of $\frac{1}{\sqrt{2}+1} + \frac{1}{\sqrt{3}+\sqrt{2}} + \frac{1}{\sqrt{4}+\sqrt{3}} + \dots + \frac{1}{\sqrt{100}+\sqrt{99}}$ is
 (1) 1 (2) 9
 (3) $\sqrt{99}$ (4) $\sqrt{99}-1$

(SSC Multi-Tasking (Non-Technical) Staff Exam. 27.02.2011)

- 71.** $\left[\left\{ \left(-\frac{1}{2} \right)^2 \right\}^{-2} \right]^{-1}$ is equal to :

- (1) $\frac{1}{16}$ (2) 16
 (3) $-\frac{1}{16}$ (4) -16

(SSC HSL DEO & LDC Exam. 27.11.2010)

- 72.** $2\sqrt[3]{40} - 4\sqrt[3]{320} + 3\sqrt[3]{625} - 3\sqrt[3]{5}$ is equal to

- (1) $-2\sqrt[3]{340}$ (2) 0
 (3) $\sqrt[3]{340}$ (4) $\sqrt[3]{660}$

(SSC CGL Tier-II Exam. 16.09.2012)

- 73.** The value of $\sqrt[3]{0.000125}$ is
 (1) 0.005 (2) 0.05
 (3) 0.5 (4) 0.0005

(SSC Assistant Grade-III Exam. 11.11.2012 (IIInd Sitting))

- 74.** $\frac{0.3555 \times 0.5555 \times 2.025}{0.225 \times 1.7775 \times 0.2222}$ is equal to
 (1) 5.4 (2) 4.58
 (3) 4.5 (4) 5.45

(SSC CHSL DEO & LDC Exam.)

04.11.2012, IIInd Sitting)

- 75.** The simplification of

$$\frac{0.06 \times 0.06 \times 0.06 - 0.05 \times 0.05 \times 0.05}{0.06 \times 0.06 + 0.06 \times 0.05 + 0.05 \times 0.05}$$

gives :

- (1) 0.01 (2) 0.001
 (3) 0.1 (4) 0.02

(SSC CGL Prelim Exam. 04.07.1999 (First Sitting))

- 76.** Simplify :

$$\frac{0.05 \times 0.05 \times 0.05 - 0.04 \times 0.04 \times 0.04}{0.05 \times 0.05 + 0.002 + 0.04 \times 0.04}$$

- (1) 1 (2) 0.1
 (3) 0.01 (4) 0.001

(SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))

- 77.** If $\frac{(x - \sqrt{24})(\sqrt{75} + \sqrt{50})}{\sqrt{75} - \sqrt{50}} = 1$,

then the value of x is

- (1) $\sqrt{5}$ (2) 5
 (3) $2\sqrt{5}$ (4) $3\sqrt{5}$

(SSC CHSL DEO & LDC Exam. 27.10.2013 IIInd Sitting)

- 78.** Evaluate

$$\sqrt{20} + \sqrt{12} + \sqrt[3]{729} - \frac{4}{\sqrt{5}-\sqrt{3}} - \sqrt{81}$$

- (1) $\sqrt{2}$ (2) $\sqrt{3}$

- (3) 0 (4) $2\sqrt{2}$

(SSC CHSL DEO & LDC Exam. 27.10.2013 IIInd Sitting)

- 79.** Let

$$a = \frac{1}{2-\sqrt{3}} + \frac{1}{3-\sqrt{8}} + \frac{1}{4-\sqrt{15}}.$$

Then we have

- (1) $a < 18$ but $a \neq 9$
 (2) $a > 18$
 (3) $a = 18$
 (4) $a = 9$

(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

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80. If a, b are rationals and

$$a\sqrt{2} + b\sqrt{3}$$

$$= \sqrt{98} + \sqrt{108} - \sqrt{48} - \sqrt{72}$$

then the values of a, b are respectively

- (1) 1, 2 (2) 1, 3
 (3) 2, 1 (4) 2, 3

(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

81. Let $\sqrt[3]{a} = \sqrt[3]{26} + \sqrt[3]{7} + \sqrt[3]{63}$.

Then

- (1) $a < 729$ but $a > 216$
 (2) $a < 216$
 (3) $a > 729$
 (4) $a = 729$
- (SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting)

82. The value of

$$\frac{\sqrt{72} \times \sqrt{363} \times \sqrt{175}}{\sqrt{32} \times \sqrt{147} \times \sqrt{252}}$$

- (1) $\frac{55}{42}$ (2) $\frac{45}{56}$

- (3) $\frac{45}{28}$ (4) $\frac{55}{28}$

(SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting)

83. Simplify :

$$\frac{5.32 \times 56 + 5.32 \times 44}{(7.66)^2 - (2.34)^2}$$

- (1) 7.2 (2) 8.5
 (3) 10 (4) 12

(SSC CGL Prelim Exam. 04.07.1999 (IIInd Sitting) & (SSC SO Commercial Audit Exam. 16.11.2003)

84. $2 + \frac{6}{\sqrt{3}} + \frac{1}{2 + \sqrt{3}} + \frac{1}{\sqrt{3} - 2}$

equals to

- (1) $+(2\sqrt{3})$ (2) $-(2 + \sqrt{3})$
 (3) 1 (4) 2

(SSC Multi-Tasking Staff Exam. 10.03.2013, Ist Sitting : Patna)

85. If $\frac{4+3\sqrt{3}}{\sqrt{7+4\sqrt{3}}} = A + \sqrt{B}$, then B

- A is

- (1) -13 (2) $2\sqrt{13}$

- (3) 13 (4) $3\sqrt{3} - \sqrt{7}$

(SSC CGL Tier-I Exam. 21.04.2013 IIInd Sitting)

86. Find the simplest value

$$\text{of } 2\sqrt{50} + \sqrt{18} - \sqrt{72} \text{ (given } \sqrt{2} = 1.414).$$

- (1) 4.242 (2) 9.898
 (3) 10.312 (4) 8.484

(SSC CGL Tier-I Exam. 19.05.2013 Ist Sitting)

87. $(6.5 \times 6.5 - 45.5 + 3.5 \times 3.5)$ is equal to :

- (1) 10 (2) 9
 (3) 7 (4) 6

(SSC CGL Prelim Exam. 27.02.2000 (First Sitting))

88. $(7.5 \times 7.5 + 37.5 + 2.5 \times 2.5)$ is equal to :

- (1) 100 (2) 80
 (3) 60 (4) 30

(SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))

89. Simplify :

$$\frac{(1.5)^3 + (4.7)^3 + (3.8)^3 - 3 \times 1.5 \times 4.7 \times 3.8}{(1.5)^2 + (4.7)^2 + (3.8)^2 - 1.5 \times 4.7 - 4.7 \times 3.8 - 3.8 \times 1.5}$$

- (1) 0 (2) 1
 (3) 10 (4) 30

(SSC CGL Prelim Exam. 24.02.2002 (First Sitting))

90. Simplify :

$$\frac{\frac{1}{(6.25)^2} \times \frac{1}{(0.0144)^2} + 1}{\frac{1}{(0.027)^3} \times \frac{1}{(81)^4}}$$

- (1) 0.14 (2) 1.4
 (3) 1 (4) $1\bar{4}$

(SSC CGL Prelim Exam. 24.02.2002 (Ist Sitting) & (SSC CGL Prelim Exam. 13.11.2005))

91. Simplify :

$$\frac{0.41 \times 0.41 \times 0.41 + 0.69 \times 0.69 \times 0.69}{0.41 \times 0.41 - 0.41 \times 0.69 + 0.69 + 0.69}$$

- (1) 0.28 (2) 1.1
 (3) 11 (4) 2.8

(SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))

92. $\frac{10.3 \times 10.3 \times 10.3 + 1}{10.3 \times 10.3 - 10.3 + 1}$ is equal to :

- (1) 9.3 (2) 10.3
 (3) 11.3 (4) 12.3

(SSC CGL Prelim Exam. 08.02.2004 (First Sitting))

93. $\frac{1.49 \times 14.9 - 0.51 \times 5.1}{14.9 - 5.1}$ is equal

to :

- (1) 0.20 (2) 20.00
 (3) 2.00 (4) 22.00

(SSC CGL Prelim Exam. 08.02.2004 (First Sitting))

94. $(0.04)^{-1.5}$ on simplification gives :

- (1) 25 (2) 125
 (3) 250 (4) 625

(SSC CGL Prelim Exam. 08.02.2004 (First Sitting))

95. $\frac{(0.96)^3 - (0.1)^3}{(0.96)^2 + 0.096 + (0.1)^2}$ is

simplified to :

- (1) 1.06 (2) 0.95
 (3) 0.86 (4) 0.97

(SSC CGL Prelim Exam. 08.02.2004 (First Sitting))

96. The value of $\frac{64 - 0.008}{16 + 0.8 + 0.04}$ is :

- (1) 2 (2) 3.8
 (3) 0.6 (4) 4.2

(SSC CGL Prelim Exam. 08.02.2004 (First Sitting))

97. The value of

$\frac{0.796 \times 0.796 - 0.204 \times 0.204}{0.796 - 0.204}$ is :

- (1) 0.408 (2) 0.59
 (3) 0.592 (4) 1

(SSC CPO S.I. Exam. 26.05.2005)

98. $\frac{(2.3)^3 + 0.027}{(2.3)^2 - 0.69 + 0.09}$ is equal to :

- (1) 2.60 (2) 2.00
 (3) 2.33 (4) 2.80

(SSC CPO S.I. Exam. 26.05.2005)

99. The value of

$\frac{5.71 \times 5.71 \times 5.71 - 2.79 \times 2.79 \times 2.79}{5.71 \times 5.71 + 5.71 \times 2.79 + 2.79 \times 2.79}$ in simplified form is :

- (1) 8.5 (2) 8.6
 (3) 2.82 (4) 2.92

(SSC CGL Prelim Exam. 13.11.2005 (First Sitting))

100. The value of

$\frac{(1.5)^3 + (4.7)^3 + (3.8)^3 - 3 \times 1.5 \times 4.7 \times 3.8}{(1.5)^2 + (4.7)^2 + (3.8)^2 - 1.5 \times 4.7 - 4.7 \times 3.8 - 3.8 \times 1.5}$ is :

- (1) 0 (2) 1
 (3) 10 (4) 30

(SSC CGL Prelim Exam. 13.11.2005 (First Sitting))

POWER, INDICES AND SURDS

POWER, INDICES AND SURDS

- 124.** The simplified value of $(\sqrt{3} + 1)(10 + \sqrt{12})(\sqrt{12} - 2)(5 - \sqrt{3})$ is
 (1) 16 (2) 88
 (3) 176 (4) 132
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)
- 125.** The simplified value of $(0.2)^3 \times 200 \div 2000$ of $(0.2)^2$ is
 (1) $\frac{1}{100}$ (2) $\frac{1}{50}$
 (3) $\frac{1}{10}$ (4) 1
 (SSC CHSL DEO Exam. 16.11.2014 (Ist Sitting))
- 126.** The simplified value of $(\sqrt{6} + \sqrt{10} - \sqrt{21} - \sqrt{35})$
 $(\sqrt{6} - \sqrt{10} + \sqrt{21} - \sqrt{35})$ is
 (1) 13 (2) 12
 (3) 11 (4) 10
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014 TF No. 999 KPO)
- 127.** The value of
 $\frac{1}{1+\sqrt{2}} + \frac{1}{\sqrt{2}+\sqrt{3}} + \frac{1}{\sqrt{3}+\sqrt{4}} + \frac{1}{\sqrt{4}+\sqrt{5}} + \frac{1}{\sqrt{5}+\sqrt{6}} + \frac{1}{\sqrt{6}+\sqrt{7}} + \frac{1}{\sqrt{7}+\sqrt{8}} + \frac{1}{\sqrt{8}+\sqrt{9}}$ is
 (1) 2 (2) 0
 (3) 4 (4) 1
 (SSC CGL Tier-II Exam. 12.04.2015 (TF No. 567 TL 9))
- 128.** The value of
 $\frac{1}{\sqrt{7}-\sqrt{6}} - \frac{1}{\sqrt{6}-\sqrt{5}} + \frac{1}{\sqrt{5}-2} - \frac{1}{\sqrt{8}-\sqrt{7}} + \frac{1}{3-\sqrt{8}}$ is
 (1) 7 (2) 0
 (3) 1 (4) 5
 (SSC CGL Tier-I Exam, 09.08.2015 (Ist Sitting) TF No. 1443088)
- 129.** If $2+x\sqrt{3} = \frac{1}{2+\sqrt{3}}$, then the simplest value of x is
 (1) -1 (2) 1
 (3) -2 (4) 2
 (SSC CGL Tier-I Exam, 09.08.2015 (Ist Sitting) TF No. 1443088)

- 130.** The value of :
 $\sqrt{\frac{0.324 \times 0.081 \times 4.624}{1.5625 \times 0.0289 \times 72.9 \times 64}}$ is
 (1) 2.4 (2) 24
 (3) 0.024 (4) 0.24
 (SSC CGL Tier-I Exam, 16.08.2015 (IIInd Sitting) TF No. 2176783)
- 131.** If $\frac{\sqrt{7}-1}{\sqrt{7}+1} - \frac{\sqrt{7}+1}{\sqrt{7}-1} = a + \sqrt{7} b$, then the values of a and b are respectively
 (1) $\sqrt{7}, -1$ (2) $\sqrt{7}, 1$
 (3) $0, -\frac{2}{3}$ (4) $-\frac{2}{3}, 0$
 (SSC CGL Tier-I Re-Exam, 30.08.2015)
- 132.** The value of
 $\frac{1}{1+\sqrt{2}} + \frac{1}{\sqrt{2}+\sqrt{3}} + \frac{1}{\sqrt{3}+\sqrt{4}} + \dots + \frac{1}{\sqrt{8}+\sqrt{9}}$ is
 (1) 1 (2) 0
 (3) 2 (4) $\sqrt{2}$
 (SSC CGL Tier-I Re-Exam, 30.08.2015)
- 133.** If $\frac{\sqrt{a+2b} + \sqrt{a-2b}}{\sqrt{a+2b} - \sqrt{a-2b}} = \sqrt{3}$, then $a : b$ is equal to
 (1) $2 : \sqrt{3}$ (2) $\sqrt{3} : 4$
 (3) $\sqrt{3} : 2$ (4) $4 : \sqrt{3}$
 (SSC CGL Tier-I Re-Exam, 30.08.2015)
- 134.** The value of
 $\frac{(75.8)^2 - (35.8)^2}{40}$ is
 (1) 121.6 (2) 40
 (3) 160 (4) 111.6
 (SSC Constable (GD) Exam, 04.10.2015, IIInd Sitting)
- 135.** The value of
 $\frac{(0.67 \times 0.67 \times 0.67) - (0.33 \times 0.33 \times 0.33)}{(0.67 \times 0.67) - (0.67 \times 0.33) - (0.33 \times 0.33)}$ is
 (1) 11 (2) 1.1
 (3) 3.4 (4) 0.34
 (SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)
- 136.** The value of $\frac{1}{1+\sqrt{2}+\sqrt{3}} + \frac{1}{1-\sqrt{2}+\sqrt{3}}$ is :
 (1) $\sqrt{2}$ (2) $\sqrt{3}$
 (3) 1 (4) $4(\sqrt{3}+\sqrt{2})$
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)
- 137.** If $a = \frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}}$ and $b = \frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$, then the value of $\frac{a^2+b^2}{b-a}$ is :
 (1) 1030 (2) 1025
 (3) 970 (4) 930
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IIInd Sitting) TF No. 3441135)
- 138.** If $1^3 + 2^3 + \dots + 10^3 = 3025$, then the value of $2^3 + 4^3 + \dots + 20^3$ is :
 (1) 7590 (2) 5060
 (3) 24200 (4) 12100
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IIInd Sitting) TF No. 3441135)
- 139.** The value of $\frac{(2.3)^3 + 0.027}{(2.3)^2 - 0.69 + 0.09}$ is :
 (1) 2 (2) 2.27
 (3) 2.33 (4) 2.6
 (SSC CHSL (10+2) Tier-I (CBE) Exam. 08.09.2016 (Ist Sitting))
- 140.** The value of $(1-\sqrt{2}) + (\sqrt{2}-\sqrt{3}) + (\sqrt{3}-\sqrt{4}) + \dots + (\sqrt{15}-\sqrt{16})$ is
 (1) 0 (2) 1
 (3) -3 (4) 4
 (SSC CGL Tier-I (CBE) Exam. 09.09.2016 (Ist Sitting))

POWER, INDICES AND SURDS

- 141.** The simplified value of the following expression is :

$$\frac{1}{\sqrt{11-2\sqrt{30}}} - \frac{3}{\sqrt{7-2\sqrt{10}}} - \frac{4}{\sqrt{8+4\sqrt{3}}}$$

- (1) 0 (2) 1
 (3) $\sqrt{2}$ (4) $\sqrt{3}$

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 20.03.2016)

(IInd Sitting)

- 142.** Find the value of

$$\frac{(243)^{\frac{n}{5}} \times 3^{2n+1}}{9^n \times 3^{n-1}}.$$

- (1) 3 (2) 9
 (3) 27 (4) 4

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 05.06.2016)

(Ist Sitting)

- 143.** The value of $(d^{s+t} \div d^t) \div d^t$ would be

- (1) $d^{2(s+t)}$ (2) 1
 (3) 0 (4) d^{s-t}

(SSC CGL Tier-I (CBE))

Exam. 27.08.2016 (Ist Sitting)

- 144.** $(2^{51} + 2^{52} + 2^{53} + 2^{54} + 2^{55})$ is divisible by

- (1) 23 (2) 58
 (3) 124 (4) 127

(SSC CGL Tier-I (CBE))

Exam. 01.09.2016 (Ist Sitting)

- 145.** If $\frac{\sqrt{2+x} + \sqrt{2-x}}{\sqrt{2+x} - \sqrt{2-x}} = 2$, the value of x is

- (1) $\frac{4}{5}$ (2) $\frac{3}{5}$
 (3) $\frac{8}{5}$ (4) $\frac{1}{5}$

(SSC CGL Tier-I (CBE))

Exam. 01.09.2016 (Ist Sitting)

- 146.** The value of

$$\frac{3 \times 9^{n+1} + 9 \times 3^{2n-1}}{9 \times 3^{2n} - 6 \times 9^{n-1}}$$

- is equal to
- (1) $3\frac{3}{5}$ (2) $3\frac{2}{5}$

- (3) $3\frac{1}{5}$ (4) 3

(SSC CGL Tier-I (CBE))

Exam. 06.09.2016 (Ist Sitting)

- 147.** The value of $\left(\frac{2+\sqrt{3}}{2-\sqrt{3}} - 4\sqrt{3} \right)^2$ is

- (1) 36 (2) $36\sqrt{3}$
 (3) 49 (4) $49 + \sqrt{3}$

(SSC CGL Tier-I (CBE))

Exam. 01.09.2016 (IInd Sitting)

- 148.** Simplify :

$$\sqrt[3]{-2197} \times \sqrt[3]{-125} \div \sqrt[3]{\frac{27}{512}}$$

- (1) $\frac{492}{7}$ (2) $\frac{520}{3}$
 (3) $\frac{554}{7}$ (4) $\frac{571}{5}$

(SSC CGL Tier-II (CBE))

Exam. 30.11.2016

- 149.** On simplification the value of 1 -

$$\frac{1}{1+\sqrt{2}} + \frac{1}{1-\sqrt{2}}$$

- is
- (1) $2\sqrt{2} - 1$ (2) $1 - 2\sqrt{2}$

- (3) $1 - \sqrt{2}$ (4) $-2\sqrt{2}$

(SSC CGL Tier-I (CBE))

Exam. 30.08.2016 (IInd Sitting)

- 150.** The simplest value of

$$\frac{3\sqrt{8} - 2\sqrt{12} + \sqrt{20}}{3\sqrt{18} - 2\sqrt{27} + \sqrt{45}}$$

is :

- (1) $\frac{3}{2}$ (2) $\frac{2}{3}$
 (3) $\frac{1}{3}$ (4) 2

(SSC CGL Tier-I (CBE))

Exam. 29.08.2016 (IIST Sitting)

- 151.** The simplified value of

$$\frac{3\sqrt{7}}{\sqrt{5}+\sqrt{2}} - \frac{5\sqrt{5}}{\sqrt{2}+\sqrt{7}} + \frac{2\sqrt{2}}{\sqrt{7}+\sqrt{5}}$$

- is
- (1) 0 (2) 1
 (3) 5 (4) 6

(SSC CGL Tier-I (CBE))

Exam. 01.09.2016 (IIIrd Sitting)

- 152.** Simplify :

$$\frac{(0.73)^3 + (0.27)^3}{(0.73)^2 + (0.27)^2 - (0.73) \times (0.27)}$$

- (1) 1 (2) 0.4087
 (3) 0.73 (4) 0.27

(SSC CGL Tier-I (CBE))

Exam. 03.09.2016 (IIIrd Sitting)

- 153.** The simplified value of

$$\frac{\sqrt{3}-\sqrt{2}}{\sqrt{12}-\sqrt{18}} - \frac{1}{3} \times \sqrt{27} - \frac{1}{2} \times \frac{3\sqrt{27}}{\sqrt{27}}$$

is closest to

- (1) $(\sqrt{3}-1)$ (2) $(1-\sqrt{3})$
 (3) $-(-\sqrt{3}-1)$ (4) $(\sqrt{3}+1)$

(SSC CGL Tier-II (CBE))

Exam. 12.01.2017

TYPE-II

- 1.** Which one of the following is the least?

$\sqrt{3}, \sqrt[3]{2}, \sqrt{2}$ and $\sqrt[3]{4}$

- (1) $\sqrt{2}$ (2) $\sqrt[3]{4}$

- (3) $\sqrt{3}$ (4) $\sqrt[3]{2}$

(SSC CGL Prelim Exam. 04.07.1999
(First Sitting))

- 2.** Which of the following is the biggest?

$\sqrt[3]{4}, \sqrt[4]{6}, \sqrt[6]{15}$, and $\sqrt[12]{245}$,

- (1) $\sqrt[3]{4}$ (2) $\sqrt[4]{6}$

- (3) $\sqrt[6]{15}$ (4) $\sqrt[12]{245}$

(SSC CGL Prelim Exam. 04.07.1999
(Second Sitting))

- 3.** Which of the following number is the least?

$(0.5)^2, \sqrt{0.49}, \sqrt[3]{0.008}, 0.23$

- (1) $(0.5)^2$ (2) $\sqrt{0.49}$

- (3) $\sqrt[3]{0.008}$ (4) 0.23

(SSC CGL Prelim Exam. 24.02.2002
(First Sitting))

- 4.** Arrange the following in descending order : $\sqrt[3]{4}, \sqrt{2}, \sqrt[6]{3}, \sqrt[4]{5}$

(1) $\sqrt[3]{4} > \sqrt[4]{5} > \sqrt{2} > \sqrt[6]{3}$

(2) $\sqrt[4]{5} > \sqrt[3]{4} > \sqrt[6]{3} > \sqrt{2}$

(3) $\sqrt{2} > \sqrt[6]{3} > \sqrt[3]{4} > \sqrt[4]{5}$

(4) $\sqrt[6]{3} > \sqrt[4]{5} > \sqrt[3]{4} > \sqrt{2}$

(SSC CGL Prelim Exam. 24.02.2002
(First Sitting))

- 5.** The greatest of the numbers $(2.89)^{0.5}, 2-(0.5)^2$,

$1 + \frac{0.5}{1 - \frac{1}{2}}, \sqrt{3}$ is :

- (1) $(2.89)^{0.5}$ (2) $2-(0.5)^2$

- (3) $1 + \frac{0.5}{1 - \frac{1}{2}}$ (4) $\sqrt{3}$

(SSC CGL Prelim Exam. 24.02.2002
(Second Sitting))

- 6.** Among $\sqrt{2}, \sqrt[3]{3}, \sqrt[4]{5}, \sqrt[3]{2}$ which one is the greatest?

- (1) $\sqrt[4]{5}$ (2) $\sqrt{2}$

- (3) $\sqrt[3]{3}$ (4) $\sqrt[3]{2}$

(SSC CGL Prelim Exam. 24.02.2002
(Second Sitting))

POWER, INDICES AND SURDS

7. The ascending order of

$(2.89)^{0.5}$, $2 - (0.5)^2$, $\sqrt{3}$ and $\sqrt[3]{0.008}$ is

(1) $2 - (0.5)^2$, $\sqrt{3}$, $\sqrt[3]{0.008}$, $(2.89)^{0.5}$

(2) $\sqrt[3]{0.008}$, $(2.89)^{0.5}$, $\sqrt{3}$, $2 - (0.5)^2$

(3) $\sqrt[3]{0.008}$, $\sqrt{3}$, $(2.89)^{0.5}$, $2 - (0.5)^2$

(4) $\sqrt{3}$, $\sqrt[3]{0.008}$, $2 - (0.5)^2$, $(2.89)^{0.5}$

(SSC CGL Prelim Exam. 11.05.2003
(First Sitting)

8. The greatest one of $\sqrt{2}$, $\sqrt[3]{3}$,

$\sqrt[6]{6}$, $\sqrt[5]{5}$ is

(1) $\sqrt{2}$ (2) $\sqrt[3]{3}$

(3) $\sqrt[6]{6}$ (4) $\sqrt[5]{5}$

(SSC CPO S.I. Exam. 07.09.2003)

9. The smallest of $\sqrt{8} + \sqrt{5}$, $\sqrt{7} + \sqrt{6}$, $\sqrt{10} + \sqrt{3}$ and $\sqrt{11} + \sqrt{2}$ is :

(1) $\sqrt{8} + \sqrt{5}$ (2) $\sqrt{7} + \sqrt{6}$

(3) $\sqrt{10} + \sqrt{3}$ (4) $\sqrt{11} + \sqrt{2}$

(SSC CPO S.I. Exam. 26.05.2005)

10. Which of the following is the largest number ?

$\sqrt{2}$, $\sqrt[3]{3}$, $\sqrt[4]{4}$, $\sqrt[6]{6}$

(1) $\sqrt{2}$ (2) $\sqrt[3]{3}$

(3) $\sqrt[4]{4}$ (4) $\sqrt[6]{6}$

(SSC Section Officer (Commercial Audit) Exam. 25.09.2005) & SSC CGL Prelim Exam. 27.07.2008 (Ist Sitting)

11. Which is the greatest among

$(\sqrt{19} - \sqrt{17})(\sqrt{13} - \sqrt{11})$,

$(\sqrt{7} - \sqrt{5})$ and $(\sqrt{5} - \sqrt{3})$?

(1) $\sqrt{19} - \sqrt{17}$ (2) $\sqrt{13} - \sqrt{11}$

(3) $\sqrt{7} - \sqrt{5}$ (4) $\sqrt{5} - \sqrt{3}$

(SSC CGL Prelim Exam. 13.11.2005
(First Sitting))

12. The greatest number among

$\sqrt[3]{2}$, $\sqrt{3}$, $\sqrt[3]{5}$ and 1.5 is :

(1) $\sqrt[3]{2}$ (2) $\sqrt[3]{5}$

(3) $\sqrt{3}$ (4) 1.5

(SSC CGL Prelim Exam. 13.11.2005
(First Sitting))

13. The greatest of

$\sqrt{2}$, $\sqrt[6]{3}$, $\sqrt[3]{4}$, $\sqrt[4]{5}$ is

(1) $\sqrt{2}$ (2) $\sqrt[6]{3}$

(3) $\sqrt[3]{4}$ (4) $\sqrt[4]{5}$

(SSC CGL Prelim Exam. 13.11.2005 (IIInd Sitting) & SSC (10+2) DEO & LDC Exam. 11.12.2011 (East Zone))

14. The greatest one of $\sqrt{4}$, $\sqrt[3]{4}$, $\sqrt[4]{6}$

and $\sqrt[6]{8}$ is

(1) $\sqrt{3}$ (2) $\sqrt[3]{4}$

(3) $\sqrt[4]{6}$ (4) $\sqrt[6]{8}$

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006
(Second Sitting))

15. The greatest among

$\sqrt{7} - \sqrt{5}$, $\sqrt{5} - \sqrt{3}$, $\sqrt{9} - \sqrt{7}$, $\sqrt{11} - \sqrt{9}$ is

(1) $\sqrt{7} - \sqrt{5}$ (2) $\sqrt{5} - \sqrt{3}$

(3) $\sqrt{9} - \sqrt{7}$ (4) $\sqrt{11} - \sqrt{9}$

(SSC CGL Prelim Exam. 04.02.2007
(First Sitting))

16. Greatest among the numbers

$\sqrt[3]{9}$, $\sqrt{3}$, $\sqrt[4]{16}$, $\sqrt[6]{80}$ is

(1) $\sqrt[3]{9}$ (2) $\sqrt{3}$

(3) $\sqrt[4]{16}$ (4) $\sqrt[6]{80}$

(SSC CGL Prelim Exam. 04.02.2007
(Second Sitting))

17. The least one of $2\sqrt{3}$, $2\sqrt[4]{5}$, $\sqrt{8}$

and $3\sqrt{2}$ is

(1) $2\sqrt{3}$ (2) $2\sqrt[4]{5}$

(3) $\sqrt{8}$ (4) $3\sqrt{2}$

(SSC Section Officer (Commercial Audit) Exam. 30.09.2007
(Second Sitting))

18. Out of the numbers 0.3, 0.03, 0.9, 0.09 the number that is nearest to the value of $\sqrt{0.9}$ is

(1) 0.3 (2) 0.03

(3) 0.9 (4) 0.09

(SSC CHSL DEO & LDC Exam. 27.10.2013 IIInd Sitting)

19. The greatest number among 2^{60} , 3^{48} , 4^{36} and 5^{24} is

(1) 2^{60} (2) 3^{48}

(3) 4^{36} (4) 5^{24}

(SSC SAS Exam 26.06.2010
(Paper-1))

20. The greatest among the numbers

$\sqrt{2}$, $\sqrt[3]{3}$, $\sqrt[4]{5}$, $\sqrt[6]{6}$ is

(1) $\sqrt{2}$ (2) $\sqrt[3]{3}$

(3) $\sqrt[6]{6}$ (4) $\sqrt[4]{5}$

(SSC (South Zone) Investigator Exam 12.09.2010)

21. The smallest among $\sqrt[6]{12}$, $\sqrt[3]{4}$,

$\sqrt[4]{5}$, $\sqrt{3}$ is

(1) $\sqrt[6]{12}$ (2) $\sqrt[3]{4}$

(3) $\sqrt{3}$ (4) $\sqrt[4]{5}$

(SSC CPO (SI, ASI & Intelligence Officer) Exam 28.08.2011 (Paper-I))

& SSC (10+2) Data Entry Operator & LDC Exam 11.12.2011 (Delhi Zone)

22. The largest among the numbers

0.9 , $(0.9)^2$, $\sqrt{0.9}$, $0.\bar{9}$ is :

(1) 0.9 (2) $(0.9)^2$

(3) $\sqrt{0.9}$ (4) $0.\bar{9}$

(SSC CHSL DEO & LDC Exam. 27.11.2010)

23. Among the numbers $\sqrt{2}$,

$\sqrt[3]{9}$, $\sqrt[4]{16}$, $\sqrt[5]{32}$, the greatest one is

(1) $\sqrt{2}$ (2) $\sqrt[3]{9}$

(3) $\sqrt[4]{16}$ (4) $\sqrt[5]{32}$

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (North Zone))

24. The greatest among the numbers

$\sqrt[3]{3}$, $\sqrt[5]{4}$, $\sqrt[10]{12}$, 1 is

(1) 1 (2) $\sqrt[5]{4}$

(3) $\sqrt[3]{3}$ (4) $\sqrt[10]{12}$

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting (North Zone))

25. The greatest among the numbers

$3\sqrt{2}$, $3\sqrt{7}$, $6\sqrt{5}$, $2\sqrt{20}$ is

(1) $3\sqrt{2}$ (2) $3\sqrt{7}$

(3) $6\sqrt{5}$ (4) $2\sqrt{20}$

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone))

POWER, INDICES AND SURDS

26. The greatest among the numbers

$$\sqrt{0.09}, \sqrt[3]{0.064}, 0.5 \text{ and } \frac{3}{5} \text{ is}$$

(1) $\sqrt{0.09}$ (2) $\sqrt[3]{0.064}$

(3) 0.5 (4) $\frac{3}{5}$

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IInd Sitting (East Zone)

27. The largest number among

$$\sqrt{2}, \sqrt[3]{3}, \sqrt[4]{4} \text{ is}$$

(1) $\sqrt{2}$ (2) $\sqrt[3]{3}$

(3) $\sqrt[4]{4}$ (4) All are equal

(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (Delhi Zone)

28. The greatest of the following numbers

$$0.16, \sqrt{0.16}, (0.16)^2, 0.04 \text{ is}$$

(1) 0.16 (2) $\sqrt{0.16}$

(3) 0.04 (4) $(0.16)^2$

(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

29. The smallest among the numbers

$$2^{250}, 3^{150}, 5^{100} \text{ and } 4^{200}$$

(1) 4^{200} (2) 5^{100}

(3) 3^{150} (4) 2^{250}

(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

30. The greatest of the numbers $\sqrt[2]{8}$, $\sqrt[4]{13}$, $\sqrt[5]{16}$, $\sqrt[10]{41}$ is:

(1) $\sqrt[4]{13}$ (2) $\sqrt[5]{16}$

(3) $\sqrt[10]{41}$ (4) $\sqrt[2]{8}$

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (East Zone)

31. Which is greater $\sqrt[3]{2}$ or $\sqrt[3]{3}$?

(1) Cannot be compared

(2) $\sqrt[3]{2}$

(3) $\sqrt[3]{3}$

(4) Equal

(SSC CHSL DEO & LDC Exam. 20.10.2013)

32. Arranging the following in descending order, we get

$$\sqrt[3]{4}, \sqrt{2}, \sqrt[6]{3}, \sqrt[4]{5}$$

(1) $\sqrt[3]{4} > \sqrt[4]{5} > \sqrt{2} > \sqrt[6]{3}$

(2) $\sqrt[4]{5} > \sqrt[3]{4} > \sqrt[6]{3} > \sqrt{2}$

(3) $\sqrt{2} > \sqrt[6]{3} > \sqrt[3]{4} > \sqrt[4]{5}$

(4) $\sqrt[6]{3} > \sqrt[4]{5} > \sqrt[3]{4} > \sqrt{2}$

(SSC CGL Tier-I Exam. 19.10.2014)

33. The greatest number among the following is

$$\frac{4}{9}, \sqrt{\frac{9}{49}}, 0.\overline{47}, (0.7)^2$$

(1) $\frac{4}{9}$ (2) $\sqrt{\frac{9}{49}}$

(3) $0.\overline{47}$ (4) $(0.7)^2$

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, Ist Sitting (TF No. 333 LO 2)

34. The greatest number among 3^{50} , 4^{40} , 5^{30} and 6^{20} is

(1) 3^{50} (2) 4^{40}

(3) 5^{30} (4) 6^{20}

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

35. Which is the largest among the numbers $\sqrt{5}, 3\sqrt{7}, 4\sqrt{13}$

(1) $\sqrt{5}$ (2) $3\sqrt{7}$

(3) $4\sqrt{13}$

(4) All are equal

(SSC CPO SI, ASI Online Exam. 05.06.2016) (IInd Sitting)

36. If the numbers $\sqrt[3]{9}, \sqrt[4]{20}, \sqrt[6]{25}$ are arranged in ascending order, then the right arrangement is

(1) $\sqrt[6]{25} < \sqrt[4]{20} < \sqrt[3]{9}$

(2) $\sqrt[3]{9} < \sqrt[4]{20} < \sqrt[6]{25}$

(3) $\sqrt[4]{20} < \sqrt[6]{25} < \sqrt[3]{9}$

(4) $\sqrt[6]{25} < \sqrt[3]{9} < \sqrt[4]{20}$

(SSC CGL Tier-I (CBE) Exam. 09.09.2016 (IInd Sitting))

TYPE-III

1. Given $\sqrt{2} = 1.414$. The value of $\sqrt{8} + 2\sqrt{32} - 3\sqrt{128} + 4\sqrt{50}$ is

(1) 8.484 (2) 8.526

(3) 8.426 (4) 8.876

(SSC CGL Prelim Exam. 11.05.2003 (First Sitting))

2. If $\sqrt{15} = 3.88$, then what is the

value of $\sqrt{\frac{5}{3}}$

(1) 1.293 (2) 1.2934

(3) 1.29 (4) 1.295

(SSC CGL Prelim Exam. 11.05.2003 (Second Sitting))

3. If $\sqrt{3} = 1.732$, then what is the

value of $\frac{4+3\sqrt{3}}{\sqrt{7+4\sqrt{3}}}$ upto three places of decimal ?

(1) 0.023 (2) 0.464

(3) 2.464 (4) 3.023

(SSC Section Officer (Commercial Audit) Exam. 25.09.2005)

4. Given that $\sqrt{3} = 1.732$, the value of

$$\frac{3+\sqrt{6}}{5\sqrt{3}-2\sqrt{12}-\sqrt{32}+\sqrt{50}}$$

(1) 4.899 (2) 2.551

(3) 1.414 (4) 1.732

(SSC CGL Prelim Exam. 04.02.2007 (First Sitting))

5. Given that $\sqrt{5} = 2.236$ and

$\sqrt{3} = 1.732$; the value of

$$\frac{1}{\sqrt{5}+\sqrt{3}}$$

(1) 0.504 (2) 0.252

(3) 0.362 (4) 0.372

(SSC CPO S.I. Exam. 16.12.2007)

6. Given that $\sqrt{5} = 2.24$, then the

$$\text{value of } \frac{3\sqrt{5}}{2\sqrt{5}-0.48}$$

(1) 0.168 (2) 1.68

(3) 16.8 (4) 168

(SSC CPO S.I. Exam. 09.11.2008)

7. Given that $\sqrt{2} = 1.414$;

$$\text{the value of } \frac{1}{\sqrt{2}+1}$$

(1) 0.414 (2) 2.414

(3) 3.414 (4) 5.414

(SSC CPO S.I. Exam. 09.11.2008)

8. Evaluate :

$$16\sqrt{\frac{3}{4}} - 9\sqrt{\frac{4}{3}} \text{ if } \sqrt{12} = 3.46$$

(1) 3.46 (2) 10.38

(3) 13.84 (4) 24.22

(SSC CPO S.I. Exam. 06.09.2009)

9. If $\sqrt{2} = 1.4142$, find the value of

$$2\sqrt{2} + \sqrt{2} + \frac{1}{2+\sqrt{2}} + \frac{1}{\sqrt{2}-2}$$

(1) 1.4144 (2) 2.8284

(3) 28.284 (4) 2.4142

(SSC CGL Tier-1 Exam 26.06.2011 (Second Sitting))

POWER, INDICES AND SURDS

- 10.** If $\sqrt{3} = 1.732$, is given, then the

value of $\frac{2 + \sqrt{3}}{2 - \sqrt{3}}$ is

- (1) 11.732 (2) 13.928
 (3) 12.928 (4) 13.925
 (SSC Data Entry Operator Exam. 31.08.2008)

- 11.** If $\sqrt{2} = 1.4142\dots$ is given, then

the value of $\frac{7}{(3 + \sqrt{2})}$ correct upto two decimal places is

- (1) 1.59 (2) 1.60
 (3) 2.58 (4) 2.57
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (IIInd Sitting))

- 12.** If $\sqrt{5329} = 73$, then the value

of $\sqrt{5329} + \sqrt{53.29} + \sqrt{0.5329} + \sqrt{0.005329} + \sqrt{0.00005329}$ is

- (1) 81. 1003 (2) 81. 0113
 (3) 81. 1103 (4) 81. 1013
 (SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

- 13.** If $\sqrt{33} = 5.745$, then the value

of $\sqrt{\frac{3}{11}}$ is approximately

- (1) 1 (2) 0.5223
 (3) 6.32 (4) 2.035
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IIInd Sitting)

- 14.** If $\sqrt{7} = 2.646$, then the value of

$\frac{1}{\sqrt{28}}$ up to three places of decimal is :

- (1) 0.183 (2) 0.185
 (3) 0.187 (4) 0.189
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (Ist Sitting) TF No. 6636838)

- 15.** If $\sqrt{5} = 2.236$, then what is the

value of $\frac{\sqrt{5}}{2} + \frac{5}{3\sqrt{5}} - \sqrt{45}$?

- (1) -8.571 (2) -4.845
 (3) -2.987 (4) -6.261
 (SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016) (Ist Sitting)

- 16.** If $\sqrt{3} = 1.732$, then the value of

$\frac{9 + 2\sqrt{3}}{\sqrt{3}}$ is :

- (1) 7.169 (2) 7.196
 (3) 5.198 (4) 7.296
 (SSC CGL Tier-I (CBE) Exam. 08.09.2016 (IIInd Sitting))

TYPE-IV

- 1.** The rationalising factor of $3\sqrt{3}$ is

- (1) $\frac{1}{3}$ (2) 3
 (3) -3 (4) $\sqrt{3}$

(SSC CPO S.I. Exam. 07.09.2003)

- 2.** A rationalising factor of $(\sqrt[3]{9} - \sqrt[3]{3} + 1)$ is

- (1) $\sqrt[3]{3} - 1$ (2) $\sqrt[3]{3} + 1$
 (3) $\sqrt[3]{9} + 1$ (4) $\sqrt[3]{9} - 1$

(SSC CGL Prelim Exam. 04.02.2007 (First Sitting))

- 3.** The total number of prime factors in $4^{10} \times 7^3 \times 16^2 \times 11 \times 10^2$ is

- (1) 34 (2) 35
 (3) 36 (4) 37

(SSC CHSL DEO & LDC Exam. 27.10.2013 IIInd Sitting)

- 4.** The number of prime factors in $6^{333} \times 7^{222} \times 8^{111}$

- (1) 1221 (2) 1222
 (3) 1111 (4) 1211

(SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting)

- 5.** The square root of $\left(\frac{\sqrt{3} + \sqrt{2}}{\sqrt{3} - \sqrt{2}}\right)$ is

- (1) $\sqrt{3} + \sqrt{2}$ (2) $\sqrt{3} - \sqrt{2}$
 (3) $\sqrt{2} \pm \sqrt{3}$ (4) $\sqrt{2} - \sqrt{3}$

(SSC CGL Tier-1 Exam 26.06.2011 (First Sitting))

- 6.** If $x = \frac{\sqrt{5} + \sqrt{3}}{\sqrt{5} - \sqrt{3}}$ and y

$= \frac{\sqrt{5} - \sqrt{3}}{\sqrt{5} + \sqrt{3}}$ then $(x + y)$ equals :

- (1) 8 (2) 16
 (3) $2\sqrt{15}$ (4) $2(\sqrt{5} + \sqrt{3})$

(SSC CGL Prelim Exam. 13.11.2005 (First Sitting))

- 7.** If x, y are rational numbers and

$$\frac{5 + \sqrt{11}}{3 - 2\sqrt{11}} = x + y \sqrt{11}.$$

The values of x and y are

- (1) $x = \frac{-14}{17}$, $y = \frac{-13}{26}$

- (2) $x = \frac{4}{13}$, $y = \frac{11}{17}$

- (3) $x = \frac{-27}{25}$, $y = \frac{-11}{37}$

- (4) $x = \frac{-37}{35}$, $y = \frac{-13}{35}$

(SSC Constable (GD) Exam, 04.10.2015, IIInd Sitting)

TYPE-V

- 1.** Simplify : $\left[\sqrt[3]{\sqrt[6]{5^9}}\right]^4 \left[\sqrt[3]{\sqrt[6]{5^9}}\right]^4$

- (1) 5^2 (2) 5^4
 (3) 5^8 (4) 5^{12}

(SSC CGL Prelim Exam. 04.07.1999 (First Sitting))

- 2.** If $27^{2x-1} = (243)^3$ then the value of x is :

- (1) 3 (2) 6
 (3) 7 (4) 9

(SSC CGL Prelim Exam. 04.07.1999 (First Sitting))

- 3.** If $3^{x+8} = 27^{2x+1}$, the value of x is :

- (1) 7 (2) 3
 (3) -2 (4) 1

(SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))

- 4.** $(36)^{\frac{1}{6}}$ is equal to :

- (1) 1 (2) 6
 (3) $\sqrt{6}$ (4) $\sqrt[3]{6}$

(SSC CGL Prelim Exam. 27.02.2000 (First Sitting))

- 5.** $\left(\frac{8}{125}\right)^{-\frac{4}{3}}$ simplifies to :

- (1) $\frac{625}{16}$ (2) $\frac{625}{8}$

- (3) $\frac{625}{32}$ (4) $\frac{16}{625}$

(SSC CGL Prelim Exam. 27.02.2000 (First Sitting))

POWER, INDICES AND SURDS

- 6.** If $(125)^{2/3} \times (625)^{-1/4} = 5^x$ the value of x is

(1) 3 (2) 2
(3) 0 (4) 1

(SSC CGL Prelim Exam. 24.02.2002
(Middle Zone)

- 7.** If $(2000)^{10} = 1.024 \times 10^k$, then the value of k is

(1) 33 (2) 30
(3) 34 (4) 31

(SSC CPO (SI, ASI & Intelligence Officer)
Exam 28.08.2011 (Paper-I) (Middle Zone)

- 8.** If $0.42 \times 100^k = 42$, then the value of k is

(1) 4 (2) 2
(3) 1 (4) 3

(SSC CISF Constable (GD)
Exam. 05.06.2011)

- 9.** If $3^x + y = 81$ and $81^{x-y} = 3$, then the value of x is

(1) 42 (2) $\frac{15}{8}$

(3) $\frac{17}{8}$ (4) 39

(SSC Data Entry Operator
Exam. 02.08.2009)

- 10.** If $2^x = 3^y = 6^{-z}$ then $\left(\frac{1}{x} + \frac{1}{y} + \frac{1}{z}\right)$ is equal to

(1) 0 (2) 1
(3) $\frac{3}{2}$ (4) $-\frac{1}{2}$

(SSC CHSL DEO & LDC
Exam. 11.12.2011
(Ist Sitting) (Delhi Zone)

- 11.** If $a = 7 - 4\sqrt{3}$, the value of

$a^{\frac{1}{2}} + a^{-\frac{1}{2}}$ is

(1) $3\sqrt{3}$ (2) 4
(3) 7 (4) $2\sqrt{3}$

(SSC FCI Assistant Grade-III Main
Exam. 07.04.2013)

- 12.** If $\left(\frac{3}{4}\right)^3 \left(\frac{4}{3}\right)^{-7} = \left(\frac{3}{4}\right)^{2x}$, then x is :

(1) -2 (2) 2
(3) 5 (4) $2\frac{1}{2}$

(SSC Graduate Level Tier-I
Exam. 21.04.2013, Ist Sitting)

- 13.** What is the product of the roots of the equation $x^2 - \sqrt{3} = 0$?

(1) $+\sqrt{3}$ (2) $\sqrt{3} i$
(3) $-\sqrt{3} i$ (4) $-\sqrt{3}$

(SSC CGL Tier-I
Re-Exam. (2013) 27.04.2014)

- 14.** If $2^{x-1} + 2^{x+1} = 320$, then the value of x is

(1) 6 (2) 8
(3) 5 (4) 7

(SSC CGL Tier-I
Re-Exam. (2013) 27.04.2014)

- 15.** $4^{61} + 4^{62} + 4^{63} + 4^{64}$ is divisible by

(1) 17 (2) 3
(3) 11 (4) 13

(SSC CGL Tier-I Re-Exam. (2013)
20.07.2014 (IIInd Sitting)

- 16.** If $5\sqrt{5} \times 5^3 \div 5^{\frac{3}{2}} = 5^{a+2}$, then the value of a is

(1) 4 (2) 5
(3) 6 (4) 8

(SSC CGL Tier-I
Exam. 19.10.2014 (Ist Sitting)

- 17.** The value of

$(3+2\sqrt{2})^{-3} + (3-2\sqrt{2})^{-3}$ is

(1) 198 (2) 180
(3) 108 (4) 189

(SSC CGL Tier-I
Exam. 19.10.2014 (Ist Sitting)

- 18.** Solve for x :

$$3^x - 3^{x-1} = 486.$$

(1) 7 (2) 9
(3) 5 (4) 6

(SSC CGL Tier-I Exam. 26.10.2014)

- 19.** A tap is dripping at a constant rate into a container. The level (L cm) of the water in the container is given by the equation $L = 2 - 2^t$, where t is time taken in hours. Then the level of water in the container at the start is

(1) 0 cm (2) 1 cm
(3) 2 cm (4) 4 cm

(SSC CAPFs SI, CISF ASI & Delhi
Police SI Exam. 22.06.2014)

- 20.** Arranging the following in ascending order

$3^{34}, 2^{51}, 7^{17}$ we get

(1) $3^{34} > 2^{51} > 7^{17}$
(2) $7^{17} > 2^{51} > 3^{34}$

(3) $3^{34} > 7^{17} > 2^{51}$

(4) $2^{51} > 3^{34} > 7^{17}$
(SSC CGL Tier-I Exam. 19.10.2014
TF No. 022 MH 3)

- 21.** If $3^{2x-y} = 3^{x+y} = \sqrt{27}$, then the value of 3^{x-y} will be

(1) 3 (2) $\frac{1}{\sqrt{3}}$
(3) $\sqrt{3}$ (4) $\frac{1}{\sqrt{27}}$

(SSC CAPFs SI, CISF ASI & Delhi
Police SI Exam. 21.06.2015
(Ist Sitting) TF No. 8037731)

- 22.** The value of $[(0.87)^2 + (0.13)^2 + (0.87) \times (0.26)]^{2013}$ is

(1) 0 (2) 2013
(3) 1 (4) -1

(SSC CAPFs SI, CISF ASI & Delhi
Police SI Exam. 21.06.2015
IIInd Sitting)

- 23.** The mean of $1^3, 2^3, 3^3, 4^3, 5^3, 6^3, 7^3$ is

(1) 20 (2) 112
(3) 56 (4) 28

(SSC CGL Tier-I
Re-Exam. 30.08.2015)

- 24.** The unit digit in the product $(2467)^{153} \times (341)^{72}$ is

(1) 7 (2) 3
(3) 9 (4) 1

(SSC CGL Tier-II Exam.
25.10.2015, TF No. 1099685)

- 25.** The exponential form of

$\sqrt[3]{2} \times \sqrt[3]{3}$ is :

(1) 6 (2) $6^{\frac{1}{2}}$

(3) $6^{-\frac{1}{2}}$ (4) $6^{\frac{1}{4}}$

(SSC CHSL (10+2) LDC, DEO
& PA/SA Exam. 15.11.2015
(Ist Sitting) TF No. 6636838)

- 26.** The quotient when 10^{100} is divided by 5^{75} is :

(1) $2^{25} \times 10^{75}$ (2) 10^{25}
(3) 2^{75} (4) $2^{75} \times 10^{25}$

(SSC CHSL (10+2) LDC, DEO
& PA/SA Exam. 15.11.2015
(IIInd Sitting) TF No. 7203752)

- 27.** If $m^n = 169$, what is the value of $(m+1)^{(n-1)}$?

(1) 14 (2) 13
(3) 196 (4) 170

(SSC CPO Exam. 06.06.2016
(Ist Sitting))

POWER, INDICES AND SURDS

11. The value of the expression

$$\sqrt{6 + \sqrt{6 + \sqrt{6 + \dots + \text{upto } \infty}}}$$

- (1) 5 (2) 3
 (3) 2 (4) 30

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 20.12.2015
 (1st Sitting) TF No. 9692918)

12. The value of the following is :

$$\sqrt{12 + \sqrt{12 + \sqrt{12 + \dots}}}$$

- (1) $2\sqrt{2}$ (2) $2\sqrt{3}$
 (3) 2 (4) 4

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 20.03.2016)
 (IIInd Sitting)

13. Find the value of

$$\sqrt{10 + \sqrt{25 + \sqrt{108 + \sqrt{154 + \sqrt{225}}}}}.$$

- (1) 6 (2) 10
 (3) 8 (4) 4
 (SSC CGL Tier-I (CBE) Exam. 27.08.2016) (IIInd Sitting)

14. The value of

$$\sqrt{-3 + \sqrt{3 + 8\sqrt{7 + 4\sqrt{3}}}}$$

- (1) 2 (2) 4
 (3) ± 2 (4) -2
 (SSC CGL Tier-I (CBE) Exam. 02.09.2016) (Ist Sitting)

15. The value of $\sqrt{9 + 2\sqrt{16} + \sqrt[3]{512}}$

- is :
 (1) 6 (2) 5
 (3) $2\sqrt{8}$ (4) $3\sqrt{6}$

(SSC CGL Tier-I (CBE) Exam. 08.09.2016 (IIIrd Sitting))

TYPE-VII

1. Which of the following is closest to $\sqrt{3}$?

- (1) $\frac{9}{5}$ (2) 1.75

- (3) $\frac{173}{100}$ (4) 1.69

(SSC CGL Prelim Exam. 13.11.2005
 (First Sitting))

2. If $a = \frac{\sqrt{3}}{2}$, then the value of

$$\sqrt{1+a} + \sqrt{1-a}$$

- (1) $\sqrt{3}$ (2) $\frac{\sqrt{3}}{2}$
 (3) $2 + \sqrt{3}$ (4) $2 - \sqrt{3}$

(SSC CGL Prelim Exam. 04.02.2007
 (First Sitting))

3. If $a = \frac{\sqrt{5}+1}{\sqrt{5}-1}$ and $b = \frac{\sqrt{5}-1}{\sqrt{5}+1}$, the

value of $\left(\frac{a^2+ab+b^2}{a^2-ab+b^2} \right)$ is

- (1) $\frac{3}{4}$ (2) $\frac{4}{3}$
 (3) $\frac{3}{5}$ (4) $\frac{5}{3}$

(SSC Section Officer (Commercial Audit) Exam. 30.09.2007
 (Second Sitting))

4. If $x = 1 + \sqrt{2} + \sqrt{3}$, then the val-

ue of $\left(x + \frac{1}{x-1} \right)$ is

- (1) $1 + 2\sqrt{3}$ (2) $2 + \sqrt{3}$

- (3) $3 + \sqrt{2}$ (4) $2\sqrt{3} - 1$

(SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting))

5. If $x + \frac{1}{x} = -2$ then the value of

$x^{2n+1} + \frac{1}{x^{2n+1}}$ where n is a posi-

tive integer, is

- (1) 0 (2) 2
 (3) -2 (4) -5

(SSC CPO S.I. Exam. 09.11.2008)

6. If m and n ($n > 1$) are whole numbers such that $m^n = 121$, the value of $(m-1)^{n+1}$ is

- (1) 1 (2) 10
 (3) 121 (4) 1000

(SSC CPO S.I. Exam. 09.11.2008)

7. The number, which when multi-

plied with $(\sqrt{3} + \sqrt{2})$ gives

$$(\sqrt{12} + \sqrt{18}),$$

- is

- (1) $3\sqrt{2} - 2\sqrt{3}$ (2) $3\sqrt{2} + 2\sqrt{3}$

- (3) $\sqrt{6}$ (4) $2\sqrt{3} - 3\sqrt{2}$

(SSC CHSL DEO & LDC Exam. 28.11.2010 (IIInd Sitting))

8. If the product of first fifty positive consecutive integers be divisible by 7^n , where n is an integer, then the largest possible value of n is

- (1) 7 (2) 8

- (3) 10 (4) 5

(SSC CGL Tier-I Exam. 19.10.2014
 TF No. 022 MH 3)

9. If $9\sqrt{x} = \sqrt{12} + \sqrt{147}$, then $x = ?$

- (1) 5 (2) 3

- (3) 2 (4) 4

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting
 TF No. 545 QP 6)

10. A man is born in the year 1896 A.D. If in the year x^2 A.D. his age is $x - 4$, the value of x is

- (1) 40 (2) 44

- (3) 36 (4) 42

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 21.06.2015
 (Ist Sitting) TF No. 8037731)

11. Choose the incorrect relation(s) from the following:

(i) $\sqrt{6} + \sqrt{2} = \sqrt{5} + \sqrt{3}$

(ii) $\sqrt{6} + \sqrt{2} < \sqrt{5} + \sqrt{3}$

(iii) $\sqrt{6} + \sqrt{2} > \sqrt{5} + \sqrt{3}$

- (1) (ii) and (iii) (2) (i)

- (3) (ii) (4) (i) and (iii)

(SSC CGL Tier-I Exam. 09.08.2015
 (Ist Sitting) TF No. 1443088)

12. If $x = \frac{1}{\sqrt{2} + 1}$ then $(x+1)$ equals to

- (1) 2 (2) $\sqrt{2}$

- (3) $\sqrt{2} + 1$ (4) $\sqrt{2} - 1$

(SSC CGL Tier-I Exam. 16.08.2015
 (Ist Sitting) TF No. 3196279)

13. If $p = 5 + 2\sqrt{6}$ then $\frac{\sqrt{p} - 1}{\sqrt{p}}$ is

- (1) $1 + \sqrt{2} - \sqrt{3}$

- (2) $1 - \sqrt{2} + \sqrt{3}$

- (3) $-1 + \sqrt{2} - \sqrt{3}$

- (4) $1 - \sqrt{2} - \sqrt{3}$

(SSC CPO Exam. 06.06.2016
 (Ist Sitting))

POWER, INDICES AND SURDS

14. If $\sqrt{x} - \sqrt{y} = 1$, $\sqrt{x} + \sqrt{y} = 17$ then $\sqrt{xy} = ?$

- (1) $\sqrt{72}$ (2) 72

- (3) 32 (4) 24

(SSC CHSL (10+2) Tier-I (CBE) Exam. 08.09.2016) (Ist Sitting)

15. If $x = \sqrt{3} + \frac{1}{\sqrt{3}}$, then the value

$$\text{of } \left(x - \frac{\sqrt{126}}{\sqrt{42}} \right)$$

$$\left(x - \frac{1}{x - \frac{2\sqrt{3}}{3}} \right) \text{ is}$$

- (1) $5\frac{\sqrt{3}}{6}$ (2) $\frac{2\sqrt{3}}{3}$

- (3) $\frac{5}{6}$ (4) $\frac{2}{3}$

(SSC CHSL (10+2) Tier-I (CBE) Exam. 08.09.2016) (Ist Sitting)

16. If $4x = \sqrt{5} + 2$, then the value of

$$\left(x - \frac{1}{16x} \right) \text{ is}$$

- (1) 1 (2) -1

- (3) 4 (4) $2\sqrt{5}$

(SSC CGL Tier-I (CBE))

Exam. 09.09.2016) (Ist Sitting)

17. What is x , if $x^3 = 1.5^3 - 0.9^3 - 2.43$

- (1) -0.5 (2) 0.6

- (3) -0.7 (4) -1.6

(SSC CPO SI & ASI, Online

Exam. 06.06.2016) (IIInd Sitting)

18. If $\left(\frac{1}{5}\right)^{3y} = 0.008$, then the av-

lue of $(0.25)^y$ is :

- (1) 0.25 (2) 6.25

- (3) 2.5 (4) 53

(SSC CPO SI & ASI, Online

Exam. 06.06.2016) (IIInd Sitting)

19. If $x = 1 + \sqrt{2} + \sqrt{3}$, then find the value of $x^2 - 2x + 4$.

- (1) $2(7 + \sqrt{6})$ (2) $2(4 + \sqrt{6})$

- (3) $2(3 + \sqrt{7})$ (4) $(4 + \sqrt{6})$

(SSC CGL Tier-I (CBE))

Exam. 27.08.2016) (IIInd Sitting)

20. If $x = \sqrt{2} + 1$, then the value of

$$x^4 - \frac{1}{x^4} \text{ is}$$

- (1) $8\sqrt{2}$ (2) $18\sqrt{2}$

- (3) $6\sqrt{2}$ (4) $24\sqrt{2}$

(SSC CGL Tier-I (CBE))

Exam. 29.08.2016) (IIInd Sitting)

21. $\frac{1}{\sqrt{a}} - \frac{1}{\sqrt{b}} = 0$, then the value of

$$\frac{1}{a} + \frac{1}{b} \text{ is :}$$

- (1) $\frac{1}{\sqrt{ab}}$ (2) \sqrt{ab}

- (3) $\frac{2}{\sqrt{ab}}$ (4) $\frac{1}{2\sqrt{ab}}$

(SSC CGL Tier-I (CBE))

Exam. 03.09.2016) (IIInd Sitting)

22. If $x = (0.25)^{\frac{1}{z}}$, $y = (0.4)^2$, $z =$

$$(0.216)^{\frac{1}{3}}$$
, then

- (1) $y > x > z$ (2) $x > y > z$

- (3) $z > x > y$ (4) $x > z > y$

(SSC CGL Tier-I (CBE))

Exam. 30.08.2016) (IIInd Sitting)

23. If $a + \frac{1}{a} = 2$, then the value of

$$\left(a^5 + \frac{1}{a^5} \right) \text{ will be}$$

- (1) 0 (2) 1

- (3) 3 (4) 2

(SSC CGL Tier-I (CBE))

Exam. 01.09.2016) (IIInd Sitting)

24. If $x = 2 + \sqrt{3}$, then the value of

$$\frac{x^2 - x + 1}{x^2 + x + 1} \text{ is :}$$

- (1) $\frac{2}{3}$ (2) $\frac{3}{4}$

- (3) $\frac{4}{5}$ (4) $\frac{3}{5}$

(SSC CGL Tier-I (CBE))

Exam. 03.09.2016) (IIInd Sitting)

25. If $3a = 4b = 6c$ and $a + b + c =$

$27\sqrt{29}$ then $\sqrt{a^2 + b^2 + c^2}$ is equal to

- (1) 87 (2) $3\sqrt{29}$

- (3) 82 (4) 83

(SSC CGL Tier-I (CBE))

Exam. 04.09.2016) (IIInd Sitting)

26. If $(\sqrt{3} + 1)^2 = x + \sqrt{3}y$, then the

value of $(x + y)$ is

- (1) 2 (2) 4

- (3) 6 (4) 8

(SSC CGL Tier-I (CBE))

Exam. 04.09.2016) (IIIrd Sitting)

27. If $p = 9$, $q = \sqrt{17}$ then the value

$$\text{of } \left(p^2 - q^2 \right)^{-\frac{1}{3}} \text{ is equal to}$$

- (1) 4 (2) $\frac{1}{4}$

- (3) 3 (4) $\frac{1}{3}$

(SSC CGL Tier-I (CBE))

Exam. 04.09.2016) (IIIrd Sitting)

28. If $\sqrt{1 + \frac{x}{144}} = \frac{13}{12}$, then x equals

to

- (1) 1 (2) 13

- (3) 27 (4) 25

(SSC CGL Tier-I (CBE))

Exam. 06.09.2016) (IIIrd Sitting)

29. If $a = \sqrt{2} + 1$ and $b = \sqrt{2} - 1$,

then the value of $\frac{1}{a+1} + \frac{1}{b+1}$

will be

- (1) 0 (2) 1

- (3) 2 (4) -1

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016) (IIIrd Sitting)

5

AVERAGE

Importance : Concept of average is a basic concept of arithmetic and is important to solve many chapters. Specially 'average' questions are regularly asked in different competitive exams.

Scope of questions : Asked questions include Average age, Average income, Average marks/distance, arithmetic means of numbers, increase/decrease in average, minimum/maximum scope/quantity/number for certain average. Tabulation based/frequency based arithmetic means are also asked.

Way to success : Complete practice, Full concentration, Accuracy, speed and Rechecking are must for 'Average' formulae. Do calculations with care.

Rule 1 : Average of two or more numbers/quantities is called the mean of these numbers, which is given by

$$\text{Average}(A) = \frac{\text{Sum of observation / quantities}}{\text{No. of observation / quantities}}$$

$$\therefore S = A \times n$$

OR

$$\text{Average of numbers} = \frac{x_1 + x_2 + \dots + x_n}{n}$$

$$\text{or, Average} = \frac{\sum_{i=1}^n x_i}{n}$$

Rule 2 : If the given observations (x) are occurring with certain frequency (A) then,

$$\text{Average} = \frac{A_1 x_1 + A_2 x_2 + \dots + A_n x_n}{x_1 + x_2 + \dots + x_n}$$

where, $A_1, A_2, A_3, \dots, A_n$ are frequencies

Rule 3 : The average of 'n' consecutive natural numbers starting from 1 i.e. Average of 1,2,3,n = $\frac{n+1}{2}$

Rule 4 : The average of squares of 'n' consecutive natural numbers starting from 1 i.e.

$$\text{Average of } 1^2, 2^2, 3^2, 4^2, \dots, n^2 = \frac{(n+1)(2n+1)}{6}$$

Rule 5 : The average of cubes of first 'n' consecutive natural numbers i.e. Average of $1^3, 2^3, 3^3, \dots, n^3 = \frac{n(n+1)^2}{4}$

Rule 6 : The average of first 'n' consecutive even natural numbers i.e. Average of 2, 4, 6, $2n = (n + 1)$

Rule 7 : The average of first 'n' consecutive odd natural numbers i.e. 1, 3, 5, $(2n - 1) = n$

Rule 8 : The average of certain consecutive numbers a, b, c, n is $\frac{a+n}{2}$

Rule 9 : The average of 1st 'n' multiples of certain numbers x = $\frac{x(1+n)}{2}$

Rule 10 : If the average of ' n_1 ' numbers is a_1 and the average of ' n_2 ' numbers is a_2 , then average of total numbers

$$n_1 \text{ and } n_2 \text{ is Average} = \frac{n_1 a_1 + n_2 a_2}{n_1 + n_2}$$

Rule 11 : If A goes from P to Q with speed x km/h and returns from Q to P with speed y km/h, then the average speed of total journey is

$$\text{Average speed} = \frac{2xy}{x+y} = \frac{\text{total distance}}{\text{total time taken}}$$

Rule 12 : If a distance is travelled with three different speeds a km/h, b km/h and c km/h, then

$$\text{Average speed of total journey} = \frac{3abc}{ab+bc+ca} \text{ km/h}$$

Rule 13 : If the average of m numbers is x and out of these 'm' numbers the average of n numbers is y. (or vice versa) then the average of remaining numbers will be

AVERAGE

(i) Average of remaining numbers

$$= \frac{mx - ny}{m - n} \quad (\text{if } m > n)$$

(ii) Average of remaining numbers

$$= \frac{ny - mx}{n - m} \quad (\text{if } n > m)$$

Rule 14 : In three numbers, if 1st number is 'a' times of 2nd number and 'b' times of 3rd number and the average

$$\text{of all three numbers is } x, \text{ then } 1\text{st number} = \frac{3ab}{a + b + ab} x.$$

Rule 15 : From three numbers, first number is 'a' times of 2nd number, 2nd number is 'b' times of 3rd number and the average of all three numbers is x, then,

$$\text{First number} = \frac{3ab}{1 + b + ab} x$$

$$\text{Second number} = \frac{3b}{1 + b + ab} x$$

$$\text{Third number} = \frac{3b}{1 + b + ab} x$$

Rule 16 : If from $(n + 1)$ numbers, the average of first n numbers is 'F' and the average of last n numbers is 'L', and the first number is 'f' and the last number is 'l' then $f - l = n(F - L)$

Rule 17 : 't' years before, the average age of N members of a family was 'T' years. If during this period 'n' children increased in the family but average age (present) remains same, then,

$$\text{Present age of } n \text{ children} = n.T - N.t$$

Rule 18 : If in the group of N persons, a new person comes at the place of a person of 'T' years, so that average age, increases by 't' years

$$\text{Then, the age of the new person} = T + N.t$$

If the average age decreases by 't' years after entry of new person, then the age of the new person = $T - N.t$

Rule 19 : The average age of a group of N students is 'T' years. If 'n' students join, the average age of the group increases by 't' years, then Average age of new students

$$= T + \left(\frac{N}{n} + 1 \right) t$$

If the average age of the group decreases by 't' years, then

$$\text{Average age of new students} = T - \left(\frac{N}{n} + 1 \right) t$$

Rule 20 : If the average of 'n' observations is 'x' and from these the average of 1st 'm' observations is 'y' and the average of last 'm' observations is 'z' then

$$\text{mth observation} = m(y + z) - nx$$

$$(m + 1)\text{th observation} = nx - m(y + z)$$

Rule 21 : If the average age (height) of 'n' persons is x year (cms) and from them 'm' persons went out whose average age (height) is 'y' years (cms) and same number of persons joined whose average age (height) is 'z' years (cms) then what is the average age (height) of n persons ?

$$\therefore \text{Average age} = \left\{ x - \frac{m(y - z)}{n} \right\} \text{years (cms).}$$

$$\text{Rule 22 : Average of bowler} = \frac{\text{Total runs}}{\text{No. of wickets}}$$

$\therefore \text{Total runs} = \text{Average (A). } y, \text{ where } y = \text{Number of wickets.}$

Rule 23 : If in a group, one member is replaced by a new member, then,

$$\begin{aligned} \text{Age of new member} &= (\text{age of replaced member}) \pm xn \\ \text{where, } x &= \text{increase (+) or decrease (-) in average} \\ n &= \text{Number of members.} \end{aligned}$$

Rule 24 : If a new member is added in a group then. age (or income) of added member = Average (or income) $\pm x(n + 1)$

where x = increase (+) or decrease (-) in average age (or income) n = Number of members.

Rule 25 : If a member leaves the group, then income (or age) of left member = Average income (or age) $\pm x(n - 1)$

where, x = increase (+) or decrease (-) in average income (or age) n = Number of members.

Rule 26 : If average of n numbers is m later on it was found that a number 'a' was misread as 'b'. The correct

$$\text{average will be} = m + \frac{(a - b)}{n}$$

Rule 27 : If the average of n numbers is m later on it was found that two numbers a and b misread as p and q.

$$\text{The correct average} = m + \frac{(a + b - p - q)}{n}$$



QUESTIONS ASKED IN PREVIOUS SSC EXAMS

TYPE-I

- 1.** A student was asked to find the arithmetic mean of the following 12 numbers :

3, 11, 7, 9, 15, 13, 8, 19, 17, 21, 14 and x

He found the mean to be 12. The value of x will be :

- (1) 3 (2) 7
 (3) 17 (4) 31

(SSC CGL Prelim Exam. 04.07.1999
 (First Sitting)

- 2.** The average of the marks obtained in an examination by 8 students was 51 and by 9 other students was 68. The average marks of all 17 students was :

- (1) 59 (2) 59.5
 (3) 60 (4) 60.5

(SSC CGL Prelim Exam. 04.07.1999
 (First Sitting)

- 3.** If the average marks of three batches of 55, 60 and 45 students respectively is 50, 55 and 60, then the average marks of all the students is

- (1) 54.68 (2) 53.33
 (3) 55 (4) None of these

(SSC CPO S.I. Exam. 12.01.2003)

- 4.** The average of 30 results is 20 and the average of other 20 results is 30. What is the average of all the results ?

- (1) 24 (2) 48
 (3) 25 (4) 50

(SSC CGL Prelim Exam. 11.05.2003
 (First Sitting)

- 5.** If the average weight of 6 students is 50 kg; that of 2 students is 51 kg; and that of other 2 students is 55 kg; then the average weight of all students is

- (1) 61 kg (2) 51.5 kg
 (3) 52 kg (4) 51.2 kg

(SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting)

- 6.** The average of 10 numbers is 7. If each number is multiplied by 12, then the average of the new set of numbers will be

- (1) 7 (2) 19
 (3) 82 (4) 84

(SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting)

- 7.** The average income of 40 persons is ₹ 4200 and that of another 35 persons is ₹ 4000. The average income of the whole group is :

- (1) ₹ 4100 (2) ₹ 4106 $\frac{1}{3}$

- (3) ₹ 4106 $\frac{2}{3}$ (4) ₹ 4108 $\frac{1}{3}$

(SSC CGL Prelim Exam. 04.07.1999
 (Second Sitting)

- 8.** The average weight of five persons sitting in a boat is 38 kg. The average weight of the boat and the persons sitting in the boat is 52kg. What is the weight of the boat ?

- (1) 228 kg (2) 122 kg
 (3) 232 kg (4) 242 kg

FCI Assistant Grade-III
 Exam.05.02.2012(Paper-I)
 East Zone (IIInd Sitting)

- 9.** The average marks of 32 boys of section A of class X is 60 whereas the average marks of 40 boys of section B of class X is 33. The average marks for both the sections combined together is

- (1) 44 (2) 45
 (3) 46 $\frac{1}{2}$ (4) 45 $\frac{1}{2}$

(SSC Data Entry Operator
 Exam. 02.08.2009)

- 10.** Total weekly emoluments of the workers of a factory is ₹ 1534. Average weekly emolument of a worker is ₹ 118. The number of workers in the factory is :

- (1) 16 (2) 14
 (3) 13 (4) 12

(SSC CHSL DEO & LDC
 Exam. 27.11.2010)

- 11.** 12 kg of rice costing ₹ 30 per kg is mixed with 8 kg of rice costing ₹ 40 per kg. The average per kg price of mixed rice is

- (1) ₹ 38 (2) ₹ 37
 (3) ₹ 35 (4) ₹ 34

(SSC CHSL DEO & LDC
 Exam. 28.11.2010 (Ist Sitting)

- 12.** If average of 20 observations x_1, x_2, \dots, x_{20} is y , then the average of $x_1 - 101, x_2 - 101, x_3 - 101, \dots, x_{20} - 101$ is
 (1) $y - 20$ (2) $y - 101$
 (3) $20y$ (4) $101y$

(SSC CISF Constable (GD)
 Exam. 05.06.2011)

- 13.** The average of x numbers is y and average of y numbers is x . Then the average of all the numbers taken together is

- (1) $\frac{x+y}{2xy}$ (2) $\frac{2xy}{x+y}$

- (3) $\frac{x^2+y^2}{x+y}$ (4) $\frac{xy}{x+y}$

(SSC CHSL DEO & LDC Exam.
 04.12.2011 (Ist Sitting (East Zone)

- 14.** The average of x numbers is y^2 and the average of y numbers is x^2 . So the average of all the numbers taken together is

- (1) $\frac{x^3+y^3}{x+y}$ (2) xy

- (3) $\frac{x^2+y^2}{x+y}$ (4) $xy^2 + yx^2$

(SSC CHSL DEO & LDC Exam.
 04.12.2011 (IIInd Sitting (East Zone)

- 15.** The average of n numbers x_1, x_2, \dots, x_n is \bar{x} . Then the value

of $\sum_{i=1}^n (x_i - \bar{x})$ is equal to

- (1) n (2) 0
 (3) $n\bar{x}$ (4) \bar{x}

(SSC CHSL DEO & LDC Exam.
 11.12.2011 (Ist Sitting (Delhi Zone)

- 16.** A man bought 13 articles at ₹ 70 each, 15 at ₹ 60 each and 12 at ₹ 65 each. The average price per article is

- (1) ₹ 60.25 (2) ₹ 64.75
 (3) ₹ 65.75 (4) ₹ 62.25

(SSC Constable (GD) & Rifleman
 (GD) Exam. 22.04.2012 (Ist Sitting)

AVERAGE

- 17.** A library has an average number of 510 visitors on Sunday and 240 on other days. The average number of visitors per day in a month of 30 days beginning with Sunday is :
(1) 285 (2) 295
(3) 300 (4) 290
(SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting))
- 18.** The average of 30 numbers is 40 and that of other 40 numbers is 30. The average of all the numbers is
(1) $34\frac{2}{7}$ (2) 35
(3) 34 (4) 34.5
(SSC CHSL DEO & LDC Exam. 20.10.2013)
- 19.** The average of 20 numbers is 15 and the average of first five is 12. The average of the rest is
(1) 16 (2) 15
(3) 14 (4) 13
(SSC Graduate Level Tier-I Exam. 19.05.2013)
- 20.** The average monthly expenditure of a family is ₹2,200 during first three months, ₹2,550 during next four months and ₹3,120 during last five months of the year. If the total savings during the year was ₹1,260, what is the average monthly income ?
(1) ₹ 1,260 (2) ₹ 1,280
(3) ₹ 2,805 (4) ₹ 2,850
(SSC Graduate Level Tier-I Exam. 11.11.2012, Ist Sitting)
- 21.** Find the average of 1.11, 0.01, 0.101, 0.001, 0.11
(1) 0.2664 (2) 0.2554
(3) 0.1264 (4) 0.1164
(SSC Multi-Tasking Staff Exam. 10.03.2013, Ist Sitting : Patna)
- 22.** 4 boys and 3 girls spent ₹ 120 on the average, of which boys spent ₹ 150 on the average. Then the average amount spent by the girls is
(1) ₹ 80 (2) ₹ 60
(3) ₹ 90 (4) ₹ 100
(SSC Multi-Tasking Staff Exam. 10.03.2013, Ist Sitting : Patna)
- 23.** Six tables and twelve chairs were bought for ₹ 7,800. If the average price of a table is ₹ 750, then the average price of a chair would be
(1) ₹ 250 (2) ₹ 275
(3) ₹ 150 (4) ₹ 175
(SSC Multi-Tasking Staff Exam. 17.03.2013, Ist Sitting)
- 24.** Out of 20 boys, 6 are each of 1 m 15 cm height, 8 are of 1 m 10 cm and rest of 1 m 12 cm. The average height of all of them is
(1) 1 m 12.1 cm
(2) 1 m 21.1 cm
(3) 1 m 21 cm
(4) 1 m 12 cm
(SSC Multi-Tasking Staff Exam. 17.03.2013, IInd Sitting)
- 25.** There are two groups A and B of a class, consisting of 42 and 28 students respectively. If the average weight of group A is 25 kg and that of group B is 40 kg, find the average weight of the whole class.
(1) 69 kg (2) 31 kg
(3) 70 kg (4) 30 kg
(SSC FCI Assistant Grade-III Main Exam. 07.04.2013)
- 26.** The average monthly salary of all the employees in an industry is ₹ 12,000. The average salary of male employees is ₹ 15,000 and that of female employees is ₹ 8,000. What is the ratio of male employees to female employees ?
(1) 5 : 2 (2) 3 : 4
(3) 4 : 3 (4) 2 : 5
(SSC FCI Assistant Grade-III Main Exam. 07.04.2013)
- 27.** The mean of 9 observations is 16. One more observation is included and the new mean becomes 17. The 10th observation is
(1) 9 (2) 16
(3) 26 (4) 30
(SSC CISF ASI Exam 29.08.2010 (Paper-1))
- 28.** The average of 8 numbers is 27. If each of the numbers is multiplied by 8, find the average of new set of numbers.
(1) 1128 (2) 938
(3) 316 (4) 216
(SSC Constable (GD) Exam. 12.05.2013 Ist Sitting)
- 29.** The average of 100 numbers is 44. The average of these 100 numbers and 4 other new numbers is 50. The average of the four new numbers will be
(1) 800 (2) 200
(3) 176 (4) 24
(SSC CGL Prelim Exam. 04.02.2007 (First Sitting))
- 30.** The average of 30 numbers is 15. The average of the first 18 numbers is 10 and that of the next 11 numbers is 20. The last number is
(1) 56 (2) 52
(3) 60 (4) 50
(SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (Second Sitting))
- 31.** The arithmetic mean of the following numbers
1, 2, 2, 3, 3, 3, 4, 4, 4, 4, 5, 5, 5, 5, 6, 6, 6, 6, 6 and 7, 7, 7, 7, 7, 7 is
(1) 4 (2) 5
(3) 14 (4) 20
(SSC CGL Tier-II Exam. 21.09.2014)
- 32.** The average of all the numbers between 6 and 50 which are divisible by 5 is
(1) 27.5 (2) 30
(3) 28.5 (4) 22
(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)
- 33.** There are 100 students in 3 sections A, B and C of a class. The average marks of all the 3 sections was 84. The average of B and C was 87.5 and the average marks of A is 70. The number of students in A was
(1) 30 (2) 35
(3) 20 (4) 25
(SSC CGL Tier-I Exam. 19.10.2014 TF No. 022 MH 3)
- 34.** The average weight of first 11 persons among 12 persons is 95 kg. The weight of 12th person is 33 kg more than the average weight of all the 12 persons. The weight of the 12th person is
(1) 128.75 kg (2) 128 kg
(3) 131 kg (4) 97.45 kg
(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

AVERAGE

35. The average weight of A, B and C is 45 kg. If the average weight of A and B be 40 kg and that of B and C be 43 kg, then the weight (in kg) of B is

- (1) 20 (2) 26
 (3) 31 (4) 17

(SSC CGL Tier-II Exam, 2014 12.04.2015
 (Kolkata Region)
 TF No. 789 TH 7)

36. The average of some natural numbers is 15. If 30 is added to first number and 5 is subtracted from the last number the average becomes 17.5 then the number of natural number is

- (1) 15 (2) 30
 (3) 20 (4) 10

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
 (1st Sitting) TF No. 8037731)

37. The average weight of 3 men A, B and C is 84 kg. Another man D joins the group and the average now becomes 80 kg. If another man E whose weight is 3 kg more than that of D, replaces A, then the average weight of B, C, D and E becomes 79 kg. Then weight of A is

- (1) 72 kg. (2) 74 kg.
 (3) 75 kg. (4) 76 kg.

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
 IIInd Sitting and SSC CGL Tier-I Exam, 16.08.2015
 (IIInd Sitting) TF No. 2176783)

38. The average weight of 15 oarsmen in a boat is increased by 1.6 kg when one of the crew, who weighs 42 kg is replaced by a new man. Find the weight of the new man (in kg).

- (1) 67 (2) 65
 (3) 66 (4) 43

(SSC CGL Tier-I Exam, 09.08.2015
 (1st Sitting) TF No. 1443088)

39. A librarian purchased 50 story-books for his library. But he saw that he could get 14 more books by spending Rs. 76 more and the average price per book would be reduced by Re. 1. The average price (in Rs.) of each book he bought, was :

- (1) 15 (2) 10
 (3) 25 (4) 20

(SSC CGL Tier-I Exam, 16.08.2015
 (IIInd Sitting) TF No. 2176783)

40. The average of 1, 3, 5, 7, 9, 11, to 25 terms is

- (1) 125 (2) 25
 (3) 625 (4) 50

(SSC Constable (GD) Exam, 04.10.2015, 1st Sitting)

41. Six friends have an average height of 167 cms. A boy with height 162 cm leaves the group. Find the new average height.

- (1) 168 cm (2) 166 cm
 (3) 169 cm (4) 167 cm

(SSC Constable (GD) Exam, 04.10.2015, IIInd Sitting)

42. The average weight of 8 persons increases by 2.5 kg when a new person comes in place of one of them weighing 65 kg. The weight of the new person is

- (1) 84 kg (2) 85 kg
 (3) 76 kg (4) 76.5 kg

(SSC Constable (GD) Exam, 04.10.2015, IIInd Sitting)

43. Three Science classes A, B and C take a Life Science test. The average score of class A is 83. The average score of class B is 76. The average score of class C is 85. The average score of class A and B is 79 and average score of class B and C is 81. Then the average score of classes A, B and C is

- (1) 81.5 (2) 81
 (3) 80.5 (4) 80

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

44. The mean high temperature of the first four days of a week is 25°C whereas the mean of the last four days is 25.5°C. If the mean temperature of the whole week is 25.2°C then the temperature on the 4th day is

- (1) 25.5°C (2) 25°C
 (3) 25.2°C (4) 25.6°C

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IIInd Sitting)

45. The average marks of 50 students in a class is 72. The average marks of boys and girls in that subject are 70 and 75 respectively. The number of boys in the class is

- (1) 20 (2) 35
 (3) 25 (4) 30

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015 (1st Sitting) TF No. 9692918)

46. The average marks obtained by a class of 60 students is 65. The average marks of half of the students is found to be 85. The average marks of the remaining students is

- (1) 35 (2) 45
 (3) 55 (4) 65

(SSC CGL Tier-I (CBE) Exam. 10.09.2016)

47. The average of marks obtained by 100 candidates in a certain examination is 30. If the average marks of passed candidates is 35 and that of the failed candidates is 10, what is the number of candidates who passed the examination?

- (1) 60 (2) 70
 (3) 80 (4) 90

(SSC CGL Tier-I (CBE) Exam. 11.09.2016) (1st Sitting)

48. The average weight of A, B and C is 45 kg. If the average weight of A and B be 40 kg and that of B and C be 43 kg, then the weight of B is :

- (1) 31 kg. (2) 32 kg.
 (3) 29.5 kg. (4) 35 kg.

(SSC CGL Tier-II Online Exam.01.12.2016)

49. The average of 25 results is 20. The average of first 12 results is 15 and that of the last 12 results is 18. Then, the 13th result is :

- (1) 100 (2) 101
 (3) 104 (4) 103

(SSC CPO Exam. 06.06.2016) (1st Sitting)

50. The average of 100 observations was calculated as 35. It was found later, that one of the observations was misread as 83 instead of 53. The correct average is :

- (1) 32.7 (2) 34.7
 (3) 35.7 (4) 36.7

(SSC CHSL (10+2) Tier-I (CBE) Exam. 08.09.2016) (1st Sitting)

51. If the difference between the average of x , y and z is 12, then the difference between x and z is :

- (1) 24 (2) 48
 (3) 12 (4) 6

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 20.03.2016) (IIInd Sitting)

52. The average of the first 7 integers in a series of 13 consecutive odd integers is 37. What is the average of the entire series?

- (1) 37 (2) 39
 (3) 41 (4) 43

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016) (1st Sitting)

AVERAGE

- 53.** The average marks of a class of 35 children is 35. The marks of one of the students, who got 35, was incorrectly entered as 65. What is the correct average of the class?

(1) 33.76 (2) 34.14
 (3) 35.24 (4) 36.50
 (SSC CAPFs (CPO) SI & ASI,
 Delhi Police Exam. 05.06.2016)
 (1st Sitting)

- 54.** The average height of 30 boys out of a class of 50 is 160 cm. If the average height of the remaining boys is 165 cm, the average height of the whole class (in cm) is :

(1) 161 (2) 162
 (3) 163 (4) 164
 (SSC CGL Tier-I (CBE)
 Exam. 27.08.2016) (1st Sitting)

- 55.** The average of marks of 17 students in an examination was calculated as 71. But it was later found that the mark of one student had been wrongly entered as 65 instead of 56 and another as 24 instead of 50. The correct average is

(1) 70 (2) 71
 (3) 72 (4) 73
 (SSC CGL Tier-I (CBE)
 Exam. 31.08.2016) (1st Sitting)

- 56.** The average of 12 numbers is 9. If each number is multiplied by 2 and added to 3, the average of the new set of numbers is

(1) 9 (2) 18
 (3) 21 (4) 27
 (SSC CGL Tier-I (CBE)
 Exam. 01.09.2016) (1st Sitting)

- 57.** The average of 20 numbers is calculated as 35. It is discovered later on that while calculating the average, one number, namely 85, was mis read as 45. The correct average is :

(1) 36 (2) 36.5
 (3) 37 (4) 37.5
 (SSC CGL Tier-I (CBE)
 Exam. 28.08.2016 (1ST Sitting)

- 58.** The average of a , b and c is 20 and that of b , c and d is 25. If $d = 30$, then the value of a is :

(1) 25 (2) 45
 (3) 30 (4) 15
 (SSC CGL Tier-I (CBE)
 Exam. 29.08.2016 (1ST Sitting)

- 59.** In a class, average height of all students is ' a ' cms. Among them, average height of 10 students is ' b ' cms and the average height of the remaining students is ' c ' cms. Find the number of students in the class. (Here $a > c$ and $b > c$)

(1) $\frac{(a(b-c))}{(a-c)}$ (2) $\frac{(b-c)}{(a-c)}$

$$(3) \frac{(b-c)}{10(a-c)} \quad (4) \frac{10(b-c)}{(a-c)}$$

(SSC CGL Tier-I (CBE)
 Exam. 01.09.2016 (IIIrd Sitting)

- 60.** Nine students of a class contribute a certain sum of money. Seven of them gave Rs. 50 each and the other two gave respectively Rs. 50 and Rs. 90 more than the others. The average contribution of the class of 9 students is :

(1) Rs. 70 (2) Rs. 50
 (3) Rs. 100 (4) Rs. 120
 (SSC CGL Tier-I (CBE)
 Exam. 03.09.2016 (IIInd Sitting)

- 61.** The average temperature for Monday, Tuesday, Wednesday and Thursday was 48° . The average temperature for Tuesday, Wednesday, Thursday and Friday was 52° . If the temperature on Monday was 42° , then the temperature on Friday was (in degrees)

(1) 58 (2) 56
 (3) 52 (4) 50
 (SSC CGL Tier-I (CBE)
 Exam. 04.09.2016 (IIIrd Sitting)

- 62.** If the arithmetic mean of 7, 5, 13, x and 9 is 10, then the value of x is :

(1) 10 (2) 12
 (3) 14 (4) 16
 (SSC CGL Tier-I (CBE)
 Exam. 08.09.2016 (IIIrd Sitting)

- 63.** The average revenues of 7 consecutive years of a company is Rs. 75 lakhs. If the average of first 4 years is Rs. 70 lakhs and that of last 4 years is Rs. 82 lakhs, what will be the revenue for the 4th year ?

(1) Rs. 85 lakhs (2) Rs. 83 lakhs
 (3) Rs. 81 lakhs (4) Rs. 79 lakhs
 (SSC CHSL (10+2) Tier-I (CBE)
 Exam. 15.01.2017) (IIInd Sitting)

- 30.** In an examination the average marks obtained by John in English, Maths, Hindi and Drawing were 50. His average marks in Maths, Science, Social Studies and Craft were 70. If the average marks in all seven subjects is 58, his score in maths was

(1) 50 (2) 52
 (3) 60 (4) 74
 (SSC CGL Tier-II (CBE)
 Exam. 12.01.2017)

- 41.** The average of prime numbers between 1 and 20 is

(1) 9 (2) $9\frac{5}{8}$
 (3) $10\frac{1}{8}$ (4) 8
 (SSC Multi-Tasking Staff
 Exam. 30.04.2017)

TYPE-II

- 1.** The average of 9 numbers is 30. The average of first 5 numbers is 25 and that of the last 3 numbers is 35. What is the 6th number?

(1) 20 (2) 30
 (3) 40 (4) 50
 (SSC CGL Prelim Exam. 27.02.2000
 (Second Sitting)

- 2.** The average of 15 numbers is 7. If the average of the first 8 numbers be 6.5 and the average of last 8 numbers be 9.5, then the middle number is

(1) 20 (2) 21
 (3) 23 (4) 18
 (SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting)

- 3.** The average of 8 numbers is 20. The average of first two numbers is $15\frac{1}{2}$ and that of the next

three is $21\frac{1}{3}$. If the sixth number be less than the seventh and eighth numbers by 4 and 7 respectively, then the eighth number is :

(1) 18 (2) 22
 (3) 25 (4) 27
 (SSC CGL Prelim Exam. 08.02.2004
 (First Sitting)

- 4.** The average of 20 numbers is 12. The average of the first 12 numbers is 11 and that of the next 7 numbers is 10. The last number is :

(1) 40 (2) 38
 (3) 48 (4) 50
 (SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting)

- 5.** Out of seven given numbers, the average of the first four numbers is 4 and that of the last four numbers is also 4. If the average of all the seven numbers is 3, fourth number is

(1) 3 (2) 4
 (3) 7 (4) 11
 (SSC CGL Prelim Exam. 04.02.2007
 (First Sitting)

AVERAGE

- 6.** The average temperature of the first 4 days of a week was 37°C and that of the last 4 days of the week was 41°C . If the average temperature of the whole week was 39°C , the temperature of the fourth day was
 (1) 38°C (2) 38.5°C
 (3) 39°C (4) 40°C
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (IInd Sitting))
- 7.** In a certain year, the average monthly income of a person was ₹ 3,400. For the first eight months of the year, his average monthly income was ₹ 3,160 and for the last five months, it was ₹ 4,120. His income in the eighth month of the year was
 (1) ₹ 3,160 (2) ₹ 5,080
 (3) ₹ 15,520 (4) ₹ 5,520
 (SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))
- 8.** The average of 30 numbers is 12. The average of the first 20 of them is 11 and that of the next 9 is 10. The last number is
 (1) 60 (2) 45
 (3) 40 (4) 50
 (SSC CGL Prelim Exam. 27.07.2008 (First Sitting))
- 9.** The average of 11 results is 50. If the average of the first six results is 49 and that of the last six is 52, the sixth no. is
 (1) 48 (2) 50
 (3) 52 (4) 56
 (SSC Graduate Level Tier-II Exam. 29.09.2013)
- 10.** The average of eight successive numbers is 6.5. The average of the smallest and the greatest numbers among them will be :
 (1) 4 (2) 6.5
 (3) 7.5 (4) 9
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (Ist Sitting))
- 11.** The average of three numbers is 135. The largest number is 195 and the difference between the other two is 20. The smallest number is
 (1) 65 (2) 95
 (3) 105 (4) 115
 (SSC Multi-Tasking (Non-Technical) Staff Exam. 20.02.2011, 22.02.2011)
- 12.** Out of four numbers, the average of the first three is 18 and that of the last three is 16. If the last number is 19, the first is
 (1) 19 (2) 18
 (3) 20 (4) 25
 (SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (IInd Sitting))
- 13.** The mean of 11 numbers is 35. If the mean of first 6 numbers is 32 and that of the last 6 numbers is 37, find the sixth number.
 (1) 28 (2) 29
 (3) 30 (4) 27
 (SSC CHSL DEO & LDC Exam. 28.10.2012)
- 14.** Out of four numbers, the average of the first three is 15 and that of the last three is 16. If the last number is 19, the first is
 (1) 19 (2) 15
 (3) 16 (4) 18
 (SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting))
- 15.** The average of nine numbers is 50. The average of the first five numbers is 54 and that of the last three numbers is 52. Then the sixth number is
 (1) 30 (2) 34
 (3) 24 (4) 44
 (SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting))
- 16.** The average of 11 numbers is 63. If the average of first six numbers is 60 and the last six numbers is 65, then the 6th number is
 (1) 57 (2) 60
 (3) 62 (4) 64
 (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)
- 17.** Three numbers are such that the average of first two numbers is 2, the average of the last two numbers is 3 and the average of the first and the last numbers is 4, then the average of three numbers is equal to
 (1) 2 (2) 3.5
 (3) 3 (4) 2.5
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IInd Sitting TF No. 545 QP 6)
- 18.** The average of the largest and smallest 3 digit numbers formed by 0, 2 and 4 would be
 (1) 312 (2) 213
 (3) 222 (4) 303
 (SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)
- 19.** The average of six numbers is 3.95. The average of two of them is 3.4, while the average of the other two is 3.85. The average of the remaining two numbers is
 (1) 4.6 (2) 4.5
 (3) 4.8 (4) 4.7
 (SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)
- 20.** Out of four numbers the average of the first three is 16 and that of the last three is 15. If the last number is 20 then the first number is
 (1) 23 (2) 25
 (3) 28 (4) 21
 (SSC CGL Tier-I Exam. 09.08.2015 (IInd Sitting) TF No. 4239378)
- 21.** Average of n numbers is a . The first number is increased by 2, second one is increased by 4, the third one is increased by 8 and so on. The average of the new numbers is
 (1) $a + \frac{2^{n-1} - 1}{n}$ (2) $a + 2 \frac{2^n - 1}{n}$
 (3) $a + \frac{2^{n-1}}{n}$ (4) $a + \frac{2^n - 1}{n}$
 (SSC CGL Tier-II Exam. 25.10.2015, TF No. 1099685)
- 22.** The average of 12 numbers is 15 and the average of the first two is 14. What is the average of the rest?
 (1) 15 (2) $15 \frac{1}{5}$
 (3) 14 (4) $14 \frac{1}{5}$
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IInd Sitting) TF No. 7203752)
- 23.** The average of 8 numbers is 21. If each of the numbers is multiplied by 8, the average of the new set of numbers is :
 (1) 21 (2) 29
 (3) 8 (4) 168
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)
- 24.** The average of 13 results is 70. The average of first seven is 65 and that of the last seven is 75, the seventh result is :
 (1) 67 (2) 70
 (3) 68 (4) 70.5
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IInd Sitting) TF No. 3441135)

AVERAGE

- 25.** The average of two numbers is 8 and the average of other three numbers is 3. The average of the five numbers is :

(1) 2 (2) 3
 (3) 5 (4) 6

(SSC CGL Tier-I (CBE)
 Exam. 31.08.2016 (IIIrd Sitting)

- 26.** The average of 15 numbers is 7. If the average of the first 8 numbers is 6.5 and the average of the last 8 numbers is 8.5, then the middle number is :

(1) 10 (2) 23
 (3) 13 (4) 15

(SSC CGL Tier-I (CBE)
 Exam. 08.09.2016 (IIInd Sitting)

TYPE-III

- 1.** The average of 7 consecutive numbers is 20. The largest of these numbers is :

(1) 24 (2) 23
 (3) 22 (4) 20

(SSC CGL Prelim Exam. 27.02.2000
 (Ist Sitting) and SSC Constable
 (GD) & Rifleman (GD)
 Exam. 24.04.2012 (Ist Sitting)

- 2.** The average of first nine prime numbers is

(1) 9 (2) 11
 (3) $11\frac{2}{9}$ (4) $11\frac{1}{9}$

(SSC CPO S.I. Exam. 12.01.2003)

- 3.** The average of 5 consecutive natural numbers is m. If the next three natural numbers are also included, how much more than m will the average of these 8 numbers be?

(1) 2 (2) 1
 (3) 1.4 (4) 1.5

(SSC CPO S.I. Exam. 03.09.2006)

- 4.** The average of the first 100 positive integers is

(1) 100 (2) 51
 (3) 50.5 (4) 49.5
 (SSC CGL Tier-I Exam. 16.05.2010
 (First Sitting))

- 5.** The average of odd numbers upto 100 is

(1) 50.5 (2) 50
 (3) 49.5 (4) 49

(SSC Data Entry Operator Exam.
 02.08.2009 & SSC CGL Tier-I
 Exam. 16.05.2010 (IIInd Sitting))

- 6.** The average of the squares of first ten natural numbers is

(1) 35.5 (2) 36
 (3) 37.5 (4) 38.5
 (SSC SAS Exam 26.06.2010
 (Paper-1))

- 7.** The arithmetic mean (average) of the first 10 whole numbers is

(1) 5 (2) 4
 (3) 5.5 (4) 4.5

(SSC CISF ASI Exam 29.08.2010
 (Paper-1))

- 8.** The average of three consecutive odd numbers is 12 more than one third of the first of these numbers. What is the last of the three numbers ?

(1) 15 (2) 17
 (3) 19 (4) Data inadequate

(SSC CGL Tier-I Exam 19.06.2011
 (Second Sitting))

- 9.** The average of nine consecutive odd numbers is 53. The least odd number is

(1) 22 (2) 27
 (3) 35 (4) 45

(SSC Data Entry Operator
 Exam. 31.08.2008)

- 10.** The average of the first nine integral multiples of 3 is

(1) 21 (2) 12
 (3) 15 (4) 18

(SSC Graduate Level Tier-I
 Exam. 19.05.2013 Ist Sitting)

- 11.** The average of seven consecutive positive integers is 26. The smallest of these integers is :

(1) 21 (2) 23
 (3) 25 (4) 26

(SSC CHSL DEO & LDC
 Exam. 27.11.2010)

- 12.** a, b, c, d, e, f, g are consecutive even numbers. j, k, l, m, n are consecutive odd numbers. The average of all the numbers is

$$(1) 3 \left(\frac{a+n}{2} \right)$$

$$(2) \left(\frac{l+d}{2} \right)$$

$$(3) \frac{a+b+m+n}{4}$$

$$(4) \frac{j+c+n+g}{4}$$

(SSC CHSL DEO & LDC
 Exam. 04.12.2011
 (IIInd Sitting (North Zone)))

- 13.** If the average of 6 consecutive even numbers is 25, the difference between the largest and the smallest number is

(1) 8 (2) 10
 (3) 12 (4) 14

(SSC Graduate Level Tier-II
 Exam. 29.09.2013)

- 14.** The average of 5 consecutive integers starting with 'm' is n. What is the average of 6 consecutive integers starting with (m + 2) ?

$$(1) \frac{2n+5}{2} \quad (2) (n+2)$$

$$(3) (n+3) \quad (4) \frac{2n+9}{2}$$

(SSC Graduate Level Tier-II
 Exam. 16.09.2012)

- 15.** Eight consecutive numbers are given. If the average of the two numbers that appear in the middle is 6, then the sum of the eight given numbers is

(1) 54 (2) 64
 (3) 36 (4) 48

(SSC CHSL DEO & LDC Exam.
 21.10.2012 (Ist Sitting))

- 16.** The average of four consecutive even numbers is 15. The 2nd highest number is

(1) 12 (2) 18
 (3) 14 (4) 16

(SSC CHSL DEO & LDC Exam.
 28.10.2012 (Ist Sitting))

- 17.** Average of first five odd multiples of 3 is

(1) 12 (2) 16
 (3) 15 (4) 21

(SSC CHSL DEO & LDC Exam.
 04.11.2012 (IIInd Sitting))

- 18.** The average of nine consecutive numbers is n. If the next two numbers are also included the new average will

- (1) increase by 2
 (2) remain the same
 (3) increase by 1.5
 (4) increase by 1

(SSC CHSL DEO & LDC Exam.
 27.10.2013 IIInd Sitting))

- 19.** The average of four consecutive even numbers is 9. Find the largest number.

(1) 12 (2) 6
 (3) 8 (4) 10

(SSC CHSL DEO & LDC Exam.
 04.11.2012, Ist Sitting))

AVERAGE

- 20.** If a, b, c, d, e are five consecutive odd numbers, their average is

(1) $5(a + 4)$

(2) $\frac{abcde}{5}$

(3) $5(a + b + c + d + e)$

(4) $a + 4$

(SSC Graduate Level Tier-I Exam. 19.05.2013 & SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

- 21.** Average of first five prime numbers is

(1) 5.3 (2) 5.6

(3) 5 (4) 3.6

(SSC Multi-Tasking Staff Exam. 17.03.2013, IIInd Sitting)

- 22.** What is the average of the first six (positive) odd numbers each of which is divisible by 7?

(1) 42 (2) 43

(3) 47 (4) 49

(SSC Multi-Tasking Staff Exam. 24.03.2013, Ist Sitting)

- 23.** The average of first ten prime numbers is

(1) 10.1 (2) 10

(3) 12.9 (4) 13

(SSC Constable (GD) Exam. 12.05.2013)

- 24.** If the average of eight consecutive even numbers be 93, then the greatest number among them is

(1) 100 (2) 86

(3) 102 (4) 98

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

- 25.** The average of 6 consecutive natural numbers is K. If the next two natural numbers are also included, how much more than K will the average of these 8 numbers be?

(1) 1.3 (2) 1

(3) 2 (4) 1.8

(SSC CGL Tier-I Re-Exam, 30.08.2015)

- 26.** The average of five consecutive positive integers is n . If the next two integers are also included, the average of all these integers will

(1) increase by 1.5

(2) increase by 1

(3) remain the same

(4) increase by 2

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

- 27.** The average of all the odd integers between 2 and 22 is:

(1) 14 (2) 12

(3) 13 (4) 11

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)

- 28.** The sum of three consecutive even numbers is 28 more than the average of these three numbers. Then the smallest of these three numbers is

(1) 6 (2) 12

(3) 14 (4) 16

(SSC CGL Tier-II Online Exam.01.12.2016)

- 29.** The average of 7 consecutive numbers is 20. The largest of these numbers is

(1) 20 (2) 23

(3) 24 (4) 26

(SSC CGL Tier-II Online Exam.01.12.2016)

- 30.** The average of 25 consecutive odd integers is 55. The highest of these integers is

(1) 79 (2) 105

(3) 155 (4) 109

(SSC CHSL (10+2) Tier-I (CBE) Exam. 16.01.2017) (IIInd Sitting)

TYPE-IV

- 1.** The average monthly income of A and B is ₹ 14000, that of B and C is ₹ 15600 and A and C is ₹ 14400. The monthly income of C is

(1) ₹ 16000 (2) ₹ 15000

(3) ₹ 14000 (4) ₹ 15500

(SSC CGL Prelim Exam. 24.02.2002 (Middle Zone))

- 2.** The average monthly income of X and Y is ₹ 5050. The average monthly income of Y and Z is ₹ 6250 and the average monthly income of X and Z is ₹ 5200. The monthly income of X is :

(1) ₹ 4050 (2) ₹ 3500

(3) ₹ 4000 (4) ₹ 5000

(SSC CGL Prelim Exam. 08.02.2004 (Second Sitting) and SSC SAS Exam 26.06.2010 (Paper-1))

- 3.** The average expenditure of a man for the first five months is ₹ 1200 and for the next seven months is ₹ 1300. If he saves ₹ 2900 in that year, his monthly average income is :

(1) ₹ 1500 (2) ₹ 1600

(3) ₹ 1700 (4) ₹ 1400

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IIInd Sitting) TF No. 7203752)

- 4.** The average per day income of A, B and C is ₹ 450. If the average per day income of A and B be ₹ 400 and that of B and C be ₹ 430, the per day income of B is

(1) ₹ 300 (2) ₹ 310

(3) ₹ 415 (4) ₹ 425

(SSC Data Entry Operator Exam. 31.08.2008)

- 5.** The average salary, per head, of all the workers of an institution is ₹ 60. The average salary of 12 officers is ₹ 400; the average salary, per head, of the rest is ₹ 56. The total number of workers in the institution is

(1) 1030 (2) 1035

(3) 1020 (4) 1032

(SSC CGL Tier-I Exam. 26.10.2014)

- 6.** The average monthly expenditure of a family for the first four months is ₹ 2570, for the next three months ₹ 2490 and for the last five months ₹ 3030. If the family saves ₹ 5320 during the whole year, the average monthly income of the family during the year is

(1) ₹ 3000 (2) ₹ 3185

(3) ₹ 3200 (4) ₹ 3580

(SSC CGL Tier-II Exam. 21.09.2014)

- 7.** A man spends ₹ 1800 monthly on an average for the first four months and ₹ 2000 monthly for the next eight months and saves ₹ 5600 a year. His average monthly income is

(1) ₹ 2000 (2) ₹ 2200

(3) ₹ 2400 (4) ₹ 2600

(SSC CGL Tier-II Exam. 21.09.2014)

- 8.** The average monthly income of P and Q is ₹ 5, 050. The average monthly income of Q and R is ₹ 6, 250 and the average monthly income of P and R is ₹ 5,200. The monthly income of P is

(1) ₹ 3, 500 (2) ₹ 4, 000

(3) ₹ 4, 050 (4) ₹ 5, 000

(SSC CHSL DEO & LDC Exam. 02.11.2014 (IIInd Sitting))

- 9.** The average salary of all the workers in a workshop is ₹ 8,000. The average salary of 7 technicians is ₹ 12,000 and the average salary of the rest is ₹ 6,000. The total number of workers in the workshop is

(1) 20 (2) 21

(3) 22 (4) 23

(SSC CHSL DEO & LDC Exam. 9.11.2014)

AVERAGE

- 10.** Average income of 'A' and 'B' is ₹ 200 and average income of 'C' and 'D' is ₹ 250. The average income of A, B, C and D is
(1) ₹ 106.25 (2) ₹ 125
(3) ₹ 200 (4) ₹ 225

(SSC Constable (GD) Exam, 04.10.2015, 1st Sitting)

- 11.** The average daily income of 7 men, 11 women and 2 boys is Rs. 257.50. If the average daily income of the men is Rs. 10 more than that of women and the average daily income of the women is Rs. 10 more than that of boys, the average daily income of a man is

- (1) Rs. 277.5 (2) Rs. 250
(3) Rs. 265 (4) Rs. 257

(SSC CGL Tier-II Online Exam.01.12.2016)

- 12.** The average salary of all the associates in a team is Rs. 16000. The average salary of 7 senior associates is Rs. 24000 and the average salary of the rest is Rs. 12000. How many associates work in that team?

- (1) 21 (2) 22
(3) 23 (4) 24

(SSC CPO SI, ASI Online Exam.05.06.2016) (IIInd Sitting)

- 13.** The average monthly salary of 19 members of a group is Rs. 16000. If one more member whose monthly salary is Rs. 20000 joins the group, then the average salary of the group is

- (1) Rs. 18250 (2) Rs. 16200
(3) Rs. 18000 (4) Rs. 16250

(SSC CGL Tier-I (CBE) Exam. 29.08.2016) (IIInd Sitting)

- 14.** The average salary of all workers in a workshop is Rs. 12000. The average salary of 7 technicians is Rs. 15000 and the average salary of the rest is Rs. 9000. The total number of workers in the workshop is :

- (1) 12 (2) 13
(3) 14 (4) 15

(SSC CGL Tier-I (CBE) Exam. 04.09.2016 (IIInd Sitting))

- 15.** A man spends in 8 months as much as he earns in 6 months. He saves Rs. 6000 in a year. His average monthly income is :

- (1) Rs. 2400 (2) Rs. 2000
(3) Rs. 2150 (4) Rs. 1800

(SSC CGL Tier-I (CBE) Exam. 07.09.2016 (IIIrd Sitting))

TYPE-V

- 1.** Of the three numbers whose average is 60, the first is one fourth of the sum of the others. The first number is :

- (1) 30 (2) 36
(3) 42 (4) 45

(SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))

- 2.** Of the three numbers, second is twice the first and also thrice the third. If the average of the three numbers is 44, the largest number is :

- (1) 24 (2) 72
(3) 36 (4) 108

(SSC CGL Prelim Exam. 24.02.2002 (IIInd Sitting) & (SSC CGL Prelim Exam. 27.07.2008 (IIInd Sitting))

- 3.** The average of first three numbers is thrice the fourth number. If the average of all the four numbers is 5, then find the fourth number.

- (1) 4.5 (2) 5
(3) 2 (4) 4

(SSC CGL Prelim Exam. 24.02.2002 (Middle Zone) and SSC CGL Prelim Exam. 13.11.2005 (Ist Sitting))

- 4.** Of the three numbers, first is twice the second and second is twice the third. The average of three numbers is 21. The smallest of the three numbers is

- (1) 9 (2) 6
(3) 12 (4) 18

(SSC CPO S.I. Exam. 12.01.2003)

- 5.** Of the three numbers, the first is 3 times the second and the third is 5 times the first. If the average of the three numbers is 57, the difference between the largest and the smallest number is

- (1) 9 (2) 18
(3) 126 (4) 135

(SSC CPO S.I. Exam. 12.01.2003)

- 6.** Of the three numbers, the first is twice the second and the second is 3 times the third. If their average is 100, the largest of the three numbers is :

- (1) 120 (2) 150
(3) 180 (4) 300

(SSC CGL Prelim Exam. 08.02.2004 (First Sitting))

- 7.** Of the three numbers, the first is twice the second and the second is thrice the third. If the average of the three numbers is 10, the largest number is :

- (1) 12 (2) 15
(3) 18 (4) 30

(SSC CPO S.I. Exam. 12.01.2003)

- 8.** The average of first three numbers is double of the fourth number. If the average of all the four numbers is 12, find the 4th number.

- (1) 16 (2) $\frac{48}{7}$
(3) 20 (4) $\frac{18}{7}$

(SSC Graduate Level Tier-II Exam. 29.09.2013)

- 9.** The average of three numbers is 77. The first number is twice the second and the second number is twice the third. The first number is :

- (1) 33 (2) 66
(3) 77 (4) 132

(SSC CGL Prelim Exam. 13.11.2005 (First Sitting))

- 10.** Out of three numbers, the first is twice the second and is half of the third. If the average of the three numbers is 56, then difference of first and third number is

- (1) 12 (2) 20
(3) 24 (4) 48

(SSC CGL Prelim Exam. 13.11.2005 (Second Sitting))

- 11.** The average of three numbers is 28, the first number is half of the second, the third number is twice the second, then the third number is

- (1) 48 (2) 36
(3) 24 (4) 18

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006 (Second Sitting))

- 12.** The average of three numbers is 40. The first number is twice the second and the second one is thrice the third number. The difference between the largest and the smallest numbers is

- (1) 30 (2) 36
(3) 46 (4) 60

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting (North Zone))

AVERAGE

13. Among three numbers, the first is twice the second and thrice the third. If the average of the three numbers is 49.5, then the difference between the first and the third number is

- (1) 54 (2) 28
(3) 39.5 (4) 41.5

(SSC CGL Tier-1 Exam 26.06.2011
(First Sitting)

14. Out of 4 numbers, whose average is 60, the first one is one-fourth of the sum of the last three. The first number is

- (1) 15 (2) 45
(3) 48 (4) 60

(SSC CGL Tier-1 Exam 26.06.2011
(Second Sitting)

15. Of the three numbers, the first number is twice of the second and the second is thrice of the third number. If the average of these 3 numbers is 20, then the sum of the largest and smallest numbers is

- (1) 24 (2) 42
(3) 54 (4) 60

(SSC CPO (SI, ASI & Intelligence Officer)
Exam 28.08.2011 (Paper-I)

16. If the arithmetic mean of $3a$ and $4b$ is greater than 50, and a is twice b , then the smallest possible integer value of a is

- (1) 20 (2) 18
(3) 21 (4) 19

(SSC CGL Tier-II Exam. 12.04.2015
TF No. 567 TL 9)

17. Of three numbers, the first is 4 times the second and 3 times the third. If the average of all the three numbers is 95, what is the third number ?

- (1) 76 (2) 60
(3) 130 (4) 57

(SSC CGL Tier-II Exam,
2014 12.04.2015 (Kolkata Region)
TF No. 789 TH 7)

18. Among three numbers, second is twice the first and also thrice the third. If the average of the three numbers is 33, then the largest number is :

- (1) 36 (2) 54
(3) 62 (4) 72

(SSC CGL Tier-I (CBE)
Exam. 06.09.2016 (IIInd Sitting)

TYPE-VI

1. The average of marks of 14 student was calculated as 71. But it was later found that the marks of one student had been wrongly entered as 42 instead of 56 and of another as 74 instead of 32. The correct average is :

- (1) 67 (2) 68
(3) 69 (4) 71

(SSC CGL Prelim Exam. 27.02.2000
(Second Sitting)

2. The average weight of three men A, B and C is 84 kg. D joins them and the average weight of the four becomes 80 kg. If E whose weight is 3 kg more than that of D, replaces A, the average weight of B, C, D and E becomes 79 kg.

The weight of A is

- (1) 65 kg. (2) 70 kg.
(3) 75 kg. (4) 80 kg.

(SSC CGL Prelim Exam. 11.05.2003
(Second Sitting)

3. The average of a collection of 20 measurements was calculated to be 56 cm. But later it was found that a mistake had occurred in one of the measurements which was recorded as 64 cm., but should have been 61 cm. The correct average must be

- (1) 53 cm (2) 54.5 cm
(3) 55.85 cm (4) 56.15 cm

(SSC CPO S.I. Exam. 07.09.2003)

4. The average of marks in Mathematics for 5 students was found to be 50. Later, it was discovered that in the case of one student the marks 48 were misread as 84. The correct average is :

- (1) 40.2 (2) 40.8
(3) 42.8 (4) 48.2

(SSC CPO S.I. Exam. 26.05.2005)

5. The average weight of 15 students in a class increases by 1.5kg when one of the students weighing 40 kg is replaced by a new student. What is the weight (in kg) of the new student ?

- (1) 64.5 kg. (2) 56 kg.
(3) 60 kg. (4) 62.5 kg.

(SSC CPO S.I. Exam. 06.09.2009)

6. The average marks of 100 students were found to be 40. Later on it was discovered that a score of 53 was misread as 83. Find the correct average corresponding to the correct score.

- (1) 38.7 (2) 39
(3) 39.7 (4) 41

(SSC CPO S.I. Exam. 06.09.2009)

7. The average weight of a group of 20 boys was calculated to be 89.4 kg and it was later discovered that one weight was misread as 78 kg. instead of 87kg. The correct average weight is

- (1) 88.95 kg (2) 89.25 kg
(3) 89.55 kg (4) 89.85 kg

(SSC CGL Tier-1 Exam 19.06.2011
(First Sitting)

8. The average of 18 observations is recorded as 124. Later it was found that two observations with values 64 and 28 were entered wrongly as 46 and 82. Find the correct average of the 18 obser-vations.

- (1) $111\frac{7}{9}$ (2) 122

- (3) 123 (4) $137\frac{3}{9}$

(SSC CGL Tier-1 Exam 19.06.2011
(Second Sitting)

9. The mean of 50 numbers is 30. Later it was discovered that two entries were wrongly entered as 82 and 13 instead of 28 and 31. Find the correct mean.

- (1) 36.12 (2) 30.66
(3) 29.28 (4) 38.21

(SSC CGL Tier-1 Exam 26.06.2011
(First Sitting)

10. The average of 25 observations is 13. It was later found that an observation 73 was wrongly en-tered as 48. The new average is

- (1) 12.6 (2) 14
(3) 15 (4) 13.8

(SSC CGL Tier-1 Exam 26.06.2011
(Second Sitting)

11. Mean of 10 numbers is 30. Later on it was observed that numbers 15, 23 are wrongly taken as 51, 32. The correct mean is

- (1) 25.5 (2) 32
(3) 30 (4) 34.5

(SSC CPO (SI, ASI & Intelligence Officer)
Exam 28.08.2011 (Paper-I)

12. The mean of 50 observations was 36. It was found later that an observation 48 was wrongly taken as 23. The corrected (new) mean is

- (1) 35.2 (2) 36.1
(3) 36.5 (4) 39.1

(SSC CGL Prelim Exam. 11.05.2003
(Second Sitting)

AVERAGE

13. While finding the average of 10 given numbers, a student, by mistake, wrote 64 in place of a number 46 and got his correct average 50. The correct average of the given numbers is :

- (1) 48.2 (2) 48.3
(3) 49.1 (4) 49.3

(SSC CHSL DEO & LDC Exam. 27.11.2010)

14. The average of 10 numbers is calculated as 15. It is discovered later on that while calculating the average one number, namely 36, was wrongly read as 26. The correct average is

- (1) 20 (2) 18
(3) 16 (4) 14

(SSC CHSL DEO & LDC Exam. 28.11.2010 (Ist Sitting))

15. A student finds the average of ten 2-digit numbers. While copying numbers, by mistake, he writes one number with its digits interchanged. As a result his answer is 1.8 less than the correct answer. The difference of the digits of the number, in which he made mistake, is

- (1) 2 (2) 3
(3) 4 (4) 6

(SSC CHSL DEO & LDC Exam. 28.11.2010 (IIInd Sitting))

16. The average of 27 numbers is 60. If one number is changed from 28 to 82, the average is

- (1) 56 (2) 58
(3) 62 (4) 64

(SSC CISF Constable (GD) Exam. 05.06.2011)

17. A tabulator while calculating the average marks of 100 students of an examination, by mistake enters 68, instead of 86 and obtained the average as 58; the actual average marks of those students is

- (1) 58.18 (2) 57.82
(3) 58.81 (4) 57.28

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone)))

18. The mean of 20 items is 47. Later it is found that the item 62 is wrongly written as 26. Find the correct mean.

- (1) 48.8 (2) 47.7
(3) 49.9 (4) 46.6

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting (East Zone)))

19. The mean value of 20 observations was found to be 75, but later on it was detected that 97 was misread as 79. Find the correct mean.

- (1) 75.7 (2) 75.8
(3) 75.9 (4) 75.6

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting (East Zone)))

20. The mean of 100 items was 46. Later on it was discovered that an item 16 was misread as 61 and another item 43 was misread as 34. It was also found that the number of items were 90 and not 100. Then what is the correct mean ?

- (1) 50 (2) 50.7
(3) 52 (4) 52.7

(SSC Graduate Level Tier-II Exam. 16.09.2012)

21. The average of seven numbers is 18. If one of the number is 17 and if it is replaced by 31, then the average becomes :

- (1) 21.5 (2) 19.5
(3) 20 (4) 21

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IIInd Sitting))

22. In an exam, the average marks obtained by the students was found to be 60. After omission of computational errors, the average marks of 100 candidates had to be changed from 60 to 30 and the average with respect to all the examinees came down to 45 marks. The total number of candidates who took the exam, was

- (1) 200 (2) 210
(3) 240 (4) 180

(SSC Assistant Grade-III Exam. 11.11.2012 (IIInd Sitting))

23. In an examination, the average of marks was found to be 50. For deducting marks for computational errors, the marks of 100 candidates had to be changed from 90 to 60 each and so the average of marks came down to 45. The total number of candidates, who appeared at the examination, was

- (1) 600 (2) 300
(3) 200 (4) 150

(SSC CPO S.I. Exam. 12.12.2010 (Paper-I))

24. The average of 10 items was found to be 80 but while calculating, one of the items was counted as 60 instead of 50. Then the correct average would have been :

- (1) 69 (2) 79.25
(3) 79 (4) 79.5

(SSC Multi-Tasking Staff Exam. 10.03.2013)

25. The average of 9 integers is found to be 11. But after the calculation, it was detected that, by mistake, the integer 23 was copied as 32, while calculating the average. After the due correction is made, the new average will be

- (1) 10 (2) 9
(3) 10.1 (4) 9.5

(SSC Constable (GD) Exam. 12.05.2013)

26. The average weight of 20 students in a class is increased by 0.75 kg when one of the students weighing 30 kg is replaced by a new student. Weight of the new student (in kg) is :

- (1) 35 (2) 40
(3) 45 (4) 50

(SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))

27. Average weight of 25 persons is increased by 1 kg when one man weighing 60 kg is replaced by a new person. Weight of new person is :

- (1) 50 kg (2) 61 kg
(3) 86 kg (4) 85 kg

(SSC CGL Prelim Exam. 08.02.2004 (Second Sitting))

28. There are 50 students in a class. One of them weighing 50 kg goes away and a new student joins. By this the average weight of the

class increases by $\frac{1}{2}$ kg. The weight of the new student is :

- (1) 70 kg (2) 72 kg
(3) 75 kg (4) 76 kg

(SSC CGL Prelim Exam. 08.02.2004 (Second Sitting))

AVERAGE

29. The average weight of the 8 oarsmen in boat is increased by $1\frac{1}{2}$ kg when one of the crew who weighs 60kg is replaced by a new man. The weight of the new man (in kg) is

- (1) 70 kg (2) 68 kg
(3) 71 kg (4) 72 kg

(SSC CHSL DEO & LDC Exam. 28.10.2012, Ist Sitting)

30. The average weight of 12 crewmen in a boat is increased by $\frac{1}{3}$ kg, when one of the crewmen whose weight is 55kg is replaced by a new man. What is the weight of that new man?

- (1) 58 kg (2) 60 kg
(3) 57 kg (4) 59 kg

(SSC CHSL DEO & LDC Exam. 04.11.2012, Ist Sitting)

31. The average marks obtained by 22 candidates in an examination are 45. The average marks of the first 10 candidates are 55 and those of the last eleven are 40. The number of marks obtained by the eleventh candidate is

- (1) 45 (2) 0
(3) 50 (4) 47.5

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))

32. The mean of 20 items is 55. If two items 45 and 30 are removed, the new mean of the remaining items is

- (1) 65.1 (2) 65.3
(3) 56.9 (4) 56

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IIInd Sitting))

33. The average marks obtained by 40 students of a class is 86. If the 5 highest marks are removed, the average reduces by one mark. The average marks of the top 5 students is

- (1) 92 (2) 96
(3) 93 (4) 97

(SSC CGL Tier-I Exam. 19.10.2014)

34. The average of 50 numbers is 38. If two numbers, namely 45 and 55 are discarded, the average of the remaining numbers is

- (1) 37.5 (2) 37.9
(3) 36.5 (4) 37.0

(SSC CGL Tier-I Exam. 26.10.2014)

35. The average of six numbers is 20. If one number is removed, the average becomes 15. What is the number removed ?

- (1) 5 (2) 35
(3) 112 (4) 45

(SSC CGL Tier-II Exam. 21.09.2014)

36. The average marks secured by 36 students was 52. But it was discovered that an item 64 was misread as 46. What is the correct mean of marks ?

- (1) 54 (2) 53.5
(3) 53 (4) 52.5

(SSC CHSL DEO & LDC Exam. 16.11.2014)

37. A boy found that the average of 20 numbers is 35 when he writes a number '61' instead of '16'. The correct average of 20 numbers is

- (1) 32.75 (2) 37.25
(3) 34.75 (4) 34.25

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014 TF No. 999 KP0)

38. The average of 20 numbers is calculated as 35. It is discovered later, that while calculating the average, one number, namely 85, was read as 45. The correct average is

- (1) 36.5 (2) 37
(3) 37.5 (4) 36

(SSC CGL Tier-II Exam. 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

39. The average marks obtained by a student in 6 subjects is 88. On subsequent verification it was found that the marks obtained by him in a subject was wrongly copied as 86 instead of 68. The correct average of the marks obtained by him is

- (1) 87 (2) 85
(3) 84 (4) 86

(SSC CGL Tier-I Exam. 16.08.2015 (Ist Sitting) TF No. 3196279)

40. The average of 100 items was found to be 30. If at the time of calculation, two items were wrongly taken as 32 and 12 instead of 23 and 11, then the correct average is :

- (1) 29.8 (2) 29
(3) 29.9 (4) 29.5

(SSC CGL Tier-I (CBE) Exam. 06.09.2016 (IIInd Sitting))

41. A student, by mistake, wrote 64 in place of 46 as a number at the time of finding the average of 10 given numbers and got the average as 50. The correct average of the numbers is :

- (1) 48.2 (2) 48
(3) 48.1 (4) 49

(SSC CGL Tier-I (CBE) Exam. 10.09.2016 (IIInd Sitting))

42. The average of 9 observations was found to be 35. Later on, it was detected that an observation 81 was misread as 18. The correct average of the observations is :

- (1) 28 (2) 42
(3) 32 (4) 45

(SSC CGL Tier-I (CBE) Exam. 11.09.2016 (IIIrd Sitting))

TYPE-VII

1. A cricketer whose bowling average is 24.85, runs per wicket, takes 5 wickets for 52 runs and thereby decreases his average by 0.85. The number of wickets taken by him till the last match was :

- (1) 64 (2) 72
(3) 80 (4) 96

(SSC CGL Prelim Exam. 27.02.2000 (First Sitting))

2. The average of runs of a cricket player of 10 innings was 32. How many runs must he make in his next inning so as to increase his average of runs by 4 ?

- (1) 76 (2) 70
(3) 4 (4) 2

(SSC CGL Prelim Exam. 08.02.2004 (First Sitting))

3. The bowling average of a cricketer was 12.4. He improves his bowling average by 0.2 points when he takes 5 wickets for 26 runs in his last match. The number of wickets taken by him before the last match was

- (1) 125 (2) 150
(3) 175 (4) 200

(SSC CGL Prelim Exam. 27.07.2008 (First Sitting))

4. A cricketer had a certain average of runs for his 64 innings. In his 65th innings, he is bowled out for no score on his part. This brings down his average by 2 runs. His new average of runs is

- (1) 130 (2) 128
(3) 70 (4) 68

(SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))

AVERAGE

5. A cricketer has a certain average of runs for his 8 innings. In the ninth innings, he scores 100 runs, thereby increases his average by 9 runs. His new average of runs is
(1) 20 (2) 24
(3) 28 (4) 32
(SSC CPO S.I. Exam. 09.11.2008)
6. The average of runs scored by a player in 10 innings is 50. How many runs should he score in the 11th innings so that his average is increased by 2 runs ?
(1) 80 runs (2) 72 runs
(3) 60 runs (4) 54 runs
(SSC CPO S.I. Exam. 05.09.2004)
7. A cricket batsman had a certain average of runs for his 11 innings. In the 12th innings, he made a score of 90 runs and thereby his average of runs was decreased by 5. His average of runs after 12th innings is :
(1) 155 (2) 150
(3) 145 (4) 140
(SSC CHSL DEO & LDC Exam. 28.11.2010 (Ist Sitting)
& (SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting))
8. The batting average for 40 innings of a cricket player is 50 runs. His highest score exceeds his lowest score by 172 runs. If these two innings are excluded, the average of the remaining 38 innings is 48 runs. The highest score of the player is
(1) 165 runs (2) 170 runs
(3) 172 runs (4) 174 runs
(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (North Zone))
9. The batting average of a cricket player for 64 innings is 62 runs. His highest score exceeds his lowest score by 180 runs. Excluding these two innings, the average of remaining innings becomes 60 runs. His highest score was
(1) 180 runs (2) 209 runs
(3) 212 runs (4) 214 runs
(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (East Zone))
10. A cricket player after playing 10 tests scored 100 runs in the 11th test. As a result, the average of his runs is increased by 5. The present average of runs is
(1) 45 (2) 40
(3) 50 (4) 55
(SSC Multi-Tasking Staff Exam. 17.03.2013, Ist Sitting)
11. A cricketer has a mean score of 60 runs in 10 innings. Find out how many runs are to be scored in the eleventh innings to raise the mean score to 62?
(1) 83 (2) 82
(3) 80 (4) 81
(SSC CHSL DEO & LDC Exam. 21.10.2012 (Ist Sitting))
12. In a 20 over match, the required run rate to win is 7.2. If the run rate is 6 at the end of the 15th over, the required run rate to win the match is
(1) 1.2 (2) 13.2
(3) 10.8 (4) 12
(SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting))
13. A batsman in his 12th innings makes a score of 63 runs and thereby increases his average scores by 2. What is his average after the 12th innings?
(1) 13 (2) 39
(3) 49 (4) 87
(SSC CHSL DEO & LDC Exam. 04.11.2012, Ist Sitting))
14. The batting average for 30 innings of a cricket player is 40 runs. His highest score exceeds his lowest score by 100 runs. If these two innings are not included, the average of the remaining 28 innings is 38 runs. The lowest score of the player is :
(1) 15 (2) 18
(3) 20 (4) 12
(SSC CAPFs SI & CISF ASI Exam. 23.06.2013)
15. Sachin Tendulkar has a certain average for 11 innings. In the 12th innings he scores 120 runs and thereby increases his average by 5 runs. His new average is
(1) 60 (2) 62
(3) 65 (4) 66
(SSC Graduate Level Tier-II Exam. 29.09.2013)
16. A cricketer whose bowling average is 12.4 runs per wicket, takes 5 wickets for 26 runs and thereby decreases his average by 0.4. The number of wickets taken by him till the last match was
(1) 64 (2) 72
(3) 80 (4) 85
(SSC CHSL DEO & LDC Exam. 02.11.2014 (IIInd Sitting))
17. The average run of a player is 32 out of 10 innings. How many runs must he make in the next innings so as to increase his average by 6 ?
(1) 38 (2) 40
(3) 6 (4) 98
(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 21.06.2015 IIInd Sitting))
18. A batsman makes a score of 87 runs in the 17th innings and thus increased his average by 3. Find his average after 17th innings.
(1) 39 (2) 87
(3) 90 (4) 84
(SSC Constable (GD) Exam, 04.10.2015, Ist Sitting))
19. The batting average for 40 innings of a cricket player is 50 runs. His highest score exceeds his lowest score by 172 runs. If these two innings are excluded, the average of the remaining 38 innings is 48 runs. The highest score of the player is
(1) 165 (2) 170
(3) 172 (4) 174
(SSC CGL Tier-II Online Exam.01.12.2016))
20. The average of runs of a cricket player of 20 innings was 32. How many runs must he make in his next innings so as to increase his average of runs by 4?
(1) 116 (2) 114
(3) 170 (4) 76
(SSC CGL Tier-I (CBE) Exam. 27.08.2016) (IIInd Sitting))
21. A batsman in his 12th innings makes a score of 120, and thereby increases his average by 5. The average score after 12th innings is
(1) 60 (2) 55
(3) 65 (4) 70
(SSC CGL Tier-I (CBE) Exam. 02.09.2016) (Ist Sitting))
22. The averages of runs scored by a cricket player in 11 innings is 63 and the average of his first six innings is 60 and the average of last six innings is 65. Find the runs scored by him in the sixth innings.
(1) 60 (2) 54
(2) 67 (4) 57
(SSC CGL Tier-I (CBE) Exam. 02.09.2016) (IIInd Sitting))

AVERAGE

- 23.** Average runs scored by 11 players of a cricket team is 23. If the first player scored 113 runs. Find the average runs of the remaining players.
(1) 8 runs (2) 12 runs
(3) 14 runs (4) 27 runs
(SSC CGL Tier-I (CBE)
Exam. 30.08.2016) (IInd Sitting)
- 24.** The average of runs scored by a cricketer in his 99 innings is 99. How many runs will he have to score in his 100th innings so that his average of runs in 100 innings may be 100?
(1) 100 (2) 99
(3) 199 (4) 101
(SSC CGL Tier-I (CBE)
Exam. 31.08.2016) (IInd Sitting)
- 25.** In the first 10 overs of a cricket game, the run rate was only 3.2. The run rate in the remaining 40 overs to reach the target of 282 runs is
(1) 6.4 (2) 6.3
(3) 6.25 (4) 6.5
(SSC CGL Tier-II (CBE)
Exam. 30.11.2016)
- 26.** A cricketer, whose bowling average was 12.4 runs/wicket takes 5 wickets for 22 runs in a match, thereby decreases his average by 0.4. The number of wickets, taken by him before this match was :
(1) 78 (2) 87
(3) 95 (4) 105
(SSC CGL Tier-I (CBE)
Exam. 02.09.2016) (IInd Sitting)
- 27.** A batsman has a certain average of runs for 12 innings. In the 13th innings he scores 96 runs thereby increasing his average by 5 runs. What will be his average after 13th innings?
(1) 28 (2) 32
(3) 36 (4) 42
(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)
- TYPE-VIII**
- 1.** The average of five numbers is 27. If one number is excluded, the average becomes 25. The excluded number is :
(1) 25 (2) 27
(3) 30 (4) 35
(SSC CGL Prelim Exam. 04.07.1999 (Ist Sitting) & (SSC SO (Commercial Audit)
Exam. 16.11.2003)
- 2.** The average of marks of 28 students in Mathematics was 50; 8 students left the school, then this average increased by 5. What is the average of marks obtained by the students who left the school ?
(1) 50.5 (2) 37.5
(3) 42.5 (4) 45
(SSC CGL Prelim Exam. 13.11.2005
(Second Sitting))
- 3.** The average weight of 12 parcels is 1.8 kg. Addition of another new parcel reduces the average weight by 50 g. What is the weight of the new parcel ?
(1) 1.50 kg (2) 1.10 kg
(3) 1.15 kg (4) 1.01 kg
(SSC CPO S.I. Exam. 07.09.2003)
- 4.** The average of 50 numbers is 38. If two numbers namely 45 and 55 are discarded, the average of the remaining numbers is :
(1) 35 (2) 32.5
(3) 37.5 (4) 36
(SSC Graduate Level Tier-I
Exam. 21.04.2013 (Ist Sitting))
- 5.** There are 50 students in a class. Their average weight is 45 kg. When one student leaves the class the average weight reduces by 100g. What is the weight of the student who left the class ?
(1) 45 kg (2) 47.9 kg
(3) 49.9 kg (4) 50.1 kg
(SSC CPO S.I.
Exam 12.12.2010 (Paper-I))
- 6.** Average weight of 25 students of a class is 50 kg. If the weight of the class teacher is included, the average is increased by 1 kg. The weight of the teacher is
(1) 76 kg (2) 77 kg
(3) 74 kg (4) 75 kg
(SSC Multi-Tasking Staff
Exam. 17.03.2013, Ist Sitting)
- 7.** There were 35 students in a hostel. If the number of students is increased by 7 the expenditure on food increases by ₹ 42 per day while the average expenditure of students is reduced by ₹ 1. What was the initial expenditure on food per day ?
(1) ₹ 400 (2) ₹ 432
(3) ₹ 442 (4) ₹ 420
(SSC Section Officer (Commercial
Audit) Exam. 25.09.2005)
- 8.** The average of 6 observations is 45.5. If one new observation is added to the previous observations, then the new average becomes 47. The new observation is
(1) 58 (2) 56
(3) 50 (4) 46
(SSC CGL Prelim Exam. 04.02.2007
(First Sitting))
- 9.** The average of five numbers is 140. If one number is excluded, the average of the remaining four numbers is 130. The excluded number is :
(1) 135 (2) 134
(3) 180 (4) 150
(FCI Assistant Grade-III
Exam. 05.02.2012 (Paper-I)
East Zone (IInd Sitting))
- 10.** The average of five numbers is 7. When three new numbers are included, the average of the eight numbers becomes 8.5. The average of the three new numbers is
(1) 9 (2) 10.5
(3) 11 (4) 11.5
(SSC CHSL DEO & LDC
Exam. 28.11.2010 (IInd Sitting))
- 11.** The average of six numbers is 32. If each of the first three numbers is increased by 2 and each of the remaining three numbers is decreased by 4, then the new average is
(1) 35 (2) 34
(3) 31 (4) 30
(SSC CHSL DEO & LDC Exam.
11.12.2011 (Ist Sitting) (Delhi Zone))
- 12.** The mean weight of 34 students of a school is 42 kg. If the weight of the teacher be included, the mean rises by 400 grams. Find the weight of the teacher (in kg).
(1) 55 kg (2) 57 kg
(3) 66 kg (4) 56 kg
(SSC CHSL DEO & LDC Exam.
21.10.2012 (Ist Sitting))
- 13.** If the mean of 4 observations is 20, when a constant 'C' is added to each observation, the mean becomes 22. The value of C is :
(1) 6 (2) -2
(3) 2 (4) 4
(SSC CHSL DEO & LDC Exam.
21.10.2012 (IInd Sitting))
- 14.** The average weight of 40 children of a class is 36.2 kg. When three more children with weight 42.3 kg, 39.7 kg and 39.5 kg join the class, the average weight of the 43 children in the class is
(1) 39.2 kg (2) 36.5 kg
(3) 38.35 kg (4) 37.3 kg
(SSC Delhi Police S.I. (SI)
Exam. 19.08.2012)

AVERAGE

- 15.** In a class, the average score of girls in an examination is 73 and that of boys is 71. The average score for the whole class is 71.8. Find the percentage of girls.

(1) 40% (2) 50%
(3) 55% (4) 60%

(SSC Multi-Tasking (Non-Technical) Staff Exam. 27.02.2011)

- 16.** A student finds the average of 10, 2 – digit numbers. If the digits of one of the numbers is interchanged, the average increases by 3.6. The difference between the digits of the 2-digit numbers is

(1) 4 (2) 3
(3) 2 (4) 5

(SSC CGL Tier-I Exam. 19.10.2014)

- 17.** The average of five numbers is 7. If three new numbers would be added, then the new average comes out to be 8.5. What is the average of those three new numbers?

(1) 9 (2) 10.5
(3) 11 (4) 11.5

(SSC CPO SI, ASI Online Exam. 05.06.2016) (IInd Sitting)

TYPE-IX

- 1.** The average age of 14 girls and their teacher's age is 15 years. If the teacher's age is excluded, the average reduces by 1. What is the teacher's age?

(1) 35 years (2) 32 years
(3) 30 years (4) 29 years

(SSC CGL Prelim Exam. 27.02.2000 (Ist Sitting) & SSC CGL Tier I, Exam. 24.04.2013)

- 2.** The average age of four brothers is 12 years. If the age of their mother is also included, the average is increased by 5 years. The age of the mother (in years) is :

(1) 37 years (2) 43 years
(3) 48 years (4) 53 years

(SSC CGL Prelim Exam. 27.02.2000 (First Sitting))

- 3.** The average age of 8 persons is increased by 2 years, when one of them, whose age is 24 years is replaced by a new person. The age of the new person is :

(1) 42 years (2) 40 years
(3) 38 years (4) 45 years

(SSC CGL Prelim Exam. 24.02.2002 (First Sitting))

- 4.** The average age of 8 men is increased by 2 years when two of them whose age are 21 and 23 years replaced by two new men. The average age of the two new men is

(1) 22 years (2) 24 years
(3) 28 years (4) 30 years

(SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))

- 5.** The average age of eleven players of a cricket team decreases by 2 months when two new players are included in the team replacing two players of age 17 years and 20 years. The average age of new player is

(1) 17 years 1 month
(2) 17 years 7 months
(3) 17 years 11 months
(4) 18 years 3 months

(SSC CGL Prelim Exam. 24.02.2002 (Middle Zone) & SSC CGL Exam. 13.11.2005 (IInd sitting))

- 6.** The average age of 20 boys in a class is 12 years. 5 new boys are admitted to the class whose average age is 7 years. The average age of the boys in the class becomes

(1) 8.2 years (2) 9.5 years
(3) 12.5 years (4) 11 years

(SSC CPO S.I. Exam. 07.09.2003)

- 7.** There are 30 students in a class. The average age of first 10 students is 12.5 years. The average age of the remaining 20 students is 13.1 years. The average age (in years) of the students of the whole class is

(1) 12.5 years (2) 12.7 years
(3) 12.8 years (4) 12.9 years

(SSC Section Officer (Commercial Audit) Exam. 16.11.2003)

- 8.** The average age of 5 boys is 12 years. The average age of 3 others is 16 years. The average age of all the 8 boys is :

(1) $13\frac{1}{2}$ years (2) 14 years

(3) $12\frac{1}{2}$ years (4) 13 years

(SSC CGL Prelim Exam. 08.02.2004 (Second Sitting))

- 9.** Out of 10 teachers of a school, one teacher retires and at his place a new teacher of age 25 years joins. As a result of it, the average age of the teachers is reduced by 3 years. The age of the retired teacher is

(1) 60 years (2) 58 years
(3) 56 years (4) 55 years

(SSC CPO S.I. Exam. 05.09.2004 & SSC CGL Tier-I Exam. 21.04.2013 (Ist sitting))

- 10.** The average age of 40 students of a class is 15 years. When 10 new students are admitted, the average is increased by 0.2 year. The average age of the new students is :

(1) 15.2 years (2) 16 years
(3) 16.2 years (4) 16.4 years

(SSC CPO S.I. Exam. 26.05.2005 & 09.11.2008)

- 11.** The present average age of a family of four members is 36 years. If the present age of the youngest member of the family be 12 years, the average age of the family at the birth of the youngest member was

(1) 48 years (2) 40 years
(3) 32 years (4) 24 years

(SSC CGL Prelim Exam. 27.07.2008 (First Sitting))

- 12.** The average age of 40 students of a class is 18 years. When 20 new students are admitted to the same class, the average age of the students of the class is increased by 6 months. The average age of newly admitted student is

(1) 19 years
(2) 19 years 6 months
(3) 20 years
(4) 20 years 6 months

(SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))

- 13.** The average age of group of 20 girls is 15 years and that of another group of 25 boys it is 24 years. The average age of the two groups mixed together is

(1) 19.5 years (2) 20 years
(3) 21 years (4) 21.5 years

(SSC Data Entry Operator Exam. 31.08.2008)

AVERAGE

- 14.** The average age of 11 players of a cricket team is increased by 2 months when two of them aged 18 years and 20 years are replaced by two new players. The average age of the new players is
(1) 19 years 1 month
(2) 19 years 6 months
(3) 19 years 11 months
(4) 19 years 5 months
(SSC CGL Exam. 13.11.2005 (1st sitting) & SSC CGL Tier-1 Exam. 26.06.2011 (IInd Sitting))
- 15.** Average age of 8 men is increased by 3 years when two of them whose age are 30 and 34 years are replaced by 2 persons. What is the average age of the 2 persons ?
(1) 24 years (2) 32 years
(3) 44 years (4) 48 years
(SSC CHSL DEO & LDC Exam. 28.10.2012 (1st Sitting))
- 16.** The average age of a family of 10 members is 20 years. If the age of the youngest member of the family is 10 years, then the average age of the members of the family just before the birth of the youngest member was approximately
(1) 27.14 years (2) 12.5 years
(3) 14.28 years (4) $11\frac{1}{9}$ years
(SSC CHSL DEO & LDC Exam. 28.10.2012 (1st Sitting))
- 17.** The average age of four boys A, B, C and D is 5 years and the average age of A, B, D, E is 6 years. C is 8 years old. The age of E is (in years)
(1) 12 (2) 13
(3) 14 (4) 15
(SSC Multi-Tasking Staff Exam. 24.03.2013, 1st Sitting)
- 18.** 5 years ago, the average age of P and Q was 15 years. Average age of P, Q and R today is 20 years. How old will R be after 10 years?
(1) 35 years (2) 40 years
(3) 30 years (4) 50 years
(SSC Graduate Level Tier-I Exam. 11.11.2012, 1st Sitting)
- 19.** The average age of a husband and his wife was 23 years at the beginning of their marriage. After five years they have a one-year old child. The average age of the family of three, when the child was born, was
(1) 23 years (2) 24 years
(3) 18 years (4) 20 years
(SSC Constable (GD) Exam. 12.05.2013 1st Sitting)
- 20.** Two years ago the average age of a family of 8 members was 18 years. After the addition of a baby, the average age of the family is same today. What is the age of the baby ?
(1) 2 years (2) $1\frac{1}{2}$ years
(3) 1 year (4) $2\frac{1}{2}$ years
(SSC Constable (GD) Exam. 12.05.2013)
- 21.** From a class of 42 boys, a boy aged 10 years goes away and in his place, a new boy is admitted. If on account of this change, the average age of the boys in that class increases by 2 months, the age of the newcomer is :
(1) 19 years
(2) 17 years
(3) 10 years 6 months
(4) 12 years 2 months
(SSC Multi-Tasking Staff Exam. 10.03.2013)
- 22.** The average age of Ram and his two children is 17 years and the average age of Ram's wife and the same children is 16 years. If the age of Ram is 33 years, the age of his wife is (in years):
(1) 31 (2) 32
(3) 35 (4) 30
(SSC Graduate Level Tier-I Exam. 21.04.2013 IIInd Sitting)
- 23.** The average age of A and B is 20 years. If A is to be replaced by C, the average would be 19 years. The average age of C and A is 21 years. The ages of A, B and C in order (in years) are
(1) 18, 22, 20 (2) 18, 20, 22
(3) 22, 18, 20 (4) 22, 20, 18
(SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting)
- 24.** In a family of 5 members, the average age at present is 33 years. The youngest member is 9 years old. The average age of the family just before the birth of the youngest member was
(1) 30 years (2) 29 years
(3) 25 years (4) 24 years
(SSC Graduate Level Tier-I Exam. 19.05.2013 1st Sitting)
- 25.** The average age of 12 players of a team is 25 years. If the captain's age is included, the average age increases by 1 year. The age of the captain is :
(1) 25 yrs. (2) 38 yrs.
(3) 36 yrs. (4) 26 yrs.
(SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))
- 26.** In a class, there are 40 boys and their average age is 16 years. One boy, aged 17 years, leaving the class and another joining, the average age becomes 15.875 years. The age of the new boy is :
(1) 12 years (2) 14.5 years
(3) 15 years (4) 17 years
(SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))
- 27.** The average age of 30 boys in a class is 15 years. One boy, aged 20 years, left the class, but two new boys came in his place whose age differ by 5 years. If the average age of all the boys now in the class becomes 15 years, the age of the younger newcomer is :
(1) 20 years (2) 15 years
(3) 10 years (4) 8 years
(SSC CGL Prelim Exam. 24.02.2002 (First Sitting))
- 28.** In a class there are 30 boys and their average age is 17 years. On one boy aged 18 years leaving the class and another joining, the average age becomes 16.9 years. The age of new boy is
(1) 25 years (2) 11 years
(3) 13 years (4) 15 years
(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015 (1st Sitting) TF No. 9692918)
- 29.** Average age of 6 sons of a family is 8 years. Average age of sons together with their parents is 22 years. If the father is older than the mother by 8 years, the age of mother (in years) is :
(1) 44 (2) 52
(3) 60 (4) 68
(SSC CGL Prelim Exam. 11.05.2003 (First Sitting))

AVERAGE

- 30.** Out of 10 teachers of a school, one teacher retires and in his place, a new teacher of age 25 years joins. As a result, average age of teachers reduces by 3 years. The age of the retired teacher is
(1) 50 years (2) 55 years
(3) 58 years (4) 60 years
(SSC CGL Prelim Exam. 11.05.2003
(Second Sitting)
- 31.** 3 years ago, the average age of a family of 5 members was 17 years. A baby having been born, the average age of the family is the same today. The present age of the baby is :
(1) 3 years (2) 2 years
(3) $1\frac{1}{2}$ years (4) 1 year
(SSC CGL Prelim Exam. 08.02.2004
(First Sitting)
- 32.** The average age of 45 persons is decreased by $\frac{1}{9}$ year when one of them of 60 years is replaced by a new comer. Then the age of the new comer is :
(1) 45 years (2) 55 years
(3) 59 years (4) 49 years
(SSCCHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting
(Delhi Zone)
- 33.** When the average age of a husband and wife and their son was 42 years, the son got married and a child was born just one year after the marriage. When child turned to be five years then the average age of family became 36 years. What was the age of daughter-in-law at the time of marriage?
(1) 26 years (2) 25 years
(3) 24 years (4) 23 years
(SSC Section Officer (Commercial Audit) Exam. 25.09.2005)
- 34.** The average age of 30 boys in a class is 15 years. One boy aged 20 years, left the class, but two new boys came in his place whose ages differ by 5 years. If the average age of all the boys now in the class still remains 15 years, the age of the younger newcomer is :
(1) 20 years (2) 15 years
(3) 10 years (4) 8 years
(SSC CGL Prelim Exam. 13.11.2005
(First Sitting)
- 35.** The average age of 24 boys and their teacher is 15 years. When the teacher's age is excluded, the average age decreases by 1 year. The age of the teacher is
(1) 38 years (2) 39 years
(3) 40 years (4) 41 years
(SSC Section Officer (Commercial Audit) Exam. 26.11.2006
(Second Sitting)
- 36.** There were 24 students in a class. One of them, who was 18 years old, left the class and his place was filled up by a newcomer. If the average of the class thereby, was lowered by one month, the age of the newcomer is
(1) 14 years (2) 15 years
(3) 16 years (4) 17 years
(SSC CGL Prelim Exam. 04.02.2007
(First Sitting)
- 37.** The average age of 30 students is 9 years. If the age of their teacher is included, the average age becomes 10 years. The age of the teacher (in years) is
(1) 27 (2) 31
(3) 35 (4) 40
(SSC CGL Prelim Exam. 04.02.2007
(Second Sitting)
- 38.** From a class of 24 boys, a boy, aged 10 years, leaves the class and in his place a new boy is admitted. As a result, the average age of the class is increased by 2 months. What is the age of the new boy ?
(1) 12 years (2) 15 years
(3) 14 years (4) 13 years
(SSC CGL Prelim Exam. 04.02.2007
(Second Sitting)
- 39.** 5 years ago, the average age of A, B, C and D was 45 years. With E joining them now, the average age of all the five is 49 years. How old is E ?
(1) 25 years (2) 40 years
(3) 45 years (4) 64 years
(SSC Section Officer (Commercial Audit) Exam. 30.09.2007
(Second Sitting)
- 40.** In a family, the average age of a father and a mother is 35 years. The average age of the father, mother and their only son is 27 years. What is the age of the son ?
(1) 12 years (2) 11 years
(3) 10.5 years (4) 10 years
(SSC CGL Tier-I Exam. 16.05.2010
(First Sitting)
- 41.** The average age of 9 students and their teacher is 16 years. The average age of the first four students is 19 years and that of the last five is 10 years. The teacher's age is
(1) 36 years (2) 34 years
(3) 30 years (4) 28 years
(SSC (South Zone) Investigator Exam 12.09.2010)
- 42.** Five years ago, the average age of P, Q and R was 25 years and seven years ago, the average age of Q and R was 20 years. The present age of P is
(1) 36 years (2) 29 years
(3) 24 years (4) 21 years
(SSC Data Entry Operator Exam. 31.08.2008)
- 43.** The average age of eleven cricket players is 20 years. If the age of the coach is also included, the average age increases by 10%. The age of the coach is
(1) 48 years (2) 44 years
(3) 40 years (4) 36 years
(SSC Data Entry Operator Exam. 02.08.2009)
- 44.** The average age of a husband and a wife was 27 years when they married 4 years ago. The average age of the husband, the wife and a new-born child is 21 years now. The present age of the child is
(1) 4 years (2) 3 years
(3) 2 years (4) 1 year
(SSC Data Entry Operator Exam. 02.08.2009)
- 45.** The average age of a husband and wife, who were married 4 years ago, was 25 years at the time of their marriage. The average age of the family consisting of husband, wife and a child, born during the interval is 20 years today. The age of the child is
(1) 1 year (2) 2 years
(3) 2.5 years (4) 3 years
(SSC CHSL DEO & LDC Exam. 28.11.2010 (IIInd Sitting)
- 46.** Five years ago, the average age of P and Q was 25. The average age of P, Q and R today is 25. Age of R after 5 years will be
(1) 15 years (2) 20 years
(3) 40 years (4) 35 years
(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting
(North Zone)

AVERAGE

- 47.** In a school, the average age of students is 6 years, and the average age of 12 teachers is 40 years. If the average age of the combined group of all the teachers and students is 7 years, then the number of students is :
 (1) 396 (2) 400
 (3) 408 (4) 416
 (SSC CGL Prelim Exam. 13.11.2005
 (First Sitting)
- 48.** In a school with 600 students, the average age of the boys is 12 years and that of the girls is 11 years. If the average age of the school is 11 years and 9 months, then the number of girls in the school is
 (1) 450 (2) 150
 (3) 250 (4) 350
 (SSC Graduate Level Tier-II Exam. 16.09.2012)
- 49.** If out of 10 selected students for an examination, 3 were of 20 years, age, 4 of 21 and 3 of 22 years, the average age of the group is
 (1) 22 years (2) 21 years
 (3) 21.5 years (4) 20 years
 (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)
- 50.** 3 years ago, the average age of a family of 5 members was 17 years. A baby having been born, the average age of the family is same today. The present age of the baby is
 (1) 1 year (2) $1\frac{1}{2}$ year
 (3) 2 years (4) 3 years
 (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)
- 51.** A man had 7 children. When their average age was 12 years, a child aged 6 years died. The average age of remaining six children is
 (1) 13 years (2) 10 years
 (3) 11 years (4) 14 years
 (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))
- 52.** The average age of a cricket team of 11 players is the same as it was 3 years back because 3 of the players whose current average age of 33 years were replaced by 3 youngsters. The average age of the newcomers is
 (1) 23 years (2) 21 years
 (3) 22 years (4) 20 years
 (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IIInd Sitting))
- 53.** The frequency distribution data is given below. If the average age is 17 years, the value of m is
 Age (in years) : 8 20 26 29
 Number of people : 3 2 m 1
 (1) 1 (2) 2
 (3) 3 (4) 4
 (SSC CGL Tier-II Exam. 21.09.2014)
- 54.** After replacing an old member by a new member, it was found that the average age of five members of a club is the same as it was 3 years ago. The difference between the ages of the replaced and the new members is
 (1) 2 years (2) 4 years
 (3) 8 years (4) 15 years
 (SSC CGL Tier-II Exam. 21.09.2014)
- 55.** Three years ago, the average age of a family of 5 members was 17 years. A baby having been born the average age of the family is the same today. The present age of the baby (in years) is
 (1) 2 (2) 2.4
 (3) 3 (4) 1.5
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)
- 56.** 3 years ago the average age of a family of 5 members was 17 years. A baby having been born, the average age of the family is the same today. The present age of the baby is
 (1) 1 year (2) $1\frac{1}{2}$ years
 (3) 2 years (4) 3 years
 (SSC CHSL DEO & LDC Exam. 9.11.2014)
- 57.** Three years ago the average age of a family of 5 members was 17 years. A baby having been born, the average age of the family remains the same today. The age of the baby today is
 (1) 3 years (2) 2 years
 (3) 1 year (4) 1.5 years
 (SSC CHSL DEO & LDC Exam. 16.11.2014)
- 58.** The average age of P, Q and R is 5 years more than R's age. If the total ages of P and Q together is 39 years, then R's age is
 (1) 12 years (2) 24 years
 (3) 16 years (4) 14 years
 (SSC CHSL DEO Exam. 16.11.2014)
 (Ist Sitting)
- 59.** Three years ago, the average age of a family of 5 members was 17 years. A baby having been born, the average age of the family is the same today. The present age of the baby (in year/s) is
 (1) 1 (2) $1\frac{1}{2}$
 (3) 2 (4) 3
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, Ist Sitting TF No. 333 LO 2)
- 60.** The average age of a husband and his wife was 23 years at the time of their marriage. After five years they have a one year old child. The average age of the family now is
 (1) 29.3 years (2) 19 years
 (3) 23 years (4) 28.5 years
 (SSC Constable (GD) Exam, 04.10.2015, IIInd Sitting)
- 61.** The average age of 30 students of a class is 14 years 4 months. After admission of 5 new students in the class the average becomes 13 years 9 months. The youngest one of the five new students is 9 years 11 months old. The average age of the remaining 4 new students is
 (1) 11 years 2 months
 (2) 13 years 6 months
 (3) 12 years 4 months
 (4) 10 years 4 months
 (SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)
- 62.** Out of 10 teachers of a school, one teacher retires and in place of him a new teacher 25 years old joins. As a result of it average age of the teachers reduces by 3 years. Age of the retired teacher (in years) is :
 (1) 55 (2) 60
 (3) 58 (4) 56
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (Ist Sitting) TF No. 6636838)
- 63.** The average age of mother and her six children is 12 years, which is reduced by 5 years if the age of the mother is excluded. The age of the mother (in years) is :
 (1) 50 (2) 40
 (3) 48 (4) 42
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)

AVERAGE

64. The average age of a family with 5 members is 28 years. If one of the members of age 20 years is excluded, the average age of the family becomes

- (1) 25 years (2) 20 years

- (3) 30 years (4) 24 years

(SSC CPO Exam. 06.06.2016)

(Ist Sitting)

65. The average age of husband, wife and their child 3 years ago was 27 years and that of wife and the child 5 years ago was 20 years. The present age of the husband is :

- (1) 50 years

- (2) 40 years

- (3) 35 years

- (4) None of the options

(SSC CAPFs (CPO) SI & ASI,

Delhi Police Exam. 20.03.2016)

(IIInd Sitting)

66. Pushpa is twice as old as Rita was 2 years ago. If difference between their ages is 2 years, how old is Pushpa today?

- (1) 6 years (2) 8 years

- (3) 10 years (4) 12 years

(SSC CGL Tier-I (CBE))

Exam. 27.08.2016) (IIInd Sitting)

67. The average age of 10 children is 9 years 9 months. The average age of 9 children is 8 years 11 months. What is the age of the tenth child?

- (1) 17 years 3 months

- (2) 18 years 4 months

- (3) 17 years 5 months

- (4) 18 years 3 months

(SSC CGL Tier-I (CBE))

Exam. 30.08.2016) (Ist Sitting)

68. The sum of the ages of mother and her daughter is 60 years. 12 years ago the mother was eight times as old as her daughter. How old is the daughter at present?

- (1) 20 years (2) 28 years

- (3) 16 years (4) 12 years

(SSC CGL Tier-I (CBE))

Exam. 02.09.2016) (IIInd Sitting)

69. The average age of eight teachers in a school is 40 years. A teacher among them died at the age of 55 years whereas another teacher whose age was 39 years joins them. The average age of the teachers in the school now is (in years)

- (1) 35 (2) 36

- (3) 38 (4) 39

(SSC CGL Tier-I (CBE))

Exam. 04.09.2016) (Ist Sitting)

70. If the average age of four children is 12 years and the average age of these children and their father is 20 years, what is the age of the father?

- (1) 52 years (2) 48 years

- (3) 62 years (4) 54 years

(SSC CGL Tier-I (CBE))

Exam. 06.09.2016) (Ist Sitting)

71. The average age of 36 students in a group is 14 years. When the teacher's age is included in it, the average increases by one. The teacher's age in years is

- (1) 31 (2) 51

- (3) 36 (4) 50

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016) (Ist Sitting)

72. The average age of 30 boys in a class is 10 years. If the age of their teacher is also included, the average increases by one year. The teacher's age in years is

- (1) 38 (2) 40

- (3) 30 (4) 41

(SSC CGL Tier-I (CBE))

Exam. 01.09.2016) (IIInd Sitting)

73. Ram is 20 years younger than Shyam. 5 years ago, the ratio of their ages was 3 : 5. The sum of their present ages is :

- (1) 75 years (2) 80 years

- (3) 90 years (4) 95 years

(SSC CGL Tier-I (CBE))

Exam. 30.08.2016) (IIIrd Sitting)

74. Three years ago, the average age of a family of 5 members was 17 years. A baby having been born, the average age of the family is the same today. The present age of the baby is :

- (1) 2 years (2) 2.4 years

- (3) 3 years (4) 1.5 years

(SSC CGL Tier-I (CBE))

Exam. 30.08.2016) (IIIrd Sitting)

75. Seven years ago, the average age of A, B and C was 51 years. If A is 3 years older than B and B is 3 years older than C then the present ages of A, B and C are (in years)

- (1) 61, 58 and 55

- (2) 54, 51, and 48

- (3) 55, 58, and 61

- (4) 48, 51 and 54

(SSC CGL Tier-I (CBE))

Exam. 03.09.2016 (IIIrd Sitting)

76. Numbers of boys and girls are 'x' and 'y' respectively. Ages of a girl and a boy are 'a' years and 'b' years respectively. The average age (in years) of all boys and girls is

$$(1) \frac{x+y}{bx+ay} \quad (2) \frac{bx+ay}{x+y}$$

$$(3) \frac{ax+by}{x+y} \quad (4) \frac{x+y}{ax+by}$$

(SSC CGL Tier-I (CBE))

Exam. 06.09.2016 (IIIrd Sitting)

77. The average age of a class of 39 students is 15 years. If the age of the teacher is included, then the average increases by 3 months. Find the age of the teacher.

- (1) 30 years (2) 25 years

- (3) 35 years (4) 40 years

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (IIInd Sitting)

78. The average age of 3 friends is 23 years. Even if the age of 4th friend is added, the average age remains the same. Then the age of the fourth friend is :

- (1) 20 years (2) 21 years

- (3) 22 years (4) 23 years

(SSC CGL Tier-I (CBE))

Exam. 27.10.2016 (Ist Sitting)

79. The average age of the boys in a class is 18 years. The average age of the girls in that class is 12 years. If the ratio of the number of boys and girls in that class is 3 : 2, then the average age of the class is :

- (1) 15. 6 years (2) 16. 5 years

- (3) 15 years (4) 16 years

(SSC CGL Tier-I (CBE))

Exam. 27.10.2016 (Ist Sitting)

AVERAGE

TYPE-X

- 1.** A company produces an average of 4000 items per month for the first 3 months. How much items, it must produce on an average per month over the next 9 months to average 4375 items per month over the whole year?

(1) 4500 (2) 4600
 (3) 4680 (4) 4710

(SSC CGL Prelim Exam. 04.07.1999
 (First Sitting)

- 2.** There are in all, 10 balls; some of them are red and the others white. The average cost of all balls is ₹ 28. If the average cost of red balls is ₹ 25 and that of white balls is ₹ 30, the number of white balls is :

(1) 3 (2) 5
 (3) 6 (4) 7

(SSC CHSL DEO & LDC
 Exam. 11.12.2011 (IInd Sitting)
 (Delhi Zone)

- 3.** The arithmetic mean of the scores of a group of students in a test was 52. The brightest 20% of them secured a mean score of 80 and the dullest 25% a mean score of 31. The mean score of remaining 55% is :

(1) 45% (2) 50%
 (3) 51.4% approx.
 (4) 54.6% approx.

(SSC CGL Prelim Exam. 27.02.2000
 (First Sitting)

- 4.** The average of marks obtained by 120 candidates in a certain examination is 35. If the average marks obtained by passed candidates are 39 and those of the failed candidates are 15, what is the number of candidates who passed the examination ?

(1) 100 (2) 120
 (3) 150 (4) 140

(SSC CGL Prelim Exam. 24.02.2002
 (Second Sitting)

- 5.** A man's pension on retirement from service is equal to half the average salary during last 3 years of his service. His salary from 1-1-1983 is ₹ 380 per month with increment of ₹ 40 due on 1-10-83, 1-10-84 and 1-10-85. If he retires on 1-1-86, what pension does he draw per month?

(1) ₹ 205 (2) ₹ 215
 (3) ₹ 225 (4) ₹ 230

(SSC Graduate Level Tier-I
 Exam. 21.04.2013 IInd Sitting)

- 6.** The average salary of all the workers in a workshop is ₹ 8000. The average salary of 7 technicians is ₹ 12000 and the average salary of the rest is ₹ 6000. The total number of workers in the workshop is

(1) 20 (2) 21
 (3) 23 (4) 22

(SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting)

- 7.** The average age of 15 students of a class is 15 years. Out of these the average age of 5 students is 14 years and that of the other 9 students is 16 years. The age of the 15th student is

(1) 11 years (2) 15 years
 (3) $15\frac{2}{7}$ years (4) 14 years

(SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting)

- 8.** In a family of 8 adults and some minors, the average consumption of rice per head per month is 10.8 kg; while the average consumption for adults is 15 kg per head and for minors it is 6 kg per head. The number of minors in the family is :

(1) 8 (2) 6
 (3) 7 (4) 9

(SSC CGL Prelim Exam. 08.02.2004
 (First Sitting)

- 9.** The average monthly income (in ₹) of certain agricultural workers is S and that of other workers is T. The number of agricultural workers is 11 times that of other workers. Then, the average monthly income (in ₹) of all the workers is :

(1) $\frac{S+11T}{12}$ (2) $\frac{S+T}{12}$
 (3) $\frac{11S+T}{12}$ (4) $\frac{1}{11S} + T$

(SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting)

- 10.** The average of marks scored by the students of a class is 68. The average of marks of the girls in the class is 80 and that of boys is 60. What is the percentage of boys in the class ?

(1) 40 % (2) 60 %
 (3) 65 % (4) 70 %

(SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting)

- 11.** The average monthly salary of the workers in a workshop is Rs. 8,500. If the average monthly salary of 7 technicians is Rs. 10,000 and average monthly salary of the rest is Rs. 7,800, the total number of workers in the workshop is

(1) 18 (2) 20
 (3) 22 (4) 24

(SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting)

- 12.** The average pocket money of 3 friends A, B, C is ₹ 80 in a particular month. If B spends double and C spends triple of what A spends during that month and if the average of their unspent pocket money is ₹ 60, then A spends (in ₹)

(1) ₹ 10 (2) ₹ 20
 (3) ₹ 30 (4) ₹ 40

(SSC Assistant Grade-III
 Exam. 11.11.2012 (IInd Sitting)

- 13.** The average score of a-class of boys and girls in an examination is A. The ratio of boys and girls in the class is 3 : 1. If the average score of the boys is A + 1, the average score of the girls is

(1) A + 1 (2) A - 1
 (3) A + 3 (4) A - 3

(SSC Section Officer (Commercial
 Audit) Exam. 26.11.2006
 (Second Sitting)

- 14.** If the average of m numbers is n^2 and that of n numbers is m^2 , then average of (m + n) numbers is

(1) $\frac{m}{n}$ (2) $m + n$
 (3) mn (4) $m - n$

(SSC Section Officer (Commercial
 Audit) Exam. 26.11.2006
 (Second Sitting)

- 15.** The average of the three numbers x, y and z is 45. x is greater than the average of y and z by 9. The average of y and z is greater than y by 2. Then the difference of x and z is

(1) 3 (2) 5
 (3) 7 (4) 11

(SSC CPO (SI, ASI & Intelligence
 Officer) Exam 28.08.2011 (Paper-I)

- 16.** The average expenditure of a man for the first five months of a year is ₹ 5,000 and for the next seven months it is ₹ 5,400. He saves ₹ 2,300 during the year. His average monthly income is :

(1) ₹ 5,425 (2) ₹ 5,500
 (3) ₹ 5,446 (4) ₹ 5,600

(SSC CPO S.I. Exam. 16.12.2007)

AVERAGE

- 17.** The average of eight numbers is 20. If the sum of first two numbers is 31, the average of the next three numbers is $21\frac{1}{3}$ and the seventh and eighth numbers exceed the sixth number by 4 and 7 respectively, then the eighth number is
 (1) 20 (2) 25
 (3) 21.6 (4) 25.3
 (SSC CGL Prelim Exam. 27.07.2008
 (First Sitting)
- 18.** 30 pens and 75 pencils altogether were purchased for ₹ 510. If the average price of a pencil was ₹ 2, what was the average price of a pen ?
 (1) ₹ 9 (2) ₹ 10
 (3) ₹ 11 (4) ₹ 12
 (SSC CPO S.I.
 Exam 12.12.2010 (Paper-I)
- 19.** The average mathematics marks of two Sections A and B of Class IX in the annual examination is 74. The average marks of Section A is 77.5 and that of Section B is 70. The ratio of the number of students of Section A and B is
 (1) 7 : 8 (2) 7 : 5
 (3) 8 : 7 (4) 8 : 5
 (SSC CGL Tier-1 Exam 19.06.2011
 (First Sitting)
- 20.** In a prep school, the average weight of 30 girls in a class among 50 students is 16 kg and that of the remaining students is 15.5 kg. What is the average weight of all the students in the class ?
 (1) 15.2 kg. (2) 15.8 kg.
 (3) 15.4 kg. (4) 15.6 kg.
 (SSC Constable (GD)
 Exam. 12.05.2013 1st Sitting)
- 21.** The average salary of all staff of a school is ₹ 10,000. The average salary of 20 teaching staff is ₹ 12,000 and that of non-teaching staff is ₹ 5000, the number of non-teaching staff will be
 (1) 7 (2) 8
 (3) 10 (4) 12
 (SSC Multi-Tasking Staff
 Exam. 17.03.2013, Kolkata Region)
- 22.** B was born when A was 4 years 7 months old and C was born when B was 3 years 4 months old. When C was 5 years 2 months old, then their average age was
 (1) 8 years 9 months
 (2) 7 years 3 months
- (3) 8 years 7 months
 (4) 8 years 11 months
 (SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (IInd Sitting)
- 23.** If the average of x and $\frac{1}{x}$ ($x \neq 0$) is M, then the average of x^2 and $\frac{1}{x^2}$ is :
 (1) $1 - M^2$ (2) $1 - 2M$
 (3) $2M^2 - 1$ (4) $2M^2 + 1$
 (SSC CHSL DEO & LDC
 Exam. 11.12.2011 (IInd Sitting
 (East Zone))
- 24.** 5 members of a team are weighed consecutively and their average weight calculated after each member is weighed. If the average weight increases by one kg each time, how much heavier is the last player than the first one ?
 (1) 4 kg (2) 20 kg
 (3) 8 kg (4) 5 kg
 (SSC Graduate Level Tier-II
 Exam. 16.09.2012)
- 25.** Out of nine persons, 8 persons spent ₹ 30 each for their meals. The ninth one spent ₹ 20 more than the average expenditure of all the nine. The total money spent by all of them was
 (1) ₹ 260 (2) ₹ 290
 (3) ₹ 292.50 (4) ₹ 400.50
 (SSC Graduate Level Tier-II
 Exam. 16.09.2012)
- 26.** In the afternoon, a student read 100 pages at the rate of 60 pages per hour. In the evening, when she was tired, she read 100 more pages at the rate of 40 pages per hour. What was her average rate of reading, in pages per hour ?
 (1) 60 (2) 70
 (3) 48 (4) 50
 (SSC CHSL DEO & LDC
 Exam. 21.10.2012 (Ist Sitting))
- 27.** Ram aims to score an average of 80 marks in quarterly and half yearly exams. But his average in quarterly is 3 marks less than his target and that in half yearly is 2 marks more than his aim. The difference between the total marks scored in both the exams is 25. Total marks aimed by Ram is :
 (1) 400 (2) 410
 (3) 420 (4) 380
 (SSC CHSL DEO & LDC
 Exam. 21.10.2012 (IInd Sitting))
- 28.** While purchasing one item costing ₹ 400, one has to pay sales tax at 7% and on another costing ₹ 6400, the sales tax was 9%. The per cent of sales tax one has to pay, taking these items together on an average is :
 (1) $8\frac{13}{17}$ (2) $8\frac{15}{17}$
 (3) $8\frac{1}{2}$ (4) 8
 (SSC CHSL DEO & LDC
 Exam. 21.10.2012 (IInd Sitting))
- 29.** On mixing two classes A and B of students having average marks 25 and 40 respectively, the overall average obtained is 30. Find the ratio of the students in the classes A and B.
 (1) 2 : 1 (2) 5 : 8
 (3) 5 : 6 (4) 3 : 4
 (SSC CHSL DEO & LDC
 Exam. 04.11.2012, IInd Sitting)
- 30.** A man purchases milk for three consecutive years. In the first year, he purchases milk at the rate of ₹ 7.50 per litre, in the second year, at the rate of ₹ 8.00 per litre and in the third year, at ₹ 8.50 per litre. If he purchases milk worth ₹ 4,080 each year, the average price of milk per litre for the three years is
 (1) ₹ 7.68 (2) ₹ 7.98
 (3) ₹ 7.54 (4) ₹ 7.83
 (SSC Delhi Police S.I.
 (SI) Exam. 19.08.2012)
- 31.** A fruit seller sold big, medium and small sized apples for ₹ 15, ₹ 10 and ₹ 5 respectively. The total number of apples sold were in the ratio 3 : 2 : 5. Find the average cost of an apple.
 (1) 8 (2) 10
 (3) 9 (4) 7
 (SSC CHSL DEO & LDC
 Exam. 21.10.2012, IInd Sitting)
- 32.** A man purchased 7 bags of rice at the rate of ₹ 800 each, 8 bags of rice at ₹ 1000 each and 5 bags of rice at the rate of ₹ 1200 each. What is the average cost of one bag of rice ?
 (1) ₹ 1000 (2) ₹ 980
 (3) ₹ 1120 (4) ₹ 1050
 (SSC CHSL DEO Exam. 02.11.2014
 (Ist Sitting))

AVERAGE

33. The average (arithmetic mean) of 3^{30} , 3^{60} and 3^{90} is

- (1) $3^{27} + 3^{57} + 3^{87}$
- (2) 3^{60}
- (3) $3^{29} + 3^{59} + 3^{89}$
- (4) 3^{177}

(SSC CGL Tier-II Exam. 12.04.2015
TF No. 567 TL 9)

34. In a team of 10 persons, nine persons spent ₹ 40 each for their meal and the remaining one spent ₹ 9 more than the average expenditure of all the 10 persons. The total expenditure for their meal was

- (1) ₹ 510 (2) ₹ 310
- (3) ₹ 410 (4) ₹ 610

(SSC CGL Tier-II Exam.
2014 12.04.2015 (Kolkata Region)
TF No. 789 TH 7)

35. In an examination average marks obtained by the girls of a class is 85 and the average marks obtained by the boys of the same class is 87. If the girls and boys are in the ratio 4 : 5, average marks of the whole class (approximately) is closest to

- (1) 85.9 (2) 86.1
- (3) 86.4 (4) 86.5

(SSC CGL Tier-II Exam,
25.10.2015, TF No. 1099685)

36. A shop of electronic goods is closed on Monday. The average sales per day for remaining six days of a week is ₹ 15640 and the average sale on Tuesday to Saturday is ₹ 14124. The sales on Sunday is

- (1) ₹ 21704 (2) Data inadequate
- (3) ₹ 23220 (4) ₹ 20188

(SSC CHSL (10+2) LDC, DEO & PA/SA
Exam. 01.11.2015, IIInd Sitting)

37. Fifteen movie theatres average 600 customers per theatre per day. If six of the theatres close down but the total theatre attendance stays the same, then the average daily attendance per theatre among the remaining theatres is

- (1) 900 (2) 1000
- (3) 1100 (4) 1200

(SSC CGL Tier-II Online
Exam.01.12.2016)

38. Last year, 5 companies had an average of 16 non working days each. This year, 3 companies had 10 more non working days each, and 2 companies had 5 fewer non working days each. What was the average number of non working days given by the same companies this year ?

- (1) 12 (2) 18
- (3) 20 (4) 22

(SSC CPO SI & ASI, Online
Exam. 06.06.2016) (IIInd Sitting)

39. On 24th May, 2008 the maximum temperature of Delhi, Kolkata and Mumbai were recorded as 35°C, 33°C and 34°C respectively. What was the maximum temperature of Chennai so that the average maximum temperature of those cities would be 35°?

- (1) 34°C (2) 35°C
- (3) 36°C (4) 38°C

(SSC CGL Tier-I (CBE)

Exam. 03.09.2016) (IIInd Sitting)

40. Eight members of a club donate Rs. 100 each towards a Relief Fund and the President of the club donates Rs. 50 more than the average donation of all (including President) of them. Then the contribution of the president is

- (1) Rs. 106.25 (2) Rs. 156.25
- (3) Rs. 56.25 (4) Rs. 206.25

(SSC CGL Tier-I (CBE)

Exam. 02.09.2016) (IIInd Sitting)

41. A and B have their annual average income Rs. 80,000.

B and C have their annual average income Rs. 75,000.

C and A have their annual average income Rs. 78,000.

The annual income of A is

- (1) Rs. 81000 (2) Rs. 82000

- (3) Rs. 83000 (4) Rs. 84000

(SSC CGL Tier-II (CBE)

Exam. 30.11.2016)

42. The average (arithmetic mean) amount of savings of ten students is Rs. 600. Three of the students have no savings at all and each of the others have at least Rs. 250 including Nihar, who has exactly Rs. 1300. The largest amount, in Rs., that any one student could have saved is

- (1) Rs. 3250 (2) Rs. 3450
- (3) Rs. 3650 (4) Rs. 3850

(SSC CGL Tier-II (CBE)

Exam. 30.11.2016)

43. An army of 12000 consists of Europeans and Indians. The average height of a European is 5ft 10 inches and that of an Indian is 5ft 9 inches and that of the

whole army is $5\frac{3}{4}$ inches.

Then the number of Indians in the army is

- (1) 3000 (2) 4000
- (3) 5500 (4) 2700

(SSC CGL Tier-II (CBE)

Exam. 30.11.2016)

44. The mean of 100 observations was calculated as 40. It was found later on that one of the observations was misread as 83 instead of 53. The correct mean is :

- (1) 39 (2) 39.7
- (3) 40.3 (4) 42.7

(SSC CGL Tier-I (CBE)

Exam. 28.08.2016) (IIInd Sitting)

45. Visitors to a show were charged Rs. 15 each on the first day, Rs. 7.50 on the second day, Rs. 2.50 on the third day and total attendance on three days were in the ratio 2 : 5 : 13 respectively. The average charge per person for the entire three days is

- (1) Rs. 5 (2) Rs. 5.50
- (3) Rs. 6 (4) Rs. 7

(SSC CGL Tier-I (CBE)

Exam. 09.09.2016 (IIInd Sitting)

46. The average weight of 10 parcels is 1.7 kg. Addition of another new parcel reduces the average weight by 60 gram. What is the weight in kg. of the new parcel?

- (1) 1.04 (2) 1.08
- (3) 1.4 (4) 1.8

(SSC CGL Tier-I (CBE)

Exam. 10.09.2016 (IIIrd Sitting)

47. The average temperature of Monday, Tuesday , Wednesday and Thursday is 60°. The average temperature for Tuesday, Wednesday, Thursday and Friday is 63°. If the ratio of temperature for Monday and Friday is 21 : 25, then what is the temperature of Friday ?

- (1) 70° (2) 73°
- (3) 75° (4) 78°

(SSC CGL Tier-I (CBE)

Exam. 11.09.2016 (IIInd Sitting)

48. A team of 8 persons joins in a shooting competition. The best marksman scored 85 points. If he had scored 92 points, the average score for the team would have been 84. The number of points the team scored was

- (1) 672 (2) 665
- (3) 645 (4) 588

(SSC CGL Tier-II (CBE)

Exam. 12.01.2017)

49. A librarian purchased 60 story books for his library. But he found that he could get 4 extra books by spending Rs. 336 more and then the overall average price per book would be reduced by Re 1. The previous average price of each book was

- (1) Rs. 84 (2) Rs. 83
- (3) Rs. 68 (4) Rs. 100

(SSC CGL Tier-II (CBE)

Exam. 12.01.2017)

6

RATIO AND PROPORTION

Very few questions are directly asked from this chapter. But it does not mean that chapter is of no use. The concepts of ratio and proportion find their applications in problems based on speed & distance, linear equations, partnership and many more. All the concepts and important rules related to Ratio and Proportion are discussed here. So, it is advised to go through the rules carefully.

IMPORTANT POINTS

Ratio—The comparative relation between two amounts/quantities of same type is called ratio.

The ratio of two amounts is equal to a fraction. It shows how much less or more time an amount is in comparison to another.

Ratio always occurs between same units, as –Rupees: Rupees, kg: kg, Hour : Hour, Second : Second etc.

Let an amount be x and another is y , then, the ratio between them is $x : y$ or $x \div y$.

In ratio 1st number i.e., 'x' is called "antecedent". and 2nd number i.e., 'y' is called "consequent".

If $a:b :: c:d$, then a and d are called extremes and b and c are called means.

\therefore Product of extremes = Product of means.

$$\text{i.e., } ad = bc$$

Directly Proportional : If $x = ky$, where k is a constant, then we say that x is directly proportional to y . It is written as $x \propto y$.

Inversely Proportional : If $x = \frac{k}{y}$ where k is a

constant, then we say that x is inversely proportional to y .

It is written as $x \propto \frac{1}{y}$

Proportion : When two ratios are equal to each other, then they are called proportional as

$a:b = c:d$, then, a, b, c and d are in proportion.

or,

$$a:b :: c:d$$

E.g. $2:5 = 6:15$, then we write $2:5 :: 6:15$

RULE 1 : It does not change the ratio, when we multiply or divide antecedent and consequent of the ratio by a same non-zero number as—

$$\text{e.g. } a:b = \frac{a}{b} = \frac{a \times c}{b \times c} = ac:bc = a:b$$

RULE 2 : What should be added to all of a, b, c, d (numbers) so that these become proportional respectively?

Let x should be added :

$$\text{Then } \frac{a+x}{b+x} :: \frac{c+x}{d+x}$$

RULE 3 : Mixed ratio – Let $x:y$ and $P:Q$ be two ratios, then $Px : Qy$ is called mixed ratio.

RULE 4 : Duplicate Ratio—The mixed ratio of two equal ratios is called the duplicate Ratio as

duplicate ratio of $a:b$ is $a^2:b^2$

RULE 5 : Subduplicate Ratio—The square root of a certain ratio is called its subduplicate.

The subduplicate ratio of $a:b = \sqrt{a}:\sqrt{b}$

RULE 6 : Triplicate Ratio—The cube of a certain ratio is called triplicate ratio.

The triplicate ratio of $a:b = a^3:b^3$

RULE 7 : Subtriplicate Ratio—The cube root of a certain ratio is called subtriplicate ratio as—

The Subtriplicate Ratio of $a:b = \sqrt[3]{a}:\sqrt[3]{b}$

RULE 8 : Inverse Ratio—The Reciprocal of quantities of ratio is called its inverse. Reciprocal or inverse ratio of $a:b$

$$= \frac{1}{a} : \frac{1}{b} \text{ or } = \left(\frac{1}{a} : \frac{1}{b} \right) \times (\text{L.C.M. of } a \text{ and } b)$$

RULE 9 : Invertendo—The proportion in which antecedent and consequent quantities change their places, is called invertendo, as—

Invertendo of $a:b = c:d$ is $b:a = d:c$

$$\text{means } \frac{a}{b} = \frac{c}{d} \text{ then } \frac{b}{a} = \frac{d}{c}$$

RULE 10 : Alternendo—If $a:b :: c:d$ is a proportion then

its alternendo is $a:c :: b:d$. i.e alternendo of $\frac{a}{b} = \frac{c}{d}$ is

$$\frac{a}{c} = \frac{b}{d}$$

RULE 11 : Componendo—If $a:b :: c:d$ is a proportion, then componendo is $(a+b) : b :: (c+d) : d$

$$\text{It means, If } \frac{a}{b} = \frac{c}{d} \text{ then, } \frac{a+b}{b} = \frac{c+d}{d}$$

RATIO AND PROPORTION

$$\text{or, } \left[\frac{a}{b} + 1 = \frac{c}{d} + 1 \Rightarrow \frac{a+b}{b} = \frac{c+d}{d} \right]$$

RULE 12 : Dividendo-If $a:b :: c:d$ is a proportion, then its dividendo is $(a - b):b :: (c - d):d$

$$\text{It means, } \frac{a}{b} = \frac{c}{d} \Rightarrow \frac{a}{b} - 1 = \frac{c}{d} - 1$$

$$\Rightarrow \frac{a-b}{b} = \frac{c-d}{d}$$

RULE 13 : Componendo and dividendo-If there is a proportion $a:b::c:d$ then its componendo and dividendo is

$$(a + b):(a - b)::(c + d):(c - d) \text{ or, } \frac{a+b}{a-b} = \frac{c+d}{c-d}$$

To simplify the proportion any one method of componendo, dividendo, componendo and Dividendo can directly be used.

RULE 14: Mean Proportion – Let x be the mean proportion between a and b , then $a:x::x:b$ (Real condition)

$$\therefore \frac{a}{x} = \frac{x}{b} \Rightarrow x^2 = ab$$

$$\therefore x = \sqrt{ab}$$

So, mean proportion of a and $b = \sqrt{ab}$

If x be the mean proportion between $(x - a)$ and $(x - b)$ then what will be the value of x ?

$$x = \frac{ab}{a+b}$$

RULE 15 : Third proportional-Let ' x ' be the third proportional of a and b then,

$a:b :: b:x$ (Real condition)

$$\text{i.e. } \frac{a}{b} = \frac{b}{x} \Rightarrow ax = b^2$$

$$\therefore x = \frac{b^2}{a}$$

$$\therefore \text{Third proportional of } a \text{ and } b = \frac{b^2}{a}$$

RULE 16 : Fourth Proportional- Let x be the fourth proportional of a, b and c , then $a:b::c:x$ (Real condition)

$$\Rightarrow \frac{a}{b} = \frac{c}{x} \Rightarrow ax = bc$$

$$\therefore x = \frac{bc}{a}$$

$$\therefore \text{Fourth proportional of } a, b \text{ and } c = \frac{bc}{a}$$

RULE 17 : First Proportional-Let x be the first proportional of a,b and c , then, $x:a::b:c$ (Real condition)

$$\therefore \frac{x}{a} = \frac{b}{c} \Rightarrow cx = ab$$

$$\therefore x = \frac{ab}{c}$$

RULE 18 : If $A:B = x:y$ and $B:C = p:q$ then

$$(i) A:C = xp : yq$$

$$(ii) A:B:C = (x:y) \times p:qy = xp:yp:yq$$

It is done as follows:

$$A:B = x:y$$

$$B:C = p:q$$

$$A:B:C = xp:yp:yq$$

RULE 19 : If $A:B = x:y$, $B:C = p:q$ and $C:D = m:n$ then,

$$(i) A:D = xpm : yqn$$

$$(ii) A:B:C:D = (xp:yp:yq) \times m:yqn = xpm:ypm:yqm:yqn$$

RULE 20 : If $A:B:C:D = w:x:y:z$ and $D:E = m:n$ then,

$$A:B:C:D:E = wm:xm:ym:zm:zn$$

RULE 21 : If an amount R is to be divided between A and B in the ratio $m:n$ then

$$(i) \text{ Part of } A = \frac{m}{m+n} \times R$$

$$(ii) \text{ Part of } B = \frac{n}{m+n} \times R$$

$$(iii) \text{ Difference of part of } A \text{ and } B = \frac{mn}{m+n} \times R, \text{ where } m > n$$

RULE 22 : If the ratio of A and B is $m:n$ and the difference in their share is ' R ' units then,

$$(i) \text{ Part of } A = \frac{m}{m-n} \times R$$

$$(ii) \text{ Part of } B = \frac{n}{m-n} \times R$$

$$(iii) \text{ The sum of parts of } A \text{ and } B = \frac{m+n}{m-n} \times R$$

where $m > n$

RULE 23 : If the ratio of A and B is $m:n$ and the part of A is ' R ', then

$$(i) \text{ Share of } B = \frac{n}{m} \times R$$

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(ii) Total share of A and B = $\frac{m+n}{m} \times R$

(iii) Difference in share of A and B = $\frac{m-n}{m} \times R$

where $m > n$

RULE 24 : If the amount R is divided among A, B and C in the ratio $l:m:n$, then

(i) The share of A = $\frac{l}{l+m+n} \times R$

(ii) The share of B = $\frac{m}{l+m+n} \times R$

(iii) The share of C = $\frac{n}{l+m+n} \times R$

(iv) Difference in share of A and B = $\frac{l-m}{l+m+n} \times R$,

where $l > m$

(v) Difference in share of B and C = $\frac{l-n}{l+m+n} \times R$

where $m > n$

RULE 25 : If the ratio of A, B and C is $l : m : n$ and the part of A is 'R' then,

(i) Part of B = $\frac{m}{l} \times R$

(ii) Part of C = $\frac{n}{l} \times R$

(iii) Difference in parts of B and C = $\frac{m-n}{l} \times R$,

(where $m > n$)

(iv) Total share of A,B and C = $\frac{(l+m+n)}{l} \times R$

RULE 26 : If an amount is to be divided among A, B and C in the ratio $l : m : n$ and the difference between A and B is 'R', then

(i) Part of C = $\frac{n}{l-m} \times R$, where $l > m$

(ii) Total share of A, B and C = $\frac{l+m+n}{l-m} \times R$,

where $l > m$

(iii) Difference in share of B and C = $\frac{m-n}{l-m} \times R$, where

$l > m$ and $m > n$

RULE 27 : If there are notes of 'x' rupees, 'y' rupees and 'z' rupees in a box in the ratio $m:n:r$ and the total value of notes is 'R', then

(i) Number of notes of 'x' rupees = $\frac{m}{(xm+yn+zr)} \times R$

(ii) Number of notes of 'y' rupees = $\frac{n}{(xm+yn+zr)} \times R$

(iii) Number of notes of 'z' rupees = $\frac{r}{(xm+yn+zr)} \times R$

RULE 28 : If adding/subtracting a certain quantity gives new ratio, then multiplier

$$= \frac{\text{Total Quantity} \pm \text{Change in Quantity}}{\text{Sum of Ratios}}$$

\Rightarrow Then quantity

= Multiplier \times Ratio figure of that quantity

RULE 29 : If the ratio of alligation of milk and water in a glass is $m:n$ and in other glass alligation is $p:q$, then the ratio of milk and water in third glass which contains alligation of both glasses is

$$\text{Ratio} = \left(\frac{m}{m+n} + \frac{p}{p+q} \right) : \left(\frac{n}{m+n} + \frac{q}{p+q} \right)$$

RULE 30 : If the ratio of milk and water in the alligation of A litre is $p:q$ then water must be added in it so that ratio of milk and water would be $r:s$ is

$$\text{Required amount of water} = \frac{A(ps - qr)}{r(p+q)} \text{ litres}$$

RULE 31 : The ratio of income of two persons A and B is $p:q$. If the ratio of their expenditures is $r:s$, then the monthly income of A and B, when each one of them saves 'R' rupees will be

$$\text{Monthly income of A} = \frac{Rp(r-s)}{ps-rq}$$

$$\text{Monthly income of B} = \frac{Rp(r-s)}{ps-rq}$$

RULE 32 : Let 'x' be a number which is subtracted from a, b, c and d to make them proportional, then

$$x = \frac{ad - bc}{(a+d) - (b+c)}$$

RATIO AND PROPORTION

Let 'x' be a number which is added to a, b, c and d to make them proportional, then

$$x = \frac{bc - ad}{(a+d) - (b+c)}$$

Here, a, b, c and d should always be in ascending order.

RULE 33 : If $\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = \dots$, then each ratio
 $= \frac{a+c+e+\dots}{b+d+f+\dots}$

RULE 34 : Two numbers are in the ratio a:b and if each number is increased by x, the ratio becomes c:d. Then

the two numbers will be $\frac{xa(c-d)}{ad-bc}$ and $\frac{xb(c-d)}{ad-bc}$

RULE 35 : Two numbers are in the ratio a:b and if x is subtracted from each number the ratio becomes c:d. The two numbers will be $\frac{xa(d-c)}{ad-bc}$ and $\frac{xb(d-c)}{ad-bc}$

PROBLEMS BASED ON AGES

Importance : You would be knowing that such questions are asked in different competitive exams.

Scope of questions : In these questions age/ratio of ages of a person/his relatives is asked for present/future or past ages.

Way to success : Given rules and mental mapping in these questions will save your time and labour.

Rule 1.

If the ratio of present age and the ratio of age after 'n' years is given then present age factor is given by :

$$x = \frac{(\text{Difference in 2nd ratio}) \times \text{time}}{(\text{Difference in cross products of ratio})}$$

Rule 2.

If x is the present age factor, and the difference in cross product of ratio is zero then,

$$x = \frac{\text{time}}{(\text{Difference of ratio})}$$

Rule 3.

If the ratio of 'some years ago' and 'after some years' is given. And Before ' t_1 ' years, the ratio of ages of A and B was a : b.

Present age of A = $ax + t_1$

Present age of B = $bx + t_1$

after ' t_2 ' years, the ratio of their ages will be c : d.

$$\therefore x = \frac{(\text{Difference in 2nd ratio}) \times (t_1 + t_2)}{(\text{Difference in cross products of the ratio})}$$

When, the difference in ratios is equal, then

$$x = \frac{(t_1 + t_2)}{(\text{Difference in ratio})}$$

Rule 4.

If the product of present ages is given, then,

$$x = \sqrt{\frac{\text{Product of ages of two persons}}{\text{Product of ratio}}}$$

Rule 5.

If sum of present age and ratio of the ages is given then, present age factor,

$$x = \frac{\text{Sum of Present ages}}{\text{Sum of ratio}}$$

Rule 6.

If the ratio of ages and difference in ages is given then,

$$x = \frac{\text{difference between ages}}{\text{difference in ratio}}$$

Rule 7.

The ratio of ages of A and B was x : y 'n' years ago.

(i) If the present age ratio is a : b, then, $\frac{x+n}{y+n} = \frac{a}{b}$

(ii) If after 'm' years, the ratio of ages will be

$$p : q \text{ then, } \frac{x+n+m}{y+n+m} = \frac{p}{q}$$

Rule 8.

If 'n' years before, the ratio of ages of A, B and C was x : y : z, then the ratio of their present ages is $(x+n) : (y+n) : (z+n)$

Rule 9.

If after m years, the ratio of ages of A and B will be x : y, then the ratio of their present ages is $(x-m) : (y-m)$.

MIXTURE OR ALLIGATION

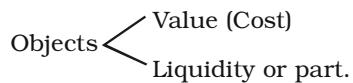
Importance : Mixture is a specific type of ratio and proportion, but since 1 or 2 questions from this chapter are asked regularly in competitions hence it is comfortable and useful to study this chapter separately.

Questions are of limited nature hence marks can be ensured with very less efforts.

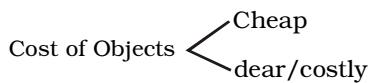
Scope of Questions : Questions are related to getting new mixture or alloy from mixing of two liquids/metals. In final mixture you have to find ratio of elements or to access required quantity to get a certain ratio.

Way to success : In these questions, it is very useful to know alligation method and other.

In how much ratio mixture has been made, this ratio is called the rule of mixture.

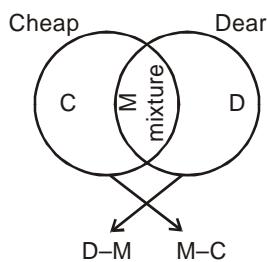


(i) On the base of cost :



RULE 1 : The cost of cheap object is Rs. C/kg and the cost of dear object is Rs. D/kg. If the mixture of both objects costs Rs. M/kg, then

$$\frac{\text{Cheap object}}{\text{Dear object}} = \frac{D-M}{M-C}$$



∴ Ratio is $(D - M) : (M - C)$

RULE 2 : Quantity of x in mixture

$$= \frac{\text{Ratio of } x \times \text{Quantity of Mixture}}{\text{Sum of Ratios}}$$

RULE 3 : If from x litre of liquid A, p litre is withdrawn and same quantity of liquid B is added. Again from mixture q litre mixture is withdrawn and same quantity of liquid B is added. Again from mixture, r litre is withdrawn and same quantity of liquid B is added, then

In final mixture, liquid A is

$$x \left(\frac{x-p}{x} \right) \left(\frac{x-q}{x} \right) \left(\frac{x-r}{x} \right) \dots \dots \dots$$

If only one process is repeated n times, then liquid A in final mixture is $x \left(\frac{x-p}{x} \right)^n$ or $x \left(1 - \frac{p}{x} \right)^n$ and liquid B in final mixture = $x - (\text{liquid A in final mixture})$

RULE 4 : If x is initial amount of liquid, p is the amount which is drawn, and this process is repeated n-times such that the resultant mixture is in the ratio a : b then,

$$\frac{a}{a+b} = \left(\frac{x-p}{x} \right)^n$$

RULE 5 : There are two pots of same volume. Both the pots contain mixture of milk and water in the ratio m:n and p:q respectively. If both the mixtures are mixed together in a big pot, then what will be the final ratio of milk and water?

$$\text{Required ratio} = \left(\frac{m}{m+n} + \frac{p}{p+q} \right) : \left(\frac{n}{m+n} + \frac{q}{p+q} \right)$$

RULE 6 : The ratio of milk and water in the mixture of 'x' unit liquid is a:b. If 'd' unit milk is added to it then ratio

$$\text{of milk and water becomes } a_1 : b_1. \text{ Then, } d = \frac{x(a_1 b - a b_1)}{(a+b)b_1}$$

unit.

If 'd' unit water is added to it then,

$$d = \frac{x(ab - a_1 b_1)}{(a+b)a_1} \text{ unit}$$

RULE 7 : There is x% milk in 'a' unit mixture of milk and water. The amount of milk that should be added to increase the percentage of milk from x% to y% is given by

$$\text{Required quantity of milk} = \frac{a(y-x)}{(100-y)} \text{ unit.}$$

RULE 8 : There is x% water in 'a' unit mixture of sugar and water. The quantity of water vapourised such that decrease in the percentage of water is from x% to y% is given by

∴ Required quantity of vapourised water

$$= \frac{a(x-y)}{y} \text{ unit.}$$



QUESTIONS ASKED IN PREVIOUS SSC EXAMS

TYPE-I

- 1.** If $a : b = 7 : 9$ and $b : c = 15 : 7$, then what is $a : c$?
 (1) 5 : 3 (2) 3 : 5
 (3) 7 : 21 (4) 7 : 15
 (SSC CGL Prelim Exam. 04.07.1999
 (First Sitting))
- 2.** If $x = \frac{1}{3}y$ and $y = \frac{1}{2}z$, then $x : y : z$, is equal to :
 (1) 3 : 2 : 1 (2) 1 : 2 : 6
 (3) 1 : 3 : 6 (4) 2 : 4 : 6
 (SSC CGL Prelim Exam. 04.07.1999
 (Second Sitting))
- 3.** If $p : q = r : s = t : u = 2 : 3$, then $(mp + nr + ot) : (mq + ns + ou)$ is equal to :
 (1) 1 : 3 (2) 1 : 2
 (3) 2 : 3 (4) 3 : 2
 (SSC CGL Prelim Exam. 27.02.2000
 (First Sitting))
- 4.** If $a : b = c : d = e : f = 1 : 2$, then $(pa + qc + re) : (pb +qd + rf)$ is equal to :
 (1) $p : (q+r)$ (2) $(p+q) : r$
 (3) 2 : 3 (4) 1 : 2
 (SSC CGL Prelim Exam. 27.02.2000
 (First Sitting))
- 5.** If $x : y = 3 : 1$, then $x^3 - y^3 : x^3 + y^3 = ?$
 (1) 13 : 14 (2) 14 : 13
 (3) 10 : 11 (4) 11 : 10
 (SSC CGL Prelim Exam. 27.02.2000
 (First Sitting))
- 6.** The fourth proportional to 0.12, 0.21, 8 is :
 (1) 8.9 (2) 56
 (3) 14 (4) 17
 (SSC CGL Prelim Exam. 27.02.2000
 (First Sitting))
- 7.** The ratio $2^{1.5} : 2^{0.5}$ is the same as :
 (1) 2 : 1 (2) 3 : 1
 (3) 6 : 1 (4) 3 : 2
 (SSC CGL Prelim Exam. 27.02.2000
 (Second Sitting))
- 8.** If $m : n = 3 : 2$, then $(4m + 5n) : (4m - 5n)$ is equal to :
 (1) 4 : 9 (2) 9 : 4
 (3) 11 : 1 (4) 9 : 1
 (SSC CGL Prelim Exam. 27.02.2000
 (Second Sitting))

- 9.** If $A : B = 3 : 4$, $B : C = 5 : 7$ and $C : D = 8 : 9$ then $A : D$ is equal to
 (1) 3 : 7 (2) 7 : 3
 (3) 21 : 10 (4) 10 : 21
 (SSC CGL Prelim Exam. 24.02.2002 &
 13.11.2005 (Middle Zone))
- 10.** If $a : b = \frac{2}{9} : \frac{1}{3}$,
 $b : c = \frac{2}{7} : \frac{5}{14}$ and $d : c = \frac{7}{10} : \frac{3}{5}$
 then $a : b : c : d$ is
 (1) 4 : 6 : 7 : 9
 (2) 16 : 24 : 30 : 35
 (3) 8 : 12 : 15 : 7
 (4) 30 : 35 : 24 : 16
 (SSC CGL Prelim Exam. 11.05.2003
 (First Sitting))
- 11.** If b is the mean proportional of a and c , then $(a - b)^3 : (b - c)^3$ equals
 (1) $a^3 : c^3$ (2) $b^2 : c^2$
 (3) $a^2 : c^2$ (4) $a^3 : b^3$
 (SSC CPO S.I. Exam. 05.09.2004)
- 12.** ₹ 6200 divided into three parts proportional to $\frac{1}{2} : \frac{1}{3} : \frac{1}{5}$ are respectively
 (1) ₹ 3000, ₹ 2000, ₹ 1200
 (2) ₹ 3500, ₹ 1500, ₹ 1200
 (3) ₹ 2500, ₹ 2000, ₹ 1700
 (4) ₹ 2200, ₹ 3000, ₹ 1000
 (SSC CPO S.I. Exam. 05.09.2004)
- 13.** 94 is divided into two parts in such a way that the fifth part of the first and the eighth part of the second are in the ratio 3 : 4. The first part is :
 (1) 30 (2) 36
 (3) 40 (4) 28
 (SSC CHSL DEO & LDC Exam.
 21.10.2012 (IIInd Sitting))
- 14.** If $a : b = 5 : 7$ and $c : d = 2a : 3b$, then $ac : bd$ is :
 (1) 20 : 38 (2) 50 : 147
 (3) 10 : 21 (4) 50 : 151
 (SSC CGL Prelim Exam. 13.11.2005
 (First Sitting))
- 15.** If $x : y = 3 : 2$, then the ratio $2x^2 + 3y^2 : 3x^2 - 2y^2$ is equal to :
 (1) 12 : 5 (2) 6 : 5
 (3) 30 : 19 (4) 5 : 3
 (SSC CGL Prelim Exam. 13.11.2005
 (First Sitting))
- 16.** If $a : b = b : c$, then $a^4 : b^4$ is equal to
 (1) $ac : b^2$ (2) $a^2 : c^2$
 (3) $c^2 : a^2$ (4) $b^2 : ac$
 (SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting))
- 17.** If $A : B = \frac{1}{2} : \frac{3}{8}$, $B : C = \frac{1}{3} : \frac{5}{9}$
 and $C : D = \frac{5}{6} : \frac{3}{4}$, then the ratio $A : B : C : D$ is
 (1) 6 : 4 : 8 : 10
 (2) 6 : 8 : 9 : 10
 (3) 8 : 6 : 10 : 9
 (4) 4 : 6 : 8 : 10
 (SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting))
- 18.** If $A : B : C = 2 : 3 : 4$, then ratio $\frac{A}{B} : \frac{B}{C} : \frac{C}{A}$ is equal to
 (1) 8 : 9 : 16 (2) 8 : 9 : 12
 (3) 8 : 9 : 24 (4) 4 : 9 : 16
 (SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting))
- 19.** If $a : b = c : d = e : f = 1 : 2$, then $(3a + 5c + 7e) : (3b + 5d + 7f)$ is equal to
 (1) 8 : 7 (2) 2 : 1
 (3) 1 : 4 (4) 1 : 2
 (SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting))
- 20.** If $a : (b+c) = 1 : 3$ and $c : (a+b) = 5 : 7$, then $b : (a+c)$ is equal to
 (1) 1 : 2 (2) 2 : 3
 (3) 1 : 3 (4) 2 : 1
 (SSC CPO S.I. Exam. 03.09.2006)
- 21.** If $p : q : r = 1 : 2 : 4$, then $\sqrt{5p^2 + q^2 + r^2}$ is equal to
 (1) 5 (2) 2q
 (3) 5p (4) 4r
 (SSC CPO S.I. Exam. 03.09.2006)
- 22.** The mean proportional between $(3 + \sqrt{2})$ and $(12 - \sqrt{32})$ is
 (1) $\sqrt{7}$ (2) $2\sqrt{7}$
 (3) 6 (4) $\frac{15 - 3\sqrt{2}}{2}$
 (SSC CPO S.I. Exam. 03.09.2006)

RATIO AND PROPORTION

23. If $x : y = 2 : 3$, then the value of

$$\frac{3x+2y}{9x+5y}$$
 is equal to

- (1) $\frac{11}{4}$ (2) $\frac{4}{11}$
 (3) $\frac{1}{2}$ (4) $\frac{5}{14}$

(SSC CPO S.I. Exam. 03.09.2006)

24. If a, b, c are three numbers such that $a : b = 3 : 4$ and $b : c = 8 : 9$, then $a : c$ is equal to

- (1) 1 : 3 (2) 2 : 3
 (3) 3 : 2 (4) 1 : 2

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006
 (Second Sitting))

25. If $a : b : c = 2 : 3 : 4$ and $2a - 3b + 4c = 33$, then the value of c is

- (1) 6 (2) 9
 (3) 12 (4) $\frac{66}{7}$

(SSC CGL Prelim Exam. 04.02.2007
 (First Sitting))

26. If $a : b = c : d$, then $\frac{ma+nc}{mb+nd}$ is not equal to

- (1) $\frac{a}{b}$ (2) $\frac{c}{d}$
 (3) $\frac{a+c}{b+d}$ (4) $\frac{c-a}{b-d}$

(SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting))

27. The ratio of A to B is 4 : 5 and that of B to C is 2 : 3. If A equals 800, C equals

- (1) 1000 (2) 1200
 (3) 1500 (4) 2000

(SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting))

28. If $a : b : c = 7 : 3 : 5$, then $(a+b+c) : (2a+b-c)$ is equal to

- (1) 1 : 2 (2) 2 : 3
 (3) 3 : 4 (4) 5 : 4

(SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting))

29. If $A : B = 2 : 3$ and $B : C = 4 : 5$, then $A : B : C$ is

- (1) 2 : 3 : 5 (2) 5 : 4 : 6
 (3) 6 : 4 : 5 (4) 8 : 12 : 15

(SSC Section Officer (Commercial Audit) Exam. 30.09.2007
 (Second Sitting))

30. If two times of A is equal to three times of B and also equal to four times of C, then $A : B : C$ is

- (1) 2 : 3 : 4 (2) 3 : 4 : 2
 (3) 4 : 6 : 3 (4) 6 : 4 : 3

(SSC Section Officer (Commercial Audit) Exam. 30.09.2007
 (Second Sitting))

31. If $A : B = 2 : 3$, $B : C = 2 : 4$ and $C : D = 2 : 5$, then $A : D$ is equal to :

- (1) 2 : 15 (2) 2 : 5
 (3) 1 : 5 (4) 3 : 5

(SSC CPO S.I. Exam. 16.12.2007)

32. If $a : b : c = 3 : 4 : 7$, then the ratio $(a+b+c) : c$ is equal to

- (1) 2 : 1 (2) 14 : 3
 (3) 7 : 2 (4) 1 : 2

(SSC CGL Prelim Exam. 27.07.2008
 (First Sitting))

33. If A and B are in the ratio 3 : 4, and B and C in the ratio 12 : 13, then A and C will be in the ratio

- (1) 3 : 13 (2) 9 : 13
 (3) 36 : 13 (4) 13 : 9

(SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting))

34. If $A : B = 3 : 2$ and $B : C = 3 : 4$ then $A : C$ is equal to

- (1) 1 : 2 (2) 2 : 1
 (3) 8 : 9 (4) 9 : 8

(SSC CPO S.I. Exam. 09.11.2008)

35. If $x : y = 2 : 1$, then $(x^2 - y^2) : (x^2 + y^2)$ is

- (1) 3 : 5 (2) 5 : 3
 (3) 4 : 5 (4) 5 : 6

(SSC CPO S.I. Exam. 06.09.2009)

36. If ₹ 1000 is divided between A and B in the ratio 3 : 2, then A will receive

- (1) ₹ 400 (2) ₹ 500
 (3) ₹ 600 (4) ₹ 800

(SSC CGL Tier-I Exam. 16.05.2010
 (First Sitting))

37. If $W_1 : W_2 = 2 : 3$ and $W_1 : W_3 = 1 : 2$ then $W_2 : W_3$ is

- (1) 3 : 4 (2) 4 : 3
 (3) 2 : 3 (4) 4 : 5

(SSC CGD Tier-I Exam. 16.05.2010
 (Second Sitting))

38. If $3x = 5y = 4z$, then $x : y : z$ is equal to

- (1) 9 : 12 : 16 (2) 20 : 12 : 15
 (3) 15 : 10 : 9 (4) 8 : 5 : 3

(SSC SAS Exam. 26.06.2010
 (Paper-1))

39. If $A : B = 3 : 4$ and $B : C = 6 : 5$, then $A : (A+C)$ is equal to

- (1) 9 : 10 (2) 10 : 9
 (3) 9 : 19 (4) 19 : 9

(SSC CISF ASI Exam. 29.08.2010
 (Paper-1))

40. If a and b are rational numbers

and $a + b \sqrt{3} = \frac{1}{2 - \sqrt{3}}$, then a

: b is equal to

- (1) 2 : 1 (2) 2 : 1

- (3) $\sqrt{3} : 1$ (4) $-\sqrt{3} : 1$

(SSC (South Zone) Investigator Exam. 12.09.2010)

41. If $A : B = 3 : 4$ and $B : C = 8 : 9$, then $A : B : C$ is

- (1) 8 : 6 : 9 (2) 9 : 8 : 6

- (3) 6 : 8 : 9 (4) 3 : 32 : 9

(SSC CPO S.I.

Exam. 12.12.2010 (Paper-I))

42. If 78 is divided into three parts

which are in the ratio $1 : \frac{1}{3} : \frac{1}{6}$, the middle part is

- (1) $9\frac{1}{3}$ (2) 13

- (3) $17\frac{1}{3}$ (4) $18\frac{1}{3}$

(SSC CGL Tier-1 Exam. 19.06.2011
 (First Sitting))

43. If $x : y = 4 : 5$, then

$$(3x+y) : (5x+3y) =$$

- (1) 3 : 5 (2) 5 : 3

- (3) 17 : 35 (4) 35 : 17

(SSC CGL Tier-1 Exam. 19.06.2011
 (Second Sitting))

44. If $x : y = 5 : 6$, then $(3x^2 - 2y^2)$:

$(y^2 - x^2)$ is

- (1) 7 : 6 (2) 11 : 3

- (3) 3 : 11 (4) 6 : 7

(SSC CGL Tier-1 Exam. 26.06.2011
 (Second Sitting))

45. If $x : y = 3 : 4$, then

$$4x + 5y : 5x - 2y =$$

- (1) 7 : 32 (2) 32 : 7

- (3) 4 : 3 (4) 5 : 2

(SSC CPO (SI, ASI & Intelligence Officer) Exam. 28.08.2011 (Paper-I))

46. If $A : B$ is 2 : 3, $B : C$ is 6 : 11, then $A : B : C$ is :

- (1) 2 : 3 : 11 (2) 4 : 6 : 22

- (3) 4 : 6 : 11 (4) 2 : 6 : 11

FCI Assistant Grade-III Exam. 05.02.2012 (Paper-I))

East Zone (IIInd Sitting)

47. If two-third of A is four-fifth of B, then $A : B = ?$

- (1) 5 : 6 (2) 6 : 5

- (3) 10 : 9 (4) 9 : 10

FCI Assistant Grade-III Exam. 05.02.2012 (Paper-I))

East Zone (IIInd Sitting)

RATIO AND PROPORTION

- 48.** If $\frac{2}{3}$ of A = 75% of B = 0.6 of C, then A : B : C is
 (1) 2 : 3 : 3 (2) 3 : 4 : 5
 (3) 4 : 5 : 6 (4) 9 : 8 : 10
 (SSC CGL Prelim Exam. 27.07.2008 (IInd Sitting) & SSC CISF ASI Exam. 29.08.2010)
- 49.** ₹ 33,630 are divided among A, B and C in such a manner that the ratio of the amount of A to that of B is 3 : 7 and the ratio of the amount of B to that of C is 6 : 5. The amount of money received by B is
 (1) ₹ 14,868 (2) ₹ 16,257
 (3) ₹ 13,290 (4) ₹ 12,390
 (SSC CGL Prelim Exam. 04.02.2007 (First Sitting))
- 50.** If A : B = 3 : 5 and B : C = 4 : 7, then A : B : C is
 (1) 6 : 9 : 14 (2) 3 : 5 : 7
 (3) 12 : 20 : 21 (4) 12 : 20 : 35
 (SSC Data Entry Operator Exam. 31.08.2008)
- 51.** If $A = \frac{4}{5}$ of B and $B = \frac{5}{2}$ of C, then the ratio of A : C is
 (1) 1 : 2 (2) 2 : 1
 (3) 2 : 3 (4) 1 : 3
 (SSC Data Entry Operator Exam. 02.08.2009)
- 52.** If $A = \frac{1}{4}B$ and $B = \frac{1}{2}C$, then A : B : C is :
 (1) 8 : 4 : 1 (2) 4 : 2 : 1
 (3) 1 : 4 : 8 (4) 1 : 2 : 4
 (SSC CHSL DEO & LDC Exam. 27.11.2010)
- 53.** If $2A=3B=4C$, then A : B : C is :
 (1) 2 : 3 : 4 (2) 4 : 3 : 2
 (3) 6 : 4 : 3 (4) 3 : 4 : 6
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (Ist Sitting))
- 54.** The ratio $4^{3.5} : 2^5$ is the same as
 (1) 4 : 1 (2) 2 : 1
 (3) 1 : 2 (4) 1 : 4
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (Ist Sitting))
- 55.** If A : B = 1 : 2, B : C = 3 : 4, C : D = 6 : 9 and D : E = 12 : 16 then A : B : C : D : E is equal to
 (1) 1 : 3 : 6 : 12 : 16
 (2) 2 : 4 : 6 : 9 : 16
 (3) 3 : 4 : 8 : 12 : 16
 (4) 3 : 6 : 8 : 12 : 16
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (IInd Sitting))
- 56.** If $x : y = 2 : 5$, then $(5x + 3y) : (5x - 3y)$ is equal to
 (1) 5 (2) 3
 (3) -3 (4) -5
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (IInd Sitting))
- 57.** If $\frac{a}{b} = \frac{2}{3}$ and $\frac{b}{c} = \frac{4}{5}$, then
 $(a + b) : (b + c) = ?$
 (1) 3 : 4 (3) 4 : 5
 (2) 5 : 9 (4) 20 : 27
 (SSC Multi-Tasking (Non-Technical) Staff Exam. 27.02.2011)
- 58.** Marks of two candidates P and Q are in the ratio of 2 : 5. If the marks of P is 120, marks of Q will be
 (1) 120 (2) 240
 (3) 300 (4) 360
 (SSC CISF Constable (GD) Exam. 05.06.2011)
- 59.** If A : B = 4 : 9 and A : C = 2 : 3, then $(A + B) : (A + C)$ is
 (1) 15 : 13 (2) 10 : 13
 (3) 13 : 10 (4) 13 : 15
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting) (North Zone))
- 60.** The third proportional to 0.8 and 0.2 is :
 (1) 0.05 (2) 0.8
 (3) 0.4 (4) 0.032
 (SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting))
- 61.** If $x : y = 3 : 4$, then the value of $\frac{5x - 2y}{7x + 2y} =$
 (1) $\frac{7}{25}$ (2) $\frac{7}{23}$
 (3) $\frac{7}{29}$ (4) $\frac{7}{17}$
 (SSC Multi-Tasking (Non-Technical) Staff Exam. 22.02.2011)
- 62.** There are three numbers A, B, C such that twice A is equal to thrice B and four times B is equal to five times C. Then the ratio between A and C is
 (1) 3 : 4 (2) 8 : 15
 (3) 15 : 8 (4) 4 : 3
 (SSC CPO S.I. Exam. 06.09.2009)
- 63.** On mixing two classes A and B of students having average marks 25 and 40 respectively, the overall average obtained is 30. Find the ratio of the students in the class A and B.
 (1) 2 : 1 (2) 5 : 8
 (3) 5 : 6 (4) 3 : 4
 (SSC CHSL DEO & LDC Exam. 04.11.2012 (IInd Sitting))
- 64.** A fruit seller sold big, medium and small sized apples for ₹ 15, ₹ 10 and ₹ 5 respectively. The total number of apples sold were in the ratio 3 : 2 : 5. Find the average cost of an apple.
 (1) ₹ 8 (2) ₹ 10
 (3) ₹ 9 (4) ₹ 7
 (SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting))
- 65.** In a school, the ratio of boys to girls is 4 : 3 and the ratio of girls to teachers is 8 : 1. The ratio of students to teachers is :
 (1) 56 : 3 (2) 55 : 1
 (3) 49 : 3 (4) 56 : 1
 (SSC CHSL DEO & LDC Exam. 04.11.2012, Ist Sitting))
- 66.** If $\frac{3x+5}{5x-2} = \frac{2}{3}$, then the value of x is
 (1) 11 (2) 19
 (3) 23 (4) 7
 (SSC CHSL DEO & LDC Exam. 04.11.2012, Ist Sitting))
- 67.** A, B and C are batsmen. The ratio of the runs scored by them in a certain match are given below :
 A : B = 5 : 3 and B : C = 4 : 5. In all they scored 564 runs. The number of runs scored by B is:
 (1) 124 (2) 104
 (3) 114 (4) 144
 (SSC CHSL DEO & LDC Exam. 04.11.2012, Ist Sitting))
- 68.** If $(a + b) : (b + c) : (c + a) = 6 : 7 : 8$ and $(a + b + c) = 14$, then the value of c is
 (1) 6 (2) 7
 (3) 8 (4) 14
 (SSC CHSL DEO & LDC Exam. 27.10.2013 IInd Sitting))
- 69.** If 5.5 of $a = 0.65$ of b , then $a : b$ is equal to :
 (1) 13 : 11 (2) 11 : 13
 (3) 13 : 110 (4) 110 : 13
 (SSC Multi-Tasking Staff Exam. 10.03.2013))

RATIO AND PROPORTION

70. The ratio of boys and girls in a college is 5 : 3. If 50 boys leave the college and 50 girls join the college, the ratio becomes 9 : 7. The number of boys in the college is

- (1) 300 (2) 400
 (3) 500 (4) 600

(SSC CHSL DEO & LDC Exam.
 10.11.2013, Ist Sitting)

71. A person distributes his pens among four friends A, B, C, D in

the ratio $\frac{1}{3} : \frac{1}{4} : \frac{1}{5} : \frac{1}{6}$. What is the

minimum number of pens that the person should have?

- (1) 57 (2) 65
 (3) 75 (4) 45

(SSC Graduate Level Tier-I
 Exam. 21.04.2013)

72. If $A = \frac{2}{3}$ of B and $B = \frac{4}{5}$ of C,
 then A : B : C is.

- (1) 12 : 8 : 10 (2) 15 : 10 : 8
 (3) 10 : 15 : 12 (4) 8 : 12 : 15

(SSC Constable (GD)
 Exam. 12.05.2013)

73. The ratio of $25^{2.5} : 5^3$ is same as

- (1) 5 : 3 (2) 5 : 6
 (3) 1 : 25 (4) 25 : 1

(SSC Graduate Level Tier-I
 Exam. 19.05.2013)

74. The third proportional of 12 and 18 is

- (1) 3 (2) 6
 (3) 27 (4) 144

(SSC Graduate Level Tier-II
 Exam. 29.09.2013)

75. If x runs are scored by A, y runs by B and z runs by C, then $x : y = y : z = 3 : 2$. If total number of runs scored by A, B and C is 342, the runs scored by each would be respectively

- (1) 144, 96, 64 (2) 162, 108, 72
 (3) 180, 120, 80 (4) 189, 126, 84

(SSC Graduate Level Tier-II
 Exam. 29.09.2013)

76. If $A : B = 3 : 4$ and $B : C = 6 : 5$, then $C : A$ is

- (1) 10 : 9 (2) 9 : 10

(3) 8 : 9 (4) 9 : 8
 (SSC CHSL DEO & LDC Exam.
 10.11.2013, Ist Sitting)

77. Find two mean proportionals between 2 and 54.

- (1) 6 and 18 (2) 6 and 12
 (3) 12 and 18 (4) 6 and 9

(SSC CGL Tier-I Re-Exam. (2013)
 20.07.2014 (Ist Sitting)

78. Which of the following represents a correct proportion?

- (1) 12 : 9 = 16 : 12
 (2) 13 : 11 = 5 : 4
 (3) 30 : 45 = 13 : 24
 (4) 3 : 5 = 2 : 5

(SSC CGL Tier-I Exam.
 19.10.2014 (Ist Sitting))

79. If 18, x and 50 are in continued proportion, then the value of x is

- (1) 30 (2) 3
 (3) 5 (4) 32

(SSC CAPFs SI, CISF ASI & Delhi
 Police SI Exam. 22.06.2014)

80. If $A : B = 7 : 9$ and $B : C = 3 : 5$, then $A : B : C$ is equal to

- (1) 7 : 9 : 5 (2) 21 : 35 : 45
 (3) 7 : 9 : 15 (4) 7 : 3 : 15

(SSC CHSL DEO & LDC Exam.
 02.11.2014 (IIInd Sitting))

81. If $x : y = 5 : 2$, then

- (1) 22 : 29 (2) 26 : 61
 (3) 29 : 22 (4) 61 : 26

(SSC CHSL DEO & LDC
 Exam. 9.11.2014)

82. The ratio of the length of a school ground to its width is 5 : 2. If the width is 40 m, then the length is

- (1) 200 m (2) 100 m
 (3) 50 m (4) 80 m

(SSC CHSL DEO Exam. 02.11.2014
 (Ist Sitting))

83. If $x : y : : 2 : 3$ and $2 : x : : 4 : 8$ the value of y is

- (1) 6 (2) 8
 (3) 4 (4) 12

(SSC CAPFs SI, CISF ASI & Delhi
 Police SI Exam. 22.06.2014
 TF No. 999 KPO)

84. If $(a + b) : \sqrt{ab} = 4 : 1$, where $a > b > 0$, then $a : b$ is

- (1) $(2 + \sqrt{3}) : (2 - \sqrt{3})$

- (2) $(2 - \sqrt{3}) : (2 + \sqrt{3})$

- (3) $(3 + \sqrt{2}) : (3 - \sqrt{2})$

- (4) $(3 - \sqrt{2}) : (3 + \sqrt{2})$

(SSC CHSL (10+2) DEO & LDC
 Exam. 16.11.2014, IIInd Sitting
 TF No. 545 QP 6)

85. 12 monkeys can eat 12 bananas in 12 minutes. In how many minutes can 4 monkeys eat 4 bananas?

- (1) 10 (2) 12
 (3) 4 (4) 8

(SSC CAPFs SI, CISF ASI & Delhi
 Police SI Exam. 21.06.2015
 (Ist Sitting) TF No. 8037731)

86. What must be added to each term of the ratio 2 : 5 so that it may equal to 5 : 6?

- (1) 65 (2) 78
 (3) 13 (4) 12

(SSC CGL Tier-I Exam. 16.08.2015
 (Ist Sitting) TF No. 3196279)

87. If $A : B = 2 : 3$ and $B : C = 3 : 7$, then $A + B : B + C : C + A$ is

- (1) 4 : 8 : 9 (2) 5 : 8 : 9
 (3) 5 : 10 : 9 (4) 4 : 10 : 9

(SSC CGL Tier-II Exam.
 25.10.2015, TF No. 1099685)

88. If $(x^3 - y^3) : (x^2 + xy + y^2) = 5 : 1$ and $(x^2 - y^2) : (x - y) = 7 : 1$, then the ratio $2x : 3y$ equals

- (1) 4 : 1 (2) 2 : 3
 (3) 4 : 3 (4) 3 : 2

(SSC CGL Tier-II Exam.
 25.10.2015, TF No. 1099685)

89. If $A : B = 2 : 1$ and $A : C = 1 : 3$, then $A : B : C$ is

- (1) 1 : 3 : 2 (2) 1 : 2 : 6
 (3) 3 : 2 : 1 (4) 2 : 1 : 6

(SSC CHSL (10+2) LDC, DEO
 & PA/SA Exam. 20.12.2015
 (Ist Sitting) TF No. 9692918)

90. The mean proportion of 1.21 and 0.09 is

- (1) 3.3 (2) 0.33
 (3) 3.03 (4) 0.033

(SSC Constable (GD)
 Exam. 04.10.2015, Ist Sitting)

91. The numbers x , y and z are respectively proportional to 2, 3 and 5 and the sum of x , y and z is 80. If the number z is given by the equation $z = ax - 8$, then a is

- (1) 6 (2) $\frac{3}{2}$

- (3) 3 (4) $\frac{5}{2}$

(SSC CGL Tier-I (CBE)
 Exam. 10.09.2016)

92. Rs. 2420 were divided among A, B and C so that $A : B = 5 : 4$ and $B : C = 9 : 10$ then C gets

- (1) Rs. 680 (2) Rs. 800
 (3) Rs. 900 (4) Rs. 950

(SSC CGL Tier-II Online
 Exam. 01.12.2016)

93. Among 132 examinees of a certain school, the ratio of successful to unsuccessful students is 9 : 2. Had 4 more students passed, then the ratio of successful to unsuccessful students would have been

- (1) 14 : 3 (2) 14 : 5
 (3) 28 : 3 (4) 28 : 5

(SSC CGL Tier-II Online
 Exam. 01.12.2016)

RATIO AND PROPORTION

- 94.** In a regiment the ratio between the number of officers to soldiers was $3 : 31$ before battle. In a battle 6 officers and 22 soldiers were killed and the ratio became $1 : 13$, the number of officers in the regiment before battle was
 (1) 31 (2) 38
 (3) 21 (4) 28
 (SSC CGL Tier-II Online Exam. 01.12.2016)
- 95.** The ratio of number of boys and girls in a school of 720 students is $7 : 5$. How many more girls should be admitted to make the ratio $1 : 1$?
 (1) 90 (2) 120
 (3) 220 (4) 240
 (SSC CHSL (10+2) Tier-I (CBE) Exam. 08.09.2016) (Ist Sitting)
- 96.** The number of pupils of a class is 55. The ratio of the number of male pupils to the number of female pupils is $5 : 6$. The number of female pupils is
 (1) 11 (2) 25
 (3) 30 (4) 35
 (SSC CGL Tier-I (CBE) Exam. 02.09.2016) (Ist Sitting)
- 97.** In a parade of school students, the number of boys and girls are in the ratio of $9 : 7$ respectively and the number of students is 256. Find the number of girls.
 (1) 102 (2) 112
 (3) 118 (4) 128
 (SSC CGL Tier-I (CBE) Exam. 02.09.2016) (IIInd Sitting)
- 98.** Sum of two numbers is thrice their difference. Their ratio is
 (1) 1:2 (2) 2:1
 (3) 3:1 (4) 1:3
 (SSC CGL Tier-I (CBE) Exam. 07.09.2016) (Ist Sitting)
- 99.** The compound ratio of the inverse ratios of the ratios
 $x : yz, y : zx, z : xy$ is :
 (1) $1 : xyz$ (2) $xyz : 1$
 (3) $1 : 1$ (4) $x : yz$
 (SSC CGL Tier-I (CBE) Exam. 30.08.2016) (IIInd Sitting)
- 100.** If $\left(x + \frac{1}{x}\right) : \left(x - \frac{1}{x}\right) = 5 : 3$, then the value(s) of x is/are
 (1) ± 1 (2) ± 2
 (3) ± 3 (4) 0
 (SSC CGL Tier-I (CBE) Exam. 31.08.2016) (IIInd Sitting)
- 101.** If the three numbers in the ratio $3 : 2 : 5$ be such that the sum of the squares is equal to 1862 then which number is the middle one?
 (1) 16 (2) 14
 (3) 13 (4) 15
 (SSC CGL Tier-II (CBE) Exam. 30.11.2016)
- 102.** If $2r = h + \sqrt{r^2 + h^2}$ then the ratio $r : h$ ($r \neq 0$) is
 (1) 1 : 2 (2) 2 : 3
 (3) 4 : 3 (4) 3 : 5
 (SSC CGL Tier-II (CBE) Exam. 30.11.2016)
- 103.** A box of sweets was distributed between A and B in the ratio $3 : 4$. If A got 36 sweets, what was the total number of sweets?
 (1) 12 (2) 84
 (3) 144 (4) 27
 (SSC CGL Tier-I (CBE) Exam. 03.09.2016 (IIInd Sitting))
- 104.** In a college union, there are 48 students. The ratio of the number of boys to the number of girls is $5 : 3$. The number of girls to be added in the union, so that the ratio of boys to girls in $6 : 5$ is
 (1) 6 (2) 7
 (3) 12 (4) 17
 (SSC CGL Tier-II (CBE) Exam. 12.01.2017)
- 105.** In a coloured picture of blue and yellow color, blue and yellow colour is used in the ratio of $4 : 3$ respectively. If in upper half, blue : yellow is $2 : 3$, then in the lower half blue : yellow is
 (1) 1 : 1 (2) 2 : 1
 (3) 26 : 9 (4) 9 : 26
 (SSC CGL Tier-II (CBE) Exam. 12.01.2017)
- TYPE-II**
- To get the ratio $p : q$ (for $p \neq q$), one has to add a number to each term of the ratio $x : y$, the number is
 (1) $\frac{px + qy}{p - q}$ (2) $\frac{qx - py}{p - q}$
 (3) $\frac{px - qy}{p - q}$ (4) $\frac{py - qx}{p - q}$
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting (North Zone)))
 - If $x : y = 3 : 4$, then the value of $(4x - y) : (2x + 3y)$ is
 (1) 4 : 9 (2) 8 : 9
 (3) 4 : 3 (4) 8 : 3
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (East Zone)))
 - If $x : y = 3 : 4$ and $y : z = 3 : 4$, then $\frac{x+y+z}{3z}$ is equal to

- (1) $\frac{13}{27}$ (2) $\frac{1}{2}$
 (3) $\frac{73}{84}$ (4) $\frac{37}{48}$
 (SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting)

4. If $A : B = \frac{1}{2} : \frac{1}{3}$, $B : C =$

- $\frac{1}{5} : \frac{1}{3}$, then $(A + B) : (B + C)$ is equal to
 (1) 5 : 8 (2) 9 : 10
 (3) 15 : 16 (4) 6 : 15
 (SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

5. If $\frac{x}{y} = \frac{3}{4}$, the ratio of $(2x + 3y)$ and $(3y - 2x)$ is
 (1) 2 : 1 (2) 3 : 2
 (3) 1 : 1 (4) 3 : 1
 (SSC CGL Tier-I Exam. 09.08.2015 (IIInd Sitting) TF No. 4239378)

6. Two numbers are in the ratio $1 : \frac{2}{3}$: $2 : \frac{2}{3}$, when each of these is increased by 15, they are in the ratio $1 : \frac{2}{3} : 2 : \frac{1}{2}$. The greater of the numbers
 (1) 27 (2) 36
 (3) 48 (4) 64
 (SSC CPO SI, ASI Online Exam. 05.06.2016) (IIInd Sitting)

7. If 177 is divided into 3 parts in the ratio $\frac{1}{2} : \frac{2}{3} : \frac{4}{5}$, then the second part is
 (1) 75 (2) 45
 (3) 72 (4) 60
 (SSC CGL Tier-I (CBE) Exam. 01.09.2016) (Ist Sitting)

8. A and B together have Rs. 6300. If $\frac{5}{19}$ th of A's amount is equal to $\frac{2}{5}$ th of B's amount. The amount of 'B' is
 (1) Rs. 2500 (2) Rs. 3800
 (3) Rs. 2300 (4) Rs. 4000
 (SSC CGL Tier-I (CBE) Exam. 06.09.2016) (Ist Sitting)

9. Find the fraction which bears the same ratio to $\frac{1}{27}$ that $\frac{3}{7}$ does to $\frac{5}{9}$.

RATIO AND PROPORTION

(1) $\frac{5}{9}$ (2) $\frac{1}{35}$

(3) $\frac{45}{7}$ (4) $\frac{7}{45}$

(SSC CGL Tier-II (CBE)
Exam. 30.11.2016)

10. Rs. 782 is divided into three

parts in the ratio $\frac{1}{2} : \frac{2}{3} : \frac{3}{4}$, the first part is

- (1) Rs. 182 (2) Rs. 204
(3) Rs. 190 (4) Rs. 196
(SSC CGL Tier-I (CBE)
Exam. 03.09.2016 (IInd Sitting)

11. The reciprocals of the squares of

the numbers $1\frac{1}{2}$ and $1\frac{1}{3}$, are

- in the ratio
(1) 64 : 81 (2) 8 : 9
(3) 81 : 64 (4) 9 : 85

(SSC CGL Tier-I (CBE)
Exam. 08.09.2016 (IIInd Sitting)

TYPE-III

1. There is a ratio of 5 : 4 between two numbers. If 40 per cent of the first is 12, then 50% of the second number is

- (1) 12 (2) 24
(3) 18 (4) 20
(SSC Graduate Level Tier-II
Exam. 16.09.2012)

2. A milkman makes 20% profit by selling milk mixed with water at ₹ 9 per litre. If the cost price of 1 litre pure milk is ₹ 10, then the ratio of milk and water in the mixture is

- (1) 3 : 1 (2) 4 : 1
(3) 3 : 2 (4) 4 : 3
(SSC CHSL DEO & LDC Exam.
28.10.2012 (Ist Sitting))

3. A man ordered 4 pairs of black socks and some pairs of brown socks. The price of a black socks is double that of a brown pair. While preparing the bill the clerk interchanged the number of black and brown pairs by mistake which increased the bill by 50%. The ratio of the number of black and brown pairs of socks in the original order was :

- (1) 2 : 1 (2) 1 : 4
(3) 1 : 2 (4) 4 : 1
(SSC CAPFs SI & CISF ASI
Exam. 23.06.2013)

4. The ratio of the number of boys and girls in a school is 8 : 12. If 50% of boys and 25% of girls are getting scholarships for their studies, what is the percentage of school students who are not getting any scholarships?

- (1) 65 (2) 66
(3) 67 (4) 68
(SSC CPO Exam. 06.06.2016)
(Ist Sitting)

5. In an ornament the ratio of gold and copper is 3 : 2. The percentage of gold in the ornament is :

- (1) 60 (2) 40
(3) 30 (4) 20
(SSC CGL Tier-I (CBE)
Exam. 07.09.2016 (IIIRD Sitting))

TYPE-IV

1. The ratio of ages of two students is 3 : 2. One is older to the other by 5 years. What is the age of the younger student?

- (1) 2 years (2) 10 years
(3) $2\frac{1}{2}$ years (4) 15 years
(SSC CGL Prelim Exam. 08.02.2004)
(First Sitting)

2. The ratio of present age of two brothers is 1 : 2 and 5 years back, the ratio was 1 : 3. What will be the ratio of their age after 5 years?

- (1) 1 : 4 (2) 2 : 3
(3) 3 : 5 (4) 5 : 6
(SSC CGL Prelim Exam. 13.11.2005)
(First Sitting)

3. The sum of the age of a father and his son is 100 years now. 5 years ago their age were in the ratio of 2 : 1. The ratio of the age of father and son after 10 years will be

- (1) 5 : 3 (2) 4 : 3
(3) 10 : 7 (4) 3 : 5
(SSC CGL Prelim Exam. 04.02.2007)
(First Sitting)

4. Four years ago, the ratio of A's age to B's age was 11 : 14 and four years later their age will be in the ratio 13 : 16. The present age of A is

- (1) 48 years (2) 26 years
(3) 44 years (4) 28 years
(SSC CGL Prelim Exam. 27.07.2008)
(Second Sitting)

5. At present, the ratio of the age of Maya and Chhaya is 6 : 5 and fifteen years from now, the ratio will get changed to 9 : 8. Maya's present age is

- (1) 21 years (2) 24 years
(3) 30 years (4) 40 years
(SSC CGL Tier-1 Exam. 19.06.2011)
(First Sitting)

6. The ratio of the age of Ram and Rahim 10 years ago was 1 : 3. The ratio of their age five years hence will be 2 : 3. Then the ratio of their present age is

- (1) 1 : 2 (2) 3 : 5
(3) 3 : 4 (4) 2 : 5
(SSC CGL Tier-1 Exam. 26.06.2011)
(Second Sitting)

7. The ratio of the age of a father to that of his son is 5 : 2. If the product of their ages in years is 1000, then the father's age (in years) after 10 years will be :

- (1) 50 (2) 60
(3) 80 (4) 100
(SSC CHSL DEO & LDC Exam.
28.11.2010 (Ist Sitting))

8. The ratio between Sumit's and Prakash's age at present is 2 : 3. Sumit is 6 years younger than Prakash. The ratio of Sumit's age to Prakash's age after 6 years will be

- (1) 2 : 3 (2) 1 : 2
(3) 4 : 3 (4) 3 : 4
(SSC CHSL DEO & LDC Exam.
28.10.2012 (Ist Sitting))

9. Harsha is 40 years old and Ritu is 60 years old. How many years ago was the ratio of their ages 3 : 5?

- (1) 10 years (2) 20 years
(3) 37 years (4) 5 years
(SSC CGL Prelim Exam. 24.02.2002)
(First Sitting)

10. The ratio of present age of two brothers is 1 : 2 and 5 years back the ratio was 1 : 3. What will be the ratio of their age after 5 years?

- (1) 1 : 4 (2) 2 : 3
(3) 3 : 5 (4) 5 : 6
(SSC CGL Prelim Exam. 24.02.2002)
(Second Sitting)

RATIO AND PROPORTION

- 11.** Four years ago, the ratio of the age of A and B was 2 : 3 and after four years it will become 5 : 7. Find their present age.
 (1) 36 years and 40 years
 (2) 32 years and 48 years
 (3) 40 years and 56 years
 (4) 36 years and 52 years
 (SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone)
- 12.** The average age of boys in the class is twice the number of girls in the class. The ratio of boys and girls in the class of 50 is 4 : 1. The total of the ages (in years) of the boys in the class is
 (1) 2000 (2) 2500
 (3) 800 (4) 400
 (SSC CGL Tier-I Exam. 19.10.2014
 TF No. 022 MH 3)
- 13.** The ratio of age of two boys is 5 : 6. After two years the ratio will be 7 : 8. The ratio of their age after 12 years will be
 (1) $\frac{22}{24}$ (2) $\frac{15}{16}$
 (3) $\frac{17}{18}$ (4) $\frac{11}{12}$
 (SSC CPO S.I. Exam. 07.09.2003
 & SSC CHSL DEO & LDC
 Exam. 20.10.2013)
- 14.** The ratio of the present age of Puneet and Appu is 2 : 3. After 3 years the ratio of their age will be 3 : 4. The present age of Puneet is:
 (1) 3 years (2) 6 years
 (3) 9 years (4) 4 years
 (SSC CPO S.I. Exam. 26.05.2005)
- 15.** The ratio of the ages of a father and his son 10 years hence will be 5 : 3, while 10 years ago, it was 3:1. The ratio of the age of the son to that of the father today, is
 (1) 1 : 2 (2) 1 : 3
 (3) 2 : 3 (4) 2 : 5
 (SSC Section Officer (Commercial Audit) Exam. 26.11.2006
 (Second Sitting))
- 16.** The ratio of the present age of Rahul and Rashmi is 2 : 1. The ratio of their age after 30 years will be 7 : 6. What is the present age of Rahul ?
 (1) 6 years (2) 10 years
 (3) 12 years (4) 20 years
 (SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting))
- 17.** The present age of A and B are in the ratio 4 : 5 and after 5 years they will be in the ratio 5 : 6. The present age of A is
 (1) 10 years (2) 20 years
 (3) 25 years (4) 40 years
 (SSC CGL Prelim Exam. 27.07.2008
 (First Sitting))
- 18.** The present age of two persons are 36 and 50 years respectively. If after n years the ratio of their age will be 3 : 4, then the value of n is
 (1) 4 (2) 7
 (3) 6 (4) 3
 (SSC Multi-Tasking Staff
 Exam. 17.03.2013, IIInd Sitting)
- 19.** The ratio between Sumit's and Prakash's age at present is 2 : 3. Sumit is 6 years younger than Prakash. The ratio of Sumit's age to Prakash's age after 6 years will be
 (1) 2 : 3 (2) 1 : 2
 (3) 4 : 3 (4) 3 : 4
 (SSC CHSL DEO & LDC Exam.
 28.10.2012, Ist Sitting)
- 20.** The ratio of the ages of two persons is 4 : 7 and the age of one of them is greater than that of the other by 30 years. The sum of their ages (in years) is
 (1) 110 (2) 100
 (3) 70 (4) 40k
 (SSC CGL Tier-I
 Re-Exam. (2013) 27.04.2014)
- 21.** My grandfather was 9 times older than me 16 years ago. He will be 3 times of my age 8 years from now. Eight years ago, the ratio of my age to that of my grandfather was
 (1) 3 : 8 (2) 2 : 5
 (3) 1 : 2 (4) 1 : 5
 (SSC CHSL DEO Exam. 02.11.2014
 (Ist Sitting) & SSC CGL Prelim
 Exam. 11.05.2003 (Second Sitting))
- 22.** The ratio of the ages of A and B at present is 3:1. Four years earlier the ratio was 4:1. The present age of A is
 (1) 48 years (2) 40 years
 (3) 36 years (4) 32 years
 (SSC CAPFs SI, CISF ASI & Delhi
 Police SI Exam. 21.06.2015
 (Ist Sitting) TF No. 8037731)
- 23.** Eighteen years ago, the ratio of A's age to B's age was 8 : 13. Their present ratios are 5 : 7. What is the present age of A ?
 (1) 60 years (2) 70 years
 (3) 50 years (4) 40 years
 (SSC CGL Tier-I Exam, 09.08.2015
 (Ist Sitting) TF No. 1443088)
- 24.** The ratio of ages of two persons is 5 : 9 and the age of one of them is greater than the other by 40 years. The sum of their ages in year is
 (1) 180 (2) 140
 (3) 150 (4) 160
 (SSC Constable (GD)
 Exam, 04.10.2015, Ist Sitting)
- 25.** The current ages of Sonali and Monali are in the ratio 5 : 3. Five years from now, their ages will be in the ratio 10 : 7. Then, Monali's current age is :
 (1) 5 years (2) 3 years
 (3) 9 years (4) 15 years
 (SSC CHSL (10+2) LDC, DEO
 & PA/SA Exam, 06.12.2015
 (IIInd Sitting) TF No. 3441135)
- 26.** If 4 years ago the ratio between the ages of P and Q was 5 : 6 and the sum of their ages at present is 52 years, what is the ratio of their present ages ?
 (1) 5 : 6 (2) 6 : 7
 (3) 7 : 8 (4) 4 : 5
 (SSC CPO Exam. 06.06.2016)
 (Ist Sitting)
- 27.** The present ages of A and B are in the ratio 5 : 6 respectively. After seven years this ratio becomes 6 : 7. Then the present age of A in years is :
 (1) 35 years (2) 32 years
 (3) 33 years (4) 30 years
 (SSC CAPFs (CPO) SI & ASI,
 Delhi Police Exam. 20.03.2016)
 (IIInd Sitting)
- 28.** The ratio of the present ages of two boys is 3:4. After 3 years, the ratio of their ages is equal to will be 4:5. The ratio of their ages after 21 years will be
 (1) 14:17 (2) 17:19
 (3) 11:12 (4) 10:11
 (SSC CGL Tier-I (CBE)
 Exam. 04.09.2016) (Ist Sitting)

RATIO AND PROPORTION

- 29.** The ratio of A's age to B's age is 4 : 3. 'A' will be 26 years old after 6 years. The age of B now is :

- (1) $19\frac{1}{2}$ years
 (2) 12 years
 (3) 21 years (4) 15 years
 (SSC CGL Tier-I (CBE)

Exam. 08.09.2016 (IIIrd Sitting)

- 30.** The present ages of A and B are in the ratio 3 : 4. Ten years ago, this ratio was 4 : 7. The present ages of A and B are respectively :

- (1) 18 years, 27 years
 (2) 21 years, 28 years
 (3) 24 years, 32 years
 (4) 27 years, 36 years
 (SSC CGL Tier-I (CBE)

Exam. 27.10.2016 (Ist Sitting)

TYPE-V

- 1.** The ratio of two numbers is 3 : 8 and their difference is 115. The smaller of the two numbers is :

- (1) 184 (2) 194
 (3) 69 (4) 59
 (SSC CGL Prelim Exam. 04.07.1999
 (Second Sitting)

- 2.** Four numbers are in the ratio 1 : 2 : 3 : 4. Their sum is 16. The sum of the first and fourth number is equal to :

- (1) 5 (2) 8
 (3) 10 (4) 80
 (SSC CGL Prelim Exam. 04.07.1999
 (Second Sitting)

- 3.** The sum of two numbers is 40 and their difference is 4. The ratio of the numbers is :

- (1) 21 : 19 (2) 22 : 9
 (3) 11 : 9 (4) 11 : 18
 (SSC CGL Prelim Exam. 27.02.2000
 (Second Sitting)

- 4.** The ratio of two numbers is 10 : 7 and their difference is 105. The sum of these numbers is

- (1) 595 (2) 805
 (3) 1190 (4) 1610
 (SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone)

- 5.** The product of two positive integers is 1575 and their ratio is 9 : 7. The smaller integer is

- (1) 25 (2) 35
 (3) 45 (4) 70
 (SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone)

- 6.** Three numbers are in the ratio of 3 : 2 : 5 and the sum of their squares is 1862. The smallest of these numbers is

- (1) 24 (2) 21
 (3) 14 (4) 35
 (SSC CPO S.I. Exam. 12.01.2003)

- 7.** The sum of three numbers is 116. The ratio of second to the third is 9 : 16 and the first to the third is 1 : 4. The second number is

- (1) 30 (2) 32
 (3) 34 (4) 36
 (SSC CPO S.I. Exam. 07.09.2003)

- 8.** The sum of three numbers is 98. If the ratio of the first to the second is 2 : 3 and that of the second to the third is 5 : 8, then the second number is

- (1) 49 (2) 48
 (3) 30 (4) 20
 (SSC CPO S.I. Exam. 07.09.2003)

- 9.** In a 45 litres mixture of milk and water, the ratio of the milk to water is 2 : 1. When some quantity of water is added to the mixture, this ratio becomes 1 : 2. The quantity of water added is

- (1) 10 litres (2) 21 litres
 (3) 35 litres (4) 45 litres
 (SSC CPO S.I. Exam. 05.09.2004)

- 10.** Of the three numbers, the ratio of the first and the second is 8 : 9 and that of the second and third is 3 : 4. If the product of the first and third number is 2400, then the second number is :

- (1) 45 (2) 40
 (3) 30 (4) 55
 (SSC CPO S.I. Exam. 26.05.2005)

- 11.** Two numbers are in the ratio 2 : 3. If 2 is subtracted from the first and 2 is added to the second, the ratio becomes 1 : 2. The sum of the numbers is :

- (1) 30 (2) 28
 (3) 24 (4) 10
 (SSC CGL Prelim Exam. 13.11.2005
 (First Sitting))

- 12.** Three numbers are in the ratio $\frac{1}{2} : \frac{2}{3} : \frac{3}{4}$. The difference between the greatest and the smallest number is 36. The numbers are

- (1) 72, 84, 108 (2) 60, 72, 96
 (3) 72, 84, 96 (4) 72, 96, 108
 (SSC CGL Prelim Exam. 13.11.2005
 (First Sitting))

- 13.** The sum of three numbers is 68. If the ratio of the first to the second be 2 : 3 and that of the second to the third be 5 : 3, then the second number is

- (1) 30 (2) 58
 (3) 20 (4) 48
 (SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting))

- 14.** When a particular number is subtracted from each of 7, 9, 11 and 15, the resulting numbers are in proportion. The number to be subtracted is :

- (1) 1 (2) 2
 (3) 3 (4) 5
 (SSC CPO S.I. Exam. 16.12.2007)

- 15.** The two numbers are in the ratio 2 : 3 and their product is 96. The sum of the numbers is

- (1) 5 (2) 20
 (3) 101 (4) 102
 (SSC CPO S.I. Exam. 06.09.2009)

- 16.** The ratio between two numbers is 3 : 4. If each number is increased by 6, the ratio becomes 4 : 5. The difference between the numbers is

- (1) 1 (2) 3
 (3) 6 (4) 8
 (SSC CPO S.I. Exam. 06.09.2009)

- 17.** Two numbers are in the ratio 5 : 7. On diminishing each of them by 40, they become in the ratio 17 : 27. The difference of the numbers is :

- (1) 18 (2) 52
 (3) 137 (4) 50
 (SSC CGL Prelim Exam. 24.02.2002
 (First Sitting))

- 18.** Three numbers are in the ratio 5 : 6 : 7. If the product of the numbers is 5670, then the greatest number is

- (1) 15 (2) 18
 (3) 21 (4) 28
 (SSC CPO S.I. Exam. 06.09.2009)

- 19.** Two numbers are in the ratio 1 : 3. If their sum is 240, then their difference is

- (1) 120 (2) 108
 (3) 100 (4) 96
 (SSC CGL Tier-I Exam. 16.05.2010
 (Second Sitting))

- 20.** If the sum of two quantities is equal to three times their difference, then the ratio of the two quantities is

- (1) 1 : 3 (2) 3 : 1
 (3) 2 : 1 (4) 2 : 3
 (SSC CISF ASI Exam. 29.08.2010
 (Paper-1))

RATIO AND PROPORTION

- 21.** Three numbers are in the ratio $3 : 4 : 5$. The sum of the largest and the smallest equals the sum of the second and 52. The smallest number is
 (1) 20 (2) 27
 (3) 39 (4) 52
 (SSC CGL Tier-I Exam. 26.06.2011
 (Second Sitting)
- 22.** Which number when added to each of the numbers 6, 7, 15, 17 will make the resulting numbers proportional ?
 (1) 6 (2) 5
 (3) 4 (4) 3
 (SSC Data Entry Operator Exam. 02.08.2009)
- 23.** What number should be added to each of 6, 14, 18 and 38 so that the resulting numbers make a proportion ?
 (1) 1 (2) 2
 (3) 3 (4) 4
 (SSC CHSL DEO & LDC Exam. 27.11.2010)
- 24.** Of three positive numbers, the ratio of 1st and 2nd is $8 : 9$, that of 2nd and 3rd is $3:4$. The product of 1st and 3rd is 2400. The sum of the three numbers is
 (1) 145 (2) 185
 (3) 295 (4) 155
 (SSC Multi-Tasking Staff Exam. 10.03.2013, 1st Sitting : Patna)
- 25.** The ratio between a two – digit number and the sum of the digits of that number is $4 : 1$. If the digit at the unit's place is 3 more than the digit at the ten's place, then the number is
 (1) 47 (2) 69
 (3) 36 (4) 25
 (SSC Multi-Tasking Staff Exam. 10.03.2013, 1st Sitting : Patna)
- 26.** The ratio of number of balls in bags x, y is $2 : 3$. Five balls are taken from bag y and are dropped in bag x . Number of balls are equal in each bag now. Number of balls in each bag now is
 (1) 45 (2) 20
 (3) 30 (4) 25
 (SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)
- 27.** If the square of the sum of two numbers is equal to 4 times of their product, then the ratio of these numbers is :
 (1) $2 : 1$ (2) $1 : 3$
 (3) $1 : 1$ (4) $1 : 2$
 (SSC CAPFs SI & CISF ASI Exam. 23.06.2013)
- 28.** Three numbers are in the ratio $2 : 3 : 4$. If the sum of their squares is 1856, then the numbers are
 (1) 8, 12 and 16
 (2) 16, 24 and 32
 (3) 12, 18 and 24
 (4) None of the above
 (SSC Graduate Level Tier-II Exam. 29.09.2013)
- 29.** The number to be added to each of the numbers 7, 16, 43, 79 to make the numbers in proportion is
 (1) 2 (2) 3
 (3) 5 (4) 1
 (SSC Graduate Level Tier-I Exam. 11.11.2012, 1st Sitting)
- 30.** The average of two numbers is 62. If 2 is added to the smallest number, the ratio between the numbers becomes $1 : 2$. The difference of the numbers is
 (1) 62 (2) 40
 (3) 84 (4) 44
 (FCI Assistant Grade-III Exam. 25.02.2012 (Paper-I))
- North Zone (1st Sitting)**
- 31.** What number should be subtracted from both terms of the ratio $15 : 19$ in order to make it $3 : 4$?
 (1) 9 (2) 6
 (3) 5 (4) 3
 (SSC CGL Prelim Exam. 27.02.2000
 (First Sitting))
- 32.** The sum of two numbers is equal to 20 and their difference is 25. The ratio of the two numbers is
 (1) $9 : 1$ (2) $7 : 9$
 (3) $3 : 5$ (4) $2 : 7$
 (SSC CGL Tier-II Exam. 21.09.2014)
- 33.** Two numbers are in the ratio of $2 : 3$. If their sum is 125, find the numbers.
 (1) 50, 75 (2) 24, 36
 (3) 20, 30 (4) 32, 78
 (SSC CHSL DEO Exam. 16.11.2014
 (1st Sitting))
- 34.** The ratio of three positive numbers is $2 : 3 : 5$ and the sum of their squares is 608. The three numbers are
 (1) 2, 3, 5 (2) 10, 15, 25
 (3) 8, 12, 20 (4) 4, 6, 10
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IInd Sitting
 TF No. 545 QP 6)
- 35.** If the product of two positive numbers is 1575 and their ratio is $7 : 9$, then the greater number is
 (1) 45 (2) 35
 (3) 135 (4) 63
 (SSC CGL Tier-II Exam. 12.04.2015
 TF No. 567 TL 9)
- 36.** If A and B are in the ratio $4 : 5$ and the difference of their squares is 81, what is the value of A ?
 (1) 45 (2) 12
 (3) 36 (4) 15
 (SSC CGL Tier-I Exam. 16.08.2015
 (1st Sitting) TF No. 3196279)
- 37.** If two numbers are in the ratio $2 : 3$ and the ratio becomes $3 : 4$ when 8 is added to both the numbers, then the sum of the two numbers is
 (1) 10 (2) 80
 (3) 40 (4) 100
 (SSC CGL Tier-I Exam. 16.08.2015
 (IIInd Sitting) TF No. 2176783)
- 38.** Two numbers are in ratio $5 : 8$. If their difference is 48, then the smaller number is
 (1) 80 (2) 96
 (3) 128 (4) 64
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 20.12.2015
 (1st Sitting) TF No. 9692918)
- 39.** Three numbers are in the ratio $5:7:12$. If the sum of the first and the third numbers is greater than the second number by 50. The sum of the three numbers is
 (1) 125 (2) 120
 (3) 95 (4) 85
 (SSC CGL Tier-I (CBE) Exam. 30.08.2016) (1st Sitting)
- 40.** Two numbers whose sum is 84 can not be in the ratio
 (1) $5 : 7$ (2) $13 : 8$
 (3) $1 : 3$ (4) $3 : 2$
 (SSC CGL Tier-I (CBE) Exam. 06.09.2016 (IIInd Sitting))
- 41.** Two numbers are in the ratio $3 : 5$. If 6 is added to each of them, the ratio becomes $2 : 3$. The numbers are
 (1) 21 and 35 (2) 30 and 50
 (3) 24 and 40 (4) 18 and 30
 (SSC CGL Tier-I (CBE) Exam. 10.09.2016 (IIIRD Sitting))
- 42.** The sum of three numbers is 540. The ratio of second to third is $9 : 13$ and that of first to third is $2 : 7$. The third number is :
 (1) 273 (2) 280
 (3) 250 (4) 286
 (SSC CGL Tier-I (CBE) Exam. 27.10.2016 (1st Sitting))

RATIO AND PROPORTION

TYPE-VI

1. Two numbers are in the ratio 4 : 5 and their L.C.M. is 180. The smaller number is
(1) 9 (2) 15
(3) 36 (4) 45
(SSC CPO S.I. Exam. 16.12.2007)
2. Two numbers are in the ratio 3 : 4 and their LCM is 180. The first number is
(1) 15 (2) 60
(3) 36 (4) 45
(SSC SAS Exam. 26.06.2010
(Paper-1))
3. Two numbers are in the ratio 3 : 5 and their LCM is 225. The smaller number is
(1) 45 (2) 60
(3) 75 (4) 90
(SSC CPO S.I.
Exam. 12.12.2010 (Paper-I))

4. The ratio of two numbers is 3 : 4 and their LCM is 48. The sum of the two numbers is :
(1) 32 (2) 28
(3) 26 (4) 24

(SSC CHSL DEO & LDC
Exam. 28.11.2010 (Ist Sitting))

5. The ratio of two numbers is 3 : 4 and their LCM is 120. The sum of numbers is
(1) 105 (2) 140
(3) 70 (4) 35

(SSC CHSL (10+2) LDC, DEO & PA/SA
Exam. 01.11.2015, IIInd Sitting)

6. The ratio of two numbers is 3 : 4 and their HCF is 15. Then the sum of the two numbers is :
(1) 105 (2) 115
(3) 120 (4) 110

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 06.12.2015
(Ist Sitting) TF No. 1375232)

TYPE-VII

1. A and B have money in the ratio 2 : 1. If A gives ₹ 2 to B, the money will be in the ratio 1 : 1. What were the initial amounts they had?
(1) ₹ 12 and ₹ 6
(2) ₹ 16 and ₹ 8
(3) ₹ 8 and ₹ 4
(4) ₹ 6 and ₹ 3

(SSC CGL Prelim Exam. 04.07.1999
(First Sitting))

2. The ratio of the number of boys and girls of a school with 504 students is 13 : 11. What will be the new ratio if 12 more girls are admitted?

- (1) 91 : 81 (2) 81 : 91
(3) 9 : 10 (4) 10 : 9

(SSC CGL Prelim Exam. 24.02.2002
(First Sitting))

3. Two numbers are in the ratio $\frac{1}{2} : 2 \frac{2}{3}$. When each of these is increased by 15, they become in the ratio $\frac{2}{3} : 2 \frac{1}{2}$. The greater of the numbers is :
(1) 27 (2) 36
(3) 48 (4) 64

(SSC CGL Prelim Exam. 24.02.2002
& 13.11.2005 (IIInd Sitting))

4. The students in three classes are in the ratio 2 : 3 : 5. If 40 students are increased in each class, the ratio changes to 4 : 5 : 7. Originally, the total number of students was :

- (1) 100 (2) 180
(3) 200 (4) 400

(SSC CGL Prelim Exam. 24.02.2002
(Second Sitting))

5. Two numbers are in the ratio 5 : 7. If 9 is subtracted from each of them, their ratio becomes 7 : 11. The difference of the numbers is
(1) 6 (2) 12
(3) 15 (4) 18

(SSC CPO S.I. Exam. 12.01.2003)

6. Two numbers are in the ratio 3 : 5. If 9 is subtracted from each, then they are in the ratio 12 : 23. Find the smaller number.

- (1) 27 (2) 33
(3) 49 (4) 55

(SSC Section Officer (Commercial Audit)
Exam. 16.11.2003)

7. The ratio of number of boys to that of girls in a group becomes 2:1 when 15 girls leave. But, afterwards, when 45 boys also leave, the ratio becomes 1 : 5. Originally the number of girls in the group was
(1) 20 (2) 30
(3) 40 (4) 50

(SSC CPO S.I. Exam. 05.09.2004)

8. The students in three classes are in the ratio 2 : 3 : 5. If 20 students are increased in each class, the ratio changes to 4 : 5 : 7. Originally the total number of students was :

- (1) 50 (2) 90
(3) 100 (4) 150

(SSC CGL Prelim Exam. 24.02.2002,
13.11.2005 (IInd Sitting) & SSC CHSL
DEO & LDC Exam. 28.10.2012)

9. The ratio of the number of boys and that of girls in a school having 504 students is 13 : 11. What will be the new ratio if 3 more girls are admitted?

- (1) 7 : 6 (2) 6 : 7
(3) 10 : 11 (4) 13 : 14

(SSC CPO S.I. Exam. 03.09.2006)

10. The ratio of the number of ladies to that of gents at a party was 3 : 2. When 20 more gents joined the party, the ratio was reversed. The number of ladies present at the party was

- (1) 36 (2) 32
(3) 24 (4) 16

(SSC CPO S.I. Exam. 03.09.2006)

11. In a school having roll strength 286, the ratio of boys and girls is 8 : 5. If 22 more girls get admitted into the school, the ratio of boys and girls becomes

- (1) 12 : 7 (2) 10 : 7
(3) 8 : 7 (4) 4 : 3

(SSC CGL Prelim Exam. 04.02.2007
(First Sitting))

12. The number of students in three classes are in the ratio 2 : 3 : 4. If 12 students are increased in each class, this ratio changes to 8 : 11 : 14. The total number of students in the three classes at the beginning was

- (1) 162 (2) 108
(3) 96 (4) 54

(SSC CGL Prelim Exam. 27.07.2008
(First Sitting))

13. What must be added to each term of the ratio 7 : 11, so as to make it equal to 3 : 4 ?

- (1) 8 (2) 7.5
(3) 6.5 (4) 5

(SSC CGL Tier-I Exam. 16.05.2010
(First Sitting))

14. Two numbers are in the ratio 7 : 11. If 7 is added to each of the numbers, the ratio becomes 2 : 3. The smaller number is

- (1) 39 (2) 49
(3) 66 (4) 77

(SSC CGL Tier-I Exam. 16.05.2010
(Second Sitting))

RATIO AND PROPORTION

TYPE-VIII

- (3) 4 (4) 5
(SSC CGL Tier-I
Re-Exam. (2013) 27.04.2014)

26. Two numbers are in the ratio of 3 : 5. If 9 is subtracted from each then they are in the ratio 12 : 23. The smaller number is
(1) 55 (2) 33
(3) 28 (4) 36
(SSC CGL Tier-I
Re-Exam. (2013) 27.04.2014)

27. The average of 11 numbers is 36, whereas average of 9 of them is 34. If the remaining two numbers are in the ratio of 2 : 3, find the value of the smaller number (between remaining two numbers).

1. Zinc and copper are in the ratio of 5 : 3 in 200 gm of an alloy. How much grams of copper be added to make the ratio as 3 : 5?
(1) $133\frac{1}{3}$ (2) $\frac{1}{200}$
(3) 72 (4) 66
(SSC CGL Prelim Exam. 24.02.2002
(First Sitting))

2. The ratio of copper and zinc in brass is 13 : 7. How much zinc will be there in 100 kg of brass ?
(1) 20 kg. (2) 55 kg.
(3) 35 kg. (4) 40 kg.
(SSC CGL Prelim Exam. 24.02.2002
(Second Sitting))

RATIO AND PROPORTION

- 3.** In 30 litres mixture of acid, the ratio of acid and water is $2 : 3$. What amount of water should be added to the mixture so that the ratio of acid and water becomes $2 : 5$?
- (1) 10 litres (2) 15 litres
 (3) 18 litres (4) 12 litres
 (SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone)
- 4.** In an alloy, the ratio of copper and zinc is $5 : 2$. If 1.250 kg of zinc is mixed in 17 kg 500 g of alloy, then the ratio of copper and zinc will be
- (1) $2 : 1$ (2) $2 : 3$
 (3) $3 : 2$ (4) $1 : 2$
 (SSC CGL Prelim Exam. 11.05.2003
 (First Sitting)
- 5.** There are three containers of equal capacity. The ratio of Sulphuric acid to water in the first container is $3 : 2$, that in the second container is $7 : 3$ and in the third container it is $11 : 4$. If all the liquids are mixed together, then the ratio of Sulphuric acid to water in the mixture will be :
- (1) $61 : 29$ (2) $61 : 28$
 (3) $60 : 29$ (4) $59 : 29$
 (SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting)
- 6.** 200 litres of a mixture contains milk and water in the ratio $17 : 3$. After the addition of some more milk to it, the ratio of milk to water in the resulting mixture becomes $7 : 1$. The quantity of milk added to it was
- (1) 20 litres (2) 40 litres
 (3) 60 litres (4) 80 litres
 (SSC Section Officer (Commercial Audit) Exam. 30.09.2007
 (Second Sitting)
- 7.** A can contains a mixture of two liquids A and B in the ratio $7 : 5$. When 9 litres of mixture are drawn off and the can is filled with B, the ratio of A and B becomes $7 : 9$. Litres of liquid A contained by the can initially was
- (1) 10 (2) 20
 (3) 21 (4) 25
 (SSC CGL Tier-1 Exam. 26.06.2011
 (First Sitting)
- 8.** A container contains two liquids A and B in the ratio $7 : 5$. When 9 litres of mixture are drawn off and the container is filled with B, the ratio of A and B becomes $1 : 1$. How many litres of liquid A was in the container initially ?
- (1) 26 (2) $16\frac{1}{2}$
 (3) $36\frac{3}{4}$ (4) $26\frac{3}{4}$
 (SSC CHSL DEO & LDC Exam.
 11.12.2011 (Ist Sitting (East Zone))
- 9.** A and B are two alloys of gold and copper prepared by mixing metals in ratios $7 : 2$ and $7 : 11$ respectively. If equal quantities of the alloys are melted to form a third alloy C, the ratio of gold and copper in C will be ;
- (1) $7 : 5$ (2) $5 : 9$
 (3) $9 : 5$ (4) $5 : 7$
 (SSC CHSL DEO & LDC Exam.
 21.10.2012 (IIInd Sitting))
- 10.** The ratio in which a man must mix rice at ₹ 10.20 per kg and ₹ 14.40 per kg so as to make a mixture worth ₹ 12.60 per kg, is
- (1) $4 : 3$ (2) $2 : 5$
 (2) $18 : 24$ (4) $3 : 4$
 (SSC Multi-Tasking Staff
 Exam. 17.03.2013, IIInd Sitting)
- 11.** A mixture contains spirit and water in the ratio $3 : 2$. If it contains 3 litres more spirit than water, the quantity of spirit in the mixture is
- (1) 10 litres (2) 12 litres
 (3) 8 litres (4) 9 litres
 (SSC CGL Prelim Exam.
 11.05.2003 (Second Sitting))
- 12.** A vessel is filled with liquid, 3 parts of which are water and 5 parts syrup. How much of the mixture must be drawn off and replaced with water so that the mixture may be half water and half syrup ?
- (1) $\frac{1}{3}$ (2) $\frac{1}{4}$
 (3) $\frac{1}{5}$ (4) $\frac{1}{7}$
 (SSC Delhi Police S.I. (SI)
 Exam. 19.08.2012)
- 13.** Two vessels A and B contain milk and water mixed in the ratio $4 : 3$ and $2 : 3$. The ratio in which these mixtures be mixed to form a new mixture containing half milk and half water is
- (1) $7 : 5$ (2) $6 : 5$
 (3) $5 : 6$ (4) $4 : 3$
 (SSC CHSL DEO& LDC
 Exam. 28.10.2012 (Ist Sitting)
 & (SSC MTS Exam. 17.03.2013
 (Kolkata) 11.11.2011 & 04.02.2011)
- 14.** A container contains 60 kg of milk. From this container 6 kg of milk was taken out and replaced by water. This process was repeated further two times. The amount of milk left in the container is
- (1) 34.24 kg (2) 39.64 kg
 (3) 43.74 kg (4) 47.6 kg
 (SSC CHSL DEO & LDC Exam.
 28.10.2012, Ist Sitting)
- 15.** The proportion of acid and water in three samples is $2 : 1$, $3 : 2$ and $5 : 3$. A mixture containing equal quantities of all three samples is made. The ratio of water and acid in the mixture is :
- (1) $120 : 133$ (2) $227 : 133$
 (3) $227 : 120$ (4) $133 : 227$
 (SSC CAPFs SI & CISF ASI
 Exam. 23.06.2013)
- 16.** Two alloys are both made up of copper and tin. The ratio of copper and tin in the first alloy is $1 : 3$ and in the second alloy is $2 : 5$. In what ratio should the two alloys be mixed to obtain a new alloy in which the ratio of tin and copper be $8 : 3$?
- (1) $3 : 5$ (2) $4 : 7$
 (3) $3 : 8$ (4) $5 : 11$
 (SSC CHSL DEO & LDC Exam.
 27.10.2013 IIInd Sitting)
- 17.** A mixture contains alcohol and water in the ratio $4 : 3$. If 5 litres of water is added to the mixture, the ratio becomes $4 : 5$. The quantity of alcohol in the given mixture is
- (1) 3 litres (2) 4 litres
 (3) 15 litres (4) 10 litres
 (SSC CHSL DEO & LDC Exam.
 27.10.2013 IIInd Sitting)
- 18.** In two alloys A and B, the ratio of zinc to tin is $5 : 2$ and $3 : 4$ respectively. Seven kg of the alloy A and 21 kg of the alloy B are mixed together to form a new alloy. What will be the ratio of zinc and tin in the new alloy ?
- (1) $2 : 1$ (2) $1 : 2$
 (3) $2 : 3$ (4) $1 : 1$
 (SSCCHSL DEO & LDC
 Exam. 10.11.2013, Ist Sitting)

RATIO AND PROPORTION

- 19.** Zinc and copper are in the ratio 5 : 3 in 400 gm of an alloy. How much of copper (in grams) should be added to make the ratio 5 : 4?
- (1) 50 (2) 66
 (3) 72 (4) 200
 (SSC CHSL DEO & LDC Exam. 10.11.2013, IInd Sitting)
- 20.** Two vessels A and B contain milk and water mixed in the ratio 8 : 5 and 5 : 2 respectively. The ratio in which these two mixtures be mixed to get a new mixture containing $69\frac{3}{13}\%$ milk is:
- (1) 3 : 5 (2) 5 : 2
 (3) 5 : 7 (4) 2 : 7
 (SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting))
- 21.** A mixture of 30 litres contain milk and water in the ratio of 7 : 3. How much water should be added to it so that the ratio of milk and water becomes 3 : 7?
- (1) 40 litres (2) 49 litres
 (3) 56 litres (4) 63 litres
 (SSC CPO S.I. Exam. 07.09.2003)
- 22.** A barrel contains a mixture of wine and water in the ratio 3 : 1. How much fraction of the mixture must be drawn off and substituted by water so that the ratio of wine and water in the resultant mixture in the barrel becomes 1 : 1?
- (1) $\frac{1}{4}$ (2) $\frac{1}{3}$
 (3) $\frac{3}{4}$ (4) $\frac{2}{3}$
 (SSC CGL Prelim Exam. 08.02.2004 (First Sitting))
- 23.** There is 81 litres pure milk in a container. One-third of milk is replaced by water in the container. Again one-third of mixture is extracted and equal amount of water is added. What is the ratio of milk to water in the new mixture?
- (1) 1 : 2 (2) 1 : 1
 (3) 2 : 1 (4) 4 : 5
 (SSC Section Officer (Commercial Audit) Exam. 25.09.2005)
- 24.** In 80 litres mixture of milk and water the ratio of amount of milk to that of amount of water is 7 : 3. In order to make this ratio 2 : 1, how many litres of water should be added?
- (1) 5 (2) 6
 (3) 8 (4) 4
 (SSC Section Officer (Commercial Audit) Exam. 25.09.2005)
- 25.** Vessels A and B contain mixtures of milk and water in the ratios 4 : 5 and 5 : 1 respectively. In what ratio should quantities of mixture be taken from A and B to form a mixture in which milk to water is in the ratio 5 : 4?
- (1) 2 : 5 (2) 4 : 3
 (3) 5 : 2 (4) 2 : 3
 (SSC Section Officer (Commercial Audit) Exam. 26.11.2006 (Second Sitting))
- 26.** The milk and water in a mixture are in the ratio 7 : 5. When 15 litres of water are added to it, the ratio of milk and water in the new mixture becomes 7 : 8. The total quantity of water in the new mixture is
- (1) 35 litres (2) 40 litres
 (3) 60 litres (4) 96 litres
 (SSC CPO S.I. Exam. 16.12.2007)
- 27.** In a 729 litres mixture of milk and water, the ratio of milk to water is 7 : 2. To get a new mixture containing milk and water in the ratio 7 : 3, the amount of water to be added is
- (1) 81 litres (2) 71 litres
 (3) 56 litres (4) 50 litres
 (SSC CGL Prelim Exam. 27.07.2008 (First Sitting))
- 28.** In 40 litres mixture of milk and water the ratio of milk to water is 7 : 1. In order to make the ratio of milk and water 3 : 1, the quantity of water (in litres) that should be added to the mixture will be
- (1) 6 (2) $6\frac{1}{2}$
 (3) $6\frac{2}{3}$ (4) $6\frac{3}{4}$
 (SSC CGL Prelim Exam. 27.07.2008 (First Sitting))
- 29.** A jar contained a mixture of two liquids A and B in the ratio 4 : 1. When 10 litres of the mixture was taken out and 10 litres of liquid B was poured into the jar, this ratio became 2 : 3. The quantity of liquid A contained in the jar initially was
- (1) 4 litres (2) 8 litres
 (3) 16 litres (4) 40 litres
 (SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))
- 30.** In a mixture of 75 litres, the ratio of milk to water is 2 : 1. The amount of water to be further added to the mixture so as to make the ratio of the milk to water 1 : 2 will be
- (1) 45 litres (2) 60 litres
 (3) 75 litres (4) 80 litres
 (SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))
- 31.** A and B are two alloys of gold and copper prepared by mixing metals in the ratio 5 : 3 and 5 : 11 respectively. Equal quantities of these alloys are melted to form a third alloy C. The ratio of gold and copper in the alloy C is
- (1) 25 : 33 (2) 33 : 25
 (3) 15 : 17 (4) 17 : 15
 (SSC CPO S.I. Exam. 09.11.2008)
- 32.** A mixture contains wine and water in the ratio 3 : 2 and another mixture contains them in the ratio 4 : 5. How many litres of the later must be mixed with 3 litres of the former so that the resulting mixture may contain equal quantities of wine and water?
- (1) $5\frac{2}{5}$ litres (2) $5\frac{2}{3}$ litres
 (3) $4\frac{1}{2}$ litres (4) $3\frac{3}{4}$ litres
 (SSC SAS Exam. 26.06.2010 (Paper-1))
- 33.** The ratio of the volume of water and glycerine in 240cc of a mixture is 1 : 3. The quantity of water (in cc) that should be added to the mixture so that the new ratio of the volumes of water and glycerine becomes 2:3 is
- (1) 55 cc (2) 60 cc
 (3) 62.5 cc (4) 64 cc
 (SSC CGL Tier-1 Exam. 19.06.2011 (First Sitting))
- 34.** The ratio of the quantities of an acid and water in a mixture is 1 : 3. If 5 litres of acid is further added to the mixture, the new ratio becomes 1 : 2. The quantity of new mixture (in litres) is
- (1) 32 (2) 40
 (3) 42 (4) 45
 (SSC CGL Tier-1 Exam. 19.06.2011 (Second Sitting))

RATIO AND PROPORTION

- 35.** In a mixture of 25 litres, the ratio of acid to water is 4 : 1. Another 3 litres of water is added to the mixture. The ratio of acid to water in the new mixture is
 (1) 5 : 2 (2) 2 : 5
 (3) 3 : 5 (4) 5 : 3
 (SSC CPO (SI, ASI & Intelligence Officer) Exam. 28.08.2011 (Paper-I))
- 36.** Two equal vessels are filled with the mixtures of water and milk in the ratio of 3:4 and 5:3 respectively. If the mixtures are poured into a third vessel, the ratio of water and milk in the third vessel will be
 (1) 15 : 12 (2) 53 : 59
 (3) 20 : 9 (4) 59 : 53
 (SSC CGL Tier-1 Exam 19.06.2011 (First Sitting))
- 37.** Two types of alloy possess gold and silver in the ratio of 7 : 22 and 21 : 37. In what ratio should these alloys be mixed so as to have a new alloy in which gold and silver would exist in the ratio 25 : 62 ?
 (1) 13 : 8 (2) 8 : 13
 (3) 13 : 12 (4) 6 : 9
 (SSC Data Entry Operator Exam. 31.08.2008)
- 38.** In one glass, milk and water are mixed in the ratio 3 : 5 and in another glass they are mixed in the ratio 6 : 1. In what ratio should the contents of the two glasses be mixed together so that the new mixture contains milk and water in the ratio 1 : 1 ?
 (1) 20 : 7 (2) 8 : 3
 (3) 27 : 4 (4) 25 : 9
 (SSC Data Entry Operator Exam. 02.08.2009)
- 39.** In a mixture of 60 litres, the ratio of milk and water is 2 : 1. How much more water must be added to make its ratio 1 : 2 ?
 (1) 40 litres (2) 52 litres
 (3) 54 litres (4) 60 litres
 (SSC CHSL DEO & LDC Exam. 27.11.2010)
- 40.** Two vessels A and B contains acid and water in the ratio 4 : 3 and 5 : 3 respectively. Then the ratio in which these mixtures to be mixed to obtain a new mixture in vessel C containing acid and water in the ratio 3 : 2 is
 (1) 5 : 8 (2) 7 : 8
 (3) 7 : 5 (4) 4 : 7
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (1st Sitting (North Zone)))
- 41.** Two containers have acid and water mixed respectively in the ratio 3 : 1 and 5 : 3. To get a new mixture with ratio of acid to water as 2 : 1, the two types have to be mixed in the ratio
 (1) 1 : 2 (2) 2 : 1
 (3) 2 : 3 (4) 3 : 2
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting (North Zone)))
- 42.** Acid and water are mixed in a vessel A in the ratio of 5 : 2 and in the vessel B in the ratio 8 : 5. In what proportion should quantities be taken out from the two vessels so as to form a mixture in which the acid and water will be in the ratio of 9 : 4?
 (1) 7 : 2 (2) 2 : 7
 (3) 7 : 4 (4) 2 : 3
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone)))
- 43.** The ratio of spirit and water in two mixturers of 20 litre and 36 litre is 3 : 7 and 7 : 5 respectively. Both the mixtures are mixed together. Now the ratio of the spirit and water in the new mixture is
 (1) 25 : 29 (2) 9 : 10
 (3) 27 : 29 (4) 27 : 31
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (Delhi Zone)))
- 44.** Alcohol and water in two vessels A and B are in the ratio 5 : 3 and 5 : 4 respectively. In what ratio, the liquids in both the vessels be mixed to obtain a new mixture in vessel C in the ratio 7 : 5 ?
 (1) 2 : 3 (2) 3 : 2
 (3) 3 : 5 (4) 2 : 5
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting (East Zone)))
- 45.** Two vessels contain milk and water in the ratio 3 : 2 and 7 : 3. Find the ratio in which the contents of the two vessels have to be mixed to get a new mixture in which the ratio of milk and water is 2 : 1.
 (1) 2 : 1 (2) 1 : 2
 (3) 4 : 1 (4) 1 : 4
 (SSC Graduate Level Tier-II Exam. 16.09.2012)
- 46.** In two types of stainless steel, the ratio of chromium and steel are 2 : 11 and 5 : 21 respectively. In what proportion should the two types be mixed so that the ratio of chromium to steel in the mixed type becomes 7 : 32 ?
 (1) 2 : 3 (2) 3 : 4
 (3) 1 : 2 (4) 1 : 3
 (SSC CHSL DEO & LDC Exam. 21.10.2012 (Ist Sitting))
- 47.** A and B are two alloys of gold and copper in the ratio 7 : 2 and 7 : 11 respectively. If equal quantities of these two alloys are melted to form a new alloy C, then the ratio of gold and copper in C is
 (1) 6 : 5 (2) 9 : 4
 (3) 12 : 7 (4) 7 : 5
 (SSC CHSL DEO & LDC Exam. 04.11.2012 (IIInd Sitting))
- 48.** A Can contains a mixture of two liquids A and B in the ratio 7 : 5. When 9 litres of mixture are drained off and the Can is filled with B, the ratio of A and B becomes 7 : 9. How many litres of liquid A was contained by the Can initially?
 (1) 10 litres (2) 20 litres
 (3) 21 litres (4) 25 litres
 (SSC CHSL DEO & LDC Exam. 04.11.2012 (IIInd Sitting))
- 49.** The ratio of milk and water in mixtures of four containers are 5 : 3, 2 : 1, 3 : 2 and 7 : 4 respectively. In which container is the quantity of milk, relative to water, minimum ?
 (1) First (2) Second
 (3) Third (4) Fourth
 (SSC CGL Tier-I Exam. 16.05.2010 (Second Sitting))
- 50.** An alloy contains copper, zinc and nickel in the ratio of 5 : 3 : 2. The quantity of nickel (in kg) that must be added to 100 kg of this alloy to have the new ratio 5 : 3 : 3 is
 (1) 8 (2) 10
 (3) 12 (4) 15
 (SSC CGL Tier-1 Exam. 26.06.2011 (Second Sitting))
- 51.** In an alloy, zinc and copper are in the ratio 1 : 2. In the second alloy, the same elements are in the ratio 2 : 3. If these two alloys be mixed to form a new alloy in which two elements are in the ratio 5 : 8, the ratio of these two alloys in the new alloy is
 (1) 3 : 10 (2) 3 : 7
 (3) 10 : 3 (4) 7 : 3
 (SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))

RATIO AND PROPORTION

52. A liquid 'P' is $1\frac{3}{7}$ times as heavy

as water and water is $1\frac{2}{5}$ times as heavy as another liquid 'Q'. The amount of liquid 'P' that must be added to 7 litres of the liquid 'Q' so that the mixture may weigh as much as an equal volume of water, will be

- (1) 7 litres (2) $5\frac{1}{6}$ litres
- (3) 5 litres (4) $4\frac{2}{3}$ litres

(SSC CGL Prelim Exam. 04.02.2007 (First Sitting))

53. The milk and water in two vessels A and B are in the ratio 4 : 3 and 2 : 3 respectively. In what ratio, the liquids in both the vessels be mixed to obtain a new mixture in vessel C containing half milk and half water?

- (1) 7 : 5 (2) 5 : 2
- (3) 3 : 11 (4) 1 : 2

(SSC CGL Tier-I Exam. 19.10.2014)

54. There are two containers of equal capacity. The ratio of milk to water in the first container is 3 : 1, in the second container 5 : 2. If they are mixed up, the ratio of milk to water in the mixture will be

- (1) 28 : 41 (2) 41 : 28
- (3) 15 : 41 (4) 41 : 15

(SSC CGL Tier-II Exam. 21.09.2014)

55. Two equal glasses filled with alcohol and water in the proportions 2 : 1 and 3 : 2 are emptied into a third glass. The proportion of alcohol and water in the third glass will be

- (1) 13 : 17 (2) 19 : 17
- (3) 13 : 11 (4) 19 : 11

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

56. A vessel full of pure acid contains 10 litres of it, of which 2 litres are withdrawn. The vessel is then filled with water. Next 2 litres of the mixture are withdrawn, and again the vessel is filled up with water. The ratio of the acid left in the vessel with that of the original quantity is

- (1) 1 : 5 (2) 4 : 5
- (3) 4 : 25 (4) 16 : 25

(SSC CGL Tier-I Exam. 19.10.2014)

TF No. 022 MH 3)

57. Gold is 19 times as heavy as water and copper is 9 times as heavy as water. In what ratio should these be mixed to get an alloy 15 times as heavy as water?

- (1) 1 : 1 (2) 1 : 2
- (3) 2 : 3 (4) 3 : 2

(SSC CGL Tier-I Exam. 19.10.2014
TF No. 022 MH 3)

58. 80 litres of a mixture contains milk and water in the ratio of 27 : 5. How much more water is to be added to get a mixture containing milk and water in the ratio of 3 : 1?

- (1) 5 litres (2) 10 litres
- (3) 15 litres (4) 20 litres

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014 , Ist Sitting
TF No. 333 LO 2)

59. The ratio of two liquids in a mixture is 3 : 5 and that in another mixture is 6 : 1. The ratio in which these two mixtures should be mixed so as to make the ratio of the liquids 7 : 3 is

- (1) 44 : 71 (2) 44 : 81
- (3) 44 : 91 (4) 44 : 61

(SSC CGL Tier-II Exam.
2014 12.04.2015 (Kolkata Region)
TF No. 789 TH 7)

60. A vessel contains 20 litres of acid. 4 litres of acid is taken out of the vessel and replaced by the same quantity of water. Next 4 litres of the mixture are withdrawn, and again the vessel is filled with the same quantity of acid left in the vessel with the quantity of acid initially in the vessel is

- (1) 4 : 5 (2) 4 : 25
- (3) 16 : 25 (4) 1 : 5

(SSC CGL Tier-II Exam.
2014 12.04.2015 (Kolkata Region)
TF No. 789 TH 7)

61. In two blends of mixed tea, the ratios of Darjeeling and Assam tea are 4 : 7 and 2 : 5. The ratio in which these two blends should be mixed to get the ratio of Darjeeling and Assam tea in the new mixture as 6 : 13 is

- (1) 22 : 35 (2) 26 : 35
- (3) 35 : 78 (4) 13 : 22

(SSC CGL Tier-II Exam.
2014 12.04.2015 (Kolkata Region)
TF No. 789 TH 7)

62. In a mixture of three varieties of tea, the ratio of their weights is 4 : 5 : 8. If 5 kg tea of the first variety, 10 kg tea of the second variety and some quantity of tea of the third variety are added to the mixture, the ratio of the weights of three varieties of tea becomes as 5 : 7 : 9. In the final mixture, the quantity (in kg) of the third variety of tea was

- (1) 42 (2) 45
- (3) 48 (4) 40

(SSC CGL Tier-II Exam.
2014 12.04.2015 (Kolkata Region)
TF No. 789 TH 7)

63. Three vessels whose capacities are 3 : 2 : 1 are completely filled with milk mixed with water. The ratio of milk and water in the mixture of vessels are 5 : 2, 4 : 1 and 4 : 1 respectively. Taking $\frac{1}{3}$ of first, $\frac{1}{2}$ of sec-

ond and $\frac{1}{7}$ of third mixtures, a

new mixture kept in a new vessel is prepared. The percentage of water in the new mixture is

- (1) 28 (2) 32
- (3) 30 (4) 24

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 21.06.2015
IIInd Sitting)

64. 729 ml of a mixture contains milk and water in the ratio 7 : 2. How much more water is to be added to get a new mixture containing milk and water in the ratio 7 : 3?

- (1) 81 ml (2) 60 ml
- (3) 71 ml (4) 52 ml

(SSC CGL Tier-I Exam. 09.08.2015
(Ist Sitting) TF No. 1443088)

65. Two alloys contain tin and iron in the ratio of 1 : 2 and 2 : 3. If the two alloys are mixed in the proportion of 3 : 4 respectively (by weight), the ratio of tin and iron in the newly formed alloy is :

- (1) 10 : 21 (2) 13 : 22
- (3) 14 : 25 (4) 12 : 23

(SSC CGL Tier-I Exam. 16.08.2015
(IIInd Sitting) TF No. 2176783)

RATIO AND PROPORTION

66. Three utensils contain equal quantity of mixtures of milk and water in the ratio 6 : 1, 5 : 2 and 3 : 1 respectively. If all the solutions are mixed together, the ratio of milk and water in the final mixture is

- (1) 65 : 28 (2) 65 : 19
 (3) 19 : 65 (4) 19 : 28

(SSC CGL Tier-I
 Re-Exam, 30.08.2015)

67. 60 kg of an alloy A is mixed with 100 kg of alloy B. If alloy A has lead and tin in the ratio 3 : 2 and alloy B has tin and copper in the ratio 1 : 4, the amount of tin in the new alloy is

- (1) 53 kg (2) 44 kg
 (3) 80 kg (4) 24 kg

(SSC CGL Tier-II Exam,
 25.10.2015, TF No. 1099685)

68. Three glasses of equal volume contains acid mixed with water. The ratios of acid and water are 2 : 3, 3 : 4 and 4 : 5 respectively. Contents of these glasses are poured in a large vessel. The ratio of acid and water in the large vessel is

- (1) 411 : 540 (2) 401 : 544
 (3) 417 : 564 (4) 407 : 560

(SSC CGL Tier-II Exam,
 25.10.2015, TF No. 1099685)

69. Two blends of a commodity costing Rs. 35 and Rs. 40 per kg. respectively are mixed in the ratio 2 : 3 by weight. If one-fifth of the mixture is sold at Rs. 46 per kg and the remaining at the rate of Rs. 55 per kg. the profit percent is

- (1) 50 (2) 30
 (3) 40 (4) 20

(SSC CGL Tier-II Exam,
 25.10.2015, TF No. 1099685)

70. 20 litres of a mixture contains milk and water in the ratio 3 : 1. Then the amount of milk to be added to the mixture so as to have milk and water in ratio 4 : 1 is :

- (1) 7 litres (2) 4 litres
 (3) 5 litres (4) 6 litres

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015
 (1st Sitting) TF No. 6636838)

71. A mixture contains milk and water in the ratio 5 : 1. On adding 5 litres of water, the ratio of milk and water becomes 5 : 2. The quantity of milk in the mixture is :

- (1) 25 litres (2) 32.5 litres
 (3) 16 litres (4) 22.75 litres

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015
 (1st Sitting) TF No. 1375232)

72. A vessel contains 60 litres of milk. 12 litres of milk is taken out from it and replaced by water. Then again from mixture, 12 litres is again taken out and replaced by water. The ratio of milk and water in the resultant mixture is :

- (1) 15:10 (2) 16:9
 (3) 9:5 (4) 16:10

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015
 (1st Sitting) TF No. 3441135)

73. A mixture contains spirit and water in the ratio of 3 : 2. If it contains 3 litres more spirit than water, the quantity of spirit in the mixture is

- (1) 12 litres (2) 10 litres
 (3) 9 litres (4) 8 litres

(SSC CGL Tier-I (CBE)
 Exam. 11.09.2016) (1st Sitting)

74. 49 kg of blended tea contains Assam and Darjeeling tea in the ratio 5 : 2. Then the quantity of Darjeeling tea to be added to the mixture to make the ratio of Assam to Darjeeling tea 2 : 1 is

- (1) 4.5 kg (2) 3.5 kg
 (3) 5 kg (4) 6 kg

(SSC CGL Tier-II Online Exam. 01.12.2016)

75. Three containers have their volumes in the ratio 3 : 4 : 5. They are full of mixtures of milk and water. The mixtures contain milk and water in the ratio of (4 : 1), (3 : 1) and (5 : 2) respectively. The contents of all these three containers are poured into a fourth container. The ratio of milk and water in the fourth container is

- (1) 4 : 1 (2) 151 : 48
 (3) 157 : 53 (4) 5 : 2

(SSC CGL Tier-II Online Exam. 01.12.2016)

76. In what proportion must a grocer mix sugar at Rs. 12 a kg and Rs. 7 a kg so as to make a mixture worth Rs. 8 a kg.?

- (1) 7 : 12 (2) 1 : 4
 (3) 2 : 3 (4) 12 : 7

(SSC CGL Tier-II Online Exam. 01.12.2016)

77. A canister holds 36 litres of mixture of milk and water in the ratio 3 : 1. 15 litres of milk is added to the canister. The new ratio of the mixture is :

- (1) 12 : 5 (2) 14 : 3
 (3) 7 : 4 (4) 9 : 4

(SSC CPO Exam. 06.06.2016)
 (1st Sitting)

78. In a mixture of 25 litres, the ratio of milk to water is 4 : 1. Another 3 litres of water is added to the mixture. The ratio of milk to water in the new mixture is

- (1) 5 : 1 (2) 5 : 2
 (3) 5 : 3 (4) 5 : 4

(SSC CGL Tier-I (CBE)
 Exam. 09.09.2016) (1st Sitting)

79. Three containers whose volumes are in the ratio of 2 : 3 : 4 are full of mixture of spirit and water. In the 1st container, the ratio of spirit and water is 4 : 1, in the 2nd container the ratio is 11 : 4 and in the 3rd container ratio is 7 : 3. All the three mixtures are mixed in a big container. The ratio of spirit and water in the resultant mixture is :

- (1) 4 : 9 (2) 11 : 4
 (3) 5 : 10 (4) 9 : 5

(SSC CAPFs (CPO) SI & ASI,
 Delhi Police Exam. 20.03.2016
 (1st Sitting))

80. Two bottles contain acid and water in the ratio 2 : 3 and 1 : 2 respectively. These are mixed in the ratio 1 : 3. What is the ratio of acid and water in the new mixture ?

- (1) 7:13 (2) 11:57
 (3) 23:37 (4) 1:3

(SSC CGL Tier-II (CBE)
 Exam. 30.11.2016)

81. In two types of brass, the ratios of Copper to Zinc are 8:3 and 15:7 respectively. If the two types of brass be melted and mixed in the ratio 5:2 a new type of brass is obtained. The ratio of Copper to Zinc in this new type of brass is

- (1) 3:2 (2) 2:3
 (3) 3:4 (4) 5:2

(SSC CGL Tier-II (CBE)
 Exam. 30.11.2016)

82. There are three bottles of mixture of syrup and water of ratios 2 : 3, 3 : 4 and 7 : 5. 10 litres of the first and 21 litres of the second bottles are taken. How much quantity from third bottle is to be taken so that final mixture from three bottles will be of ratios 1 : 1.

- (1) 25 litres (2) 20 litres
 (3) 35 litres (4) 30 litres

(SSC CGL Tier-II (CBE)
 Exam. 12.01.2017)

RATIO AND PROPORTION

TYPE-IX

- 1.** The income of A, B and C are in the ratio $3 : 7 : 4$ and their expenses in the ratio $4 : 3 : 5$. If A saves ₹ 300 out of an income of ₹ 2,400, the savings of B and C are :
- ₹ 4025 and ₹ 575
 - ₹ 1575 and ₹ 2,625
 - ₹ 2750 and ₹ 1,525
 - ₹ 3725 and ₹ 1,525
- (SSC CGL Prelim Exam. 04.07.1999
(First Sitting)
- 2.** Between two consecutive years my income are in the ratio of $2 : 3$ and expenses in the ratio $5 : 9$. If my income in the second year is ₹ 45000 and my expenses in the first year is ₹ 25000 my total savings for the two years is :
- Nil
 - ₹ 15000
 - ₹ 10000
 - ₹ 5000
- (SSC CGL Prelim Exam. 04.07.1999
(Second Sitting)
- 3.** A and B have monthly incomes in the ratio $5 : 6$ and monthly expenditures in the ratio $3 : 4$. If they save ₹ 1800 and ₹ 1600 respectively, find the monthly income of B :
- ₹ 3400
 - ₹ 2700
 - ₹ 1720
 - ₹ 7200
- (SSC CGL Prelim Exam. 24.02.2002
(First Sitting)
- 4.** The ratio of income of two persons is $5 : 3$ and that of their expenditures is $9 : 5$. Find the income of each person, if they save ₹ 1,300 and ₹ 900 respectively.
- ₹ 4,000, ₹ 2,400
 - ₹ 3,000, ₹ 1,800
 - ₹ 5,000, ₹ 3,000
 - ₹ 4,500 ₹ 2,700
- (SSC CGL Prelim Exam. 24.02.2002
(Second Sitting)
- 5.** The annual income of A and B are in the ratio $4 : 3$ and the ratio of their expenditures is $3 : 2$. If each of them saves ₹ 600 in the year, the annual income of A is
- ₹ 4800
 - ₹ 1800
 - ₹ 1200
 - ₹ 2400
- (SSC CGL Prelim Exam. 24.02.2002
(Middle Zone) & SSC CPO SI 03.09.2006,
26.05.2005 & SSC MT (Non- Technical)
Exam. 27.02.2011)

- 6.** The income of A, B and C are in the ratio $7 : 9 : 12$ and their spendings are in the ratio $8 : 9 : 15$. If A saves $\frac{1}{4}$ th of his income, then the savings of A, B and C are in the ratio of :
- 56 : 99 : 69
 - 69 : 56 : 99
 - 99 : 56 : 69
 - 99 : 69 : 56
- (SSC CGL Prelim Exam. 11.05.2003
(1st Sitting) & SSC CGL Tier-I
Exam. 26.06.2011(IIInd sitting)
- 7.** The ratio of income of P and Q is $3 : 4$ and the ratio of their expenditures is $2 : 3$. If both of them save ₹ 6000, the income of P is
- ₹ 20000
 - ₹ 12000
 - ₹ 18000
 - ₹ 24000
- (SSC CGL Prelim Exam. 11.05.2003
(Second Sitting)
- 8.** A man spends a part of his monthly income and saves a part of it. The ratio of his expenditure to his saving is $26 : 3$. If his monthly income is ₹ 7250, what is the amount of his monthly savings ?
- ₹ 350
 - ₹ 290
 - ₹ 750
 - ₹ 780
- (SSC CGL Prelim Exam. 08.02.2004
(Second Sitting)
- 9.** The monthly salaries of A, B and C are in the ratio $2 : 3 : 5$. If C's monthly salary is ₹ 12,000 more than that of A, then B's annual salary is
- ₹ 1,20,000
 - ₹ 1,44,000
 - ₹ 1,80,000
 - ₹ 2,40,000
- (SSC CHSL DEO & LDC
Exam. 28.11.2010 (IIInd Sitting)
- 10.** The ratio of income of two persons is $5 : 3$ and that of their expenditures is $9 : 5$. If they save ₹ 2600 and ₹ 1800 respectively, their incomes are :
- ₹ 8000; ₹ 4800
 - ₹ 6000; ₹ 3600
 - ₹ 10000; ₹ 6000
 - ₹ 9000; ₹ 5400
- (SSC CGL Prelim Exam. 13.11.2005
(First Sitting)
- 11.** The monthly income of two persons are in the ratio $2 : 3$ and their monthly expenses are in the ratio $5 : 9$. If each of them saves ₹ 600 per month, then their monthly incomes are
- ₹ 12,000
 - ₹ 24,000
 - ₹ 30,000
 - ₹ 60,000
- (SSC CGL Tier-1 Exam. 19.06.2011
(Second Sitting)
- 12.** A person bought some rice and wheat for ₹ 380. The ratio of weight of rice and wheat is $4 : 3$ and the price of equal amount of rice and wheat is in the ratio $5 : 6$. The rice was bought of worth
- ₹ 380
 - ₹ 300
 - ₹ 200
 - ₹ 180
- (SSC Multi-Tasking Staff
Exam. 17.03.2013. Ist Sitting)
- 13.** The ratio of incomes of A and B is $5 : 6$. If A gets ₹ 1,100 less than B, their total income (in rupees) is
- 9,900
 - 12,100
 - 14,400
 - 10,000
- (SSC CGL Prelim Exam. 04.02.2007
(First Sitting)
- 14.** The income of A and B are in the ratio $5 : 3$. The expenses of A, B and C are in the ratio $8 : 5 : 2$. If C spends ₹ 2000 and B saves ₹ 700, then A saves
- ₹ 1500
 - ₹ 1000
 - ₹ 500
 - ₹ 250
- (SSC CGL Prelim Exam. 04.02.2007
(Second Sitting)
- 15.** The ratio of income and expenditure of a person is $11 : 10$. If he saves ₹ 9,000 per annum, his monthly income is
- ₹ 8,000
 - ₹ 8,800
 - ₹ 8,500
 - ₹ 8,250
- (SSC CGL Tier-I Exam. 16.05.2010
(Second Sitting)
- 16.** The ratio of the income to the expenditure of a family is $10 : 7$. If the family's expenses are ₹10,500, then savings of the family is
- ₹ 4,500
 - ₹ 10,000
 - ₹ 4,000
 - ₹ 5,000
- (SSC CGL Tier-1 Exam. 19.06.2011
(First Sitting)
- 17.** Monthly income of A and B are in the ratio of $4 : 3$ and their expenses bear the ratio $3 : 2$. Each of them saves ₹ 6,000 at the end of the month, then the monthly income of A is
- ₹ 12,000
 - ₹ 24,000
 - ₹ 30,000
 - ₹ 60,000
- (SSC CGL Tier-1 Exam. 19.06.2011
(Second Sitting)

RATIO AND PROPORTION

- 18.** The ratio of weekly income of A and B is 9 : 7 and the ratio of their expenditures is 4 : 3. If each saves ₹ 200 per week, then the sum of their weekly income is
 (1) ₹ 3,600 (2) ₹ 3,200
 (3) ₹ 4,800 (4) ₹ 5,600
 (SSC CGL Tier-1 Exam. 26.06.2011
 (First Sitting))
- 19.** The ratio of the incomes of A and B as well as of B and C is 3 : 2. If one third of A's income exceeds one fourth of C's income by ₹1000, what is B's income in ₹?
 (1) 3000 (2) 2500
 (3) 3500 (4) 4000
 (SSC CHSL DEO & LDC Exam.
 28.10.2012, 1st Sitting)
- 20.** The income of A and B are in the ratio 2 : 3 and their expenditures are in the ratio 1 : 2. If each saves ₹24,000, find A's income.
 (1) ₹ 24,000 (2) ₹ 72,000
 (3) ₹ 19,200 (4) ₹ 48,000
 (SSC CPO (SI, ASI & Intelligence Officer)
 Exam. 28.08.2011 (Paper-I))
- 21.** Incomes of A and B are in the ratio 4 : 3 and their annual expenses in the ratio 3 : 2. If each saves ₹ 60,000 at the end of the year, the annual income of A is
 (1) ₹ 1,20,000 (2) ₹ 1,50,000
 (3) ₹ 2,40,000 (4) ₹ 3,60,000
 (SSC Data Entry Operator
 Exam. 02.08.2009)
- 22.** Ratio between the monthly incomes of A and B is 9 : 8 and the ratio between their expenditures is 8 : 7. If they save ₹ 500 each, find A's monthly income.
 (1) ₹ 3,500 (2) ₹ 4,000
 (3) ₹ 4,500 (4) ₹ 5,000
 (SSC Multi-Tasking (Non-Technical)
 Staff Exam. 20.02.2011)
- 23.** If the annual income of A, B and C are in the ratio 1 : 3 : 7 and the total annual income of A and C is ₹ 8,00,000, then the monthly salary of B (in ₹) is
 (1) 20,000 (2) 25,000
 (3) 30,000 (4) 15,000
 (SSC Constable (GD) & Rifleman
 (GD) Exam. 22.04.2012 (1Ind Sitting))
- 24.** Annual incomes of Amit and Veeri are in the ratio 3:2, while the ratio of their expenditure is 5 : 3. If at the end of the year each saves ₹ 1,000, the annual income of Amit is
 (1) ₹ 9,000 (2) ₹ 8,000
 (3) ₹ 7,000 (4) ₹ 6,000
 (SSC Graduate Level Tier-II
 Exam. 16.09.2012)
- 25.** The ratio of monthly incomes of A, B is 6 : 5 and their monthly expenditures are in the ratio 4 : 3. If each of them saves ₹ 400 per month, find the sum of their monthly incomes.
 (1) 2300 (2) 2400
 (3) 2200 (4) 2500
 (SSC Graduate Level Tier-I
 Exam. 21.04.2013)
- 26.** Incomes of x and y are in the ratio 4:3. Their expenditures are in the ratio 12:7. Both save Rs. 3200 at the end of the month, then the income of x is
 (1) ₹ 8000 (2) ₹ 6000
 (3) ₹ 2000 (4) ₹ 4000
 (SSC CAPFs SI, CISF ASI & Delhi
 Police SI Exam. 21.06.2015
 (1st Sitting) TF No. 8037731)
- 27.** The incomes of A and B are in the ratio 3 : 2 and their expenditures are in the ratio 5 : 3. If each saves Rs. 1000, then A's income is
 (1) Rs. 6000 (2) Rs. 4000
 (3) Rs. 2000 (4) Rs. 5000
 (SSC CGL Tier-I
 Re-Exam, 30.08.2015)
- 28.** A and B have their monthly incomes in the ratio 8 : 5, while their monthly expenditures are in the ratio 5 : 3. If they have saved Rs. 12,000 and Rs. 10,000 monthly respectively, then the difference in their monthly incomes is
 (1) Rs. 52,000 (2) Rs. 42,000
 (3) Rs. 44,000 (4) Rs. 46,000
 (SSC CGL Tier-II Exam.
 25.10.2015, TF No. 1099685)
- 29.** A man spends a part of his monthly income and saves the rest. The ratio of his expenditure to the savings is 61 : 6. If his monthly income is Rs. 8710, the amount of his monthly savings is
 (1) Rs. 870 (2) Rs. 690
 (3) Rs. 980 (4) Rs. 780
 (SSC CGL Tier-I (CBE)
 Exam. 28.08.2016) (1Ind Sitting)
- 30.** A's income is Rs. 140 more than B's income and C's income is Rs. 80 more than D's. If the ratio of A's and C's incomes is 2 : 3 and the ratio of B's and D's incomes is 1 : 2, then the incomes of A, B, C and D are respectively
 (1) Rs. 260, Rs. 120, Rs. 320 and Rs. 240
 (2) Rs. 300, Rs. 160, Rs. 600 and Rs. 520
 (3) Rs. 400, Rs. 260, Rs. 600 and Rs. 520
 (4) Rs. 320, Rs. 180, Rs. 480 and Rs. 360
 (SSC CGL Tier-II (CBE)
 Exam. 12.01.2017)
- 1.** ₹ 180 contained in a box consists of one rupee, 50 paise and 25 paise coins in the ratio 2 : 3 : 4. What is the number of 50 paise coins?
 (1) 60 (2) 120
 (3) 150 (4) 180
 (SSC CGL Prelim Exam. 04.07.1999
 (Second Sitting))
- 2.** If 378 coins consist of rupees, 50 paise and 25 paise coins, whose values are in the ratio of 13 : 11 : 7, the number of 50 paise coins will be :
 (1) 132 (2) 128
 (3) 136 (4) 133
 (SSC CGL Prelim Exam. 11.05.2003
 (First Sitting))
- 3.** A bag contains ₹ 90 in coins of denominations of 50 paise, 25 paise and 10 paise. If coins of 50 paise, 25 paise and 10 paise are in the ratio 2 : 3 : 5, then the number of 25 paise coins in the bag is
 (1) 80 (2) 120
 (3) 100 (4) 135
 (SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting))
- 4.** There are ₹ 225 consisting of one rupee, 50 paise and 25 paise coins. The ratio of their numbers in that order is 8 : 5 : 3. The number of one-rupee coins is :
 (1) 80 (2) 112
 (3) 160 (4) 172
 (SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting))
- 5.** A box contains 1-rupee, 50-paise and 25-paise coins in the ratio 8 : 5 : 3. If the total amount of money in the box is ₹ 112.50, the number of 50-paise coins is
 (1) 80 (2) 50
 (3) 30 (4) 42
 (SSC CGL Prelim Exam. 04.02.2007
 (First Sitting))
- 6.** In a bag, there are three types of coins — 1-rupee, 50 paise and 25-paise in the ratio of 3 : 8 : 20. Their total value is ₹ 372. The total number of coins is
 (1) 1200 (2) 961
 (3) 744 (4) 612
 (SSC Section Officer (Commercial
 Audit) Exam. 30.09.2007
 (Second Sitting))

TYPE-X

RATIO AND PROPORTION

7. A box has 210 coins of denominations one-rupee and fifty paise only. The ratio of their respective values is 13 : 11. The number of one-rupee coins is

- (1) 65 (2) 66
 (3) 77 (4) 78

(SSC CGL Prelim Exam. 27.07.2008
 (First Sitting)

8. A boy has a few coins of denominations 50 paise, 25 paise and 10 paise in the ratio 1 : 2 : 3. If the total amount of the coins is ₹ 6.50, the number of 10 paise coins is

- (1) 5 (2) 10
 (3) 15 (4) 20

(SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting)

9. A man has in all ₹ 640 in the denominations of one-rupee, five-rupee and ten-rupee notes. The number of each type of notes are equal. What is the total number of notes he has ?

- (1) 150 (2) 120
 (3) 100 (4) 90

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006
 (Second Sitting)

10. A bag contains three types of coins-rupee-coins. 50p-coins and 25 p-coins totalling 175 coins. If the total value of the coins of each kind be the same, the total amount in the bag is

- (1) ₹ 75 (2) ₹ 175
 (3) ₹ 300 (4) ₹ 126

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006
 (Second Sitting)

11. There are 480 coins in half rupees, quarter rupees and 10 paise coins and their values are proportional to 5 : 3 : 1. The number of coins in each case are

- (1) 100, 200, 180
 (2) 50, 30, 400
 (3) 150, 180, 150
 (4) 300, 90, 90

(SSC Multi-Tasking Staff Exam. 17.03.2013, Ist Sitting)

12. A box contains 420 coins in rupee, 50 paise and 20 paise coins. The ratio of their rupee values being 13 : 11 : 7. The number of 50 paise coins is

- (1) 42 (2) 78
 (3) 66 (4) 132

(SSC Multi-Tasking Staff Exam. 24.03.2013, Ist Sitting)

13. A box contains ₹ 56 in the form of coins of one rupee, 50 paise and 25 paise. The number of 50 paise coins is double the number of 25 paise coins and four times the number of one rupee coins. How many 50 paise coins are there in the box?

- (1) 52 (2) 64
 (3) 32 (4) 16

(SSC FCI Assistant Grade-III Main Exam. 07.04.2013)

14. The salaries of A, B and C are in the ratio 1 : 3 : 4. If the salaries are increased by 5%, 10% and 15% respectively, then the increased salaries will be in the ratio

- (1) 20 : 66 : 95 (2) 21 : 66 : 95
 (3) 21 : 66 : 92 (4) 19 : 66 : 92

(SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting)

15. Three persons A, B, C whose salaries together amount to ₹ 72000 spend 80, 85 and 75 percent of their salaries respectively. If their savings are in the ratio 8 : 9 : 20, then A's salary is

- (1) ₹ 20,000 (2) ₹ 16,000
 (3) ₹ 22,000 (4) ₹ 18,000

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone))

16. A box contains 280 coins of one-rupee, 50-paise and 25-paise. The values of each kind of the coins are in the ratio of 8 : 4 : 3. Then the number of 50-paise coins is

- (1) 70 (2) 60
 (3) 80 (4) 90

(SSC CHSL DEO Exam. 16.11.2014
 (Ist Sitting))

TYPE-XI

1. By mistake, instead of dividing ₹ 117 among A, B and C in the

ratio $\frac{1}{2} : \frac{1}{3} : \frac{1}{4}$ it was divided in the ratio of 2 : 3 : 4. Who gains the most and by how much?

- (1) A, ₹ 28 (2) B, ₹ 3
 (3) C, ₹ 20 (4) C, ₹ 25

(SSC CGL Prelim Exam. 04.07.1999
 (First Sitting))

2. If a sum of money is to be divided among A, B, C such that A's share is equal to twice B's share and B's share is 4 times C's share, then their shares are in the ratio:

- (1) 1 : 2 : 4 (2) 1 : 4 : 1
 (3) 8 : 4 : 1 (4) 2 : 4 : 1

(SSC CGL Prelim Exam. 27.02.2000
 (Second Sitting))

3. Divide ₹ 7,500 among A, B and C such that A's share to B's share is in ratio 5 : 2 and B's share to C's share is in the ratio 7 : 13. How much will B receive?

- (1) ₹ 1,400 (2) ₹ 3,500
 (3) ₹ 2,600 (4) ₹ 7,000

(SSC CGL Prelim Exam. 24.02.2002
 (Second Sitting))

4. A sum of ₹ 1240 is distributed among A, B and C such that the ratio of amount received by A and B is 6 : 5 and that of B and C is 10 : 9 respectively. Find the share of C.

- (1) ₹ 480 (2) ₹ 360
 (3) ₹ 400 (4) ₹ 630

(SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone))

5. ₹ 3400 is divided among A, B, C, D in such a way that the share of A and B, B and C, C and D may be as 2 : 3, 4 : 3 and 2 : 3 respectively. The sum of shares of B and D is

- (1) ₹ 2040 (2) ₹ 1680
 (3) ₹ 2000 (4) ₹ 1720

(SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting))

6. ₹ 750 are divided among A, B and C in such a manner that A : B is 5 : 2 and B : C is 7 : 13. What is A's share ?

- (1) ₹ 350 (2) ₹ 260
 (3) ₹ 140 (4) ₹ 250

(SSC CGL Prelim Exam. 08.02.2004
 (First Sitting))

RATIO AND PROPORTION

7. ₹ 68000 is divided among A, B

and C in the ratio of $\frac{1}{2} : \frac{1}{4} : \frac{5}{16}$.

The difference of the greatest and the smallest part is :

- (1) ₹ 6000 (2) ₹ 14440
 (3) ₹ 9200 (4) ₹ 16000

(SSC CGL Prelim Exam. 13.11.2005
 (First Sitting)

8. ₹ 6,400 are divided among three workers in the ratio

$\frac{3}{5} : 2 : \frac{5}{3}$. The share (in rupees)

of the second worker is

- (1) 3,200 (2) 3,840
 (3) 2,560 (4) 3,000

(SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting)

9. Divide ₹ 1250 among A, B, C, so

that A gets $\frac{2}{9}$ of B's share and

C gets $\frac{3}{4}$ of A's share.

- (1) ₹ 200, ₹ 800, ₹ 250

- (2) ₹ 200, ₹ 900, ₹ 150

- (3) ₹ 150, ₹ 800, ₹ 300

- (4) ₹ 200, ₹ 900, ₹ 75

(SSC CGL Prelim Exam. 04.07.1999

(Second Sitting)

10. A sum of ₹ 9000 is to be distributed among A, B and C in the ratio 4 : 5 : 6. What will be the difference between A's and C's shares?

- (1) ₹ 600 (2) ₹ 1000

- (3) ₹ 900 (4) ₹ 1200

(SSC CGL Prelim Exam. 24.02.2002

(First Sitting)

11. A sum of ₹ 370 is to be divided among A, B and C such that

$$\frac{\text{A's Share}}{\text{B's Share}} = \frac{\text{B's Share}}{\text{C's Share}}$$

$= \frac{3}{4}$, A's share (in rupees) is

- (1) 240 (2) 120

- (3) 100 (4) 90

(SSC Section Officer (Commercial Audit) Exam. 16.11.2003)

12. An amount of money is to be distributed among P, Q and R in the ratio of 2 : 7 : 9. The total of P's and Q's share is equal to R's share. What is the difference between the shares of P and Q ?

- (1) ₹ 5000 (2) ₹ 7500

- (3) ₹ 9000

- (4) Information inadequate

(SSC CGL Prelim Exam. 08.02.2004

(Second Sitting)

13. ₹ 2010 are to be divided among

A, B and C in such a way that if A gets ₹ 5 then B must get Rs. 12 and if B gets ₹ 4 then C must get ₹ 5.50. The share of C will exceed that of B by

- (1) ₹ 620 (2) ₹ 430

- (3) ₹ 360 (4) ₹ 270

(SSC CPO S.I. Exam. 16.12.2007)

14. ₹ 600 are divided among A, B

and C so that ₹ 40 more than $\frac{2}{5}$

of A's share, ₹ 20 more than $\frac{2}{7}$

of B's share and ₹ 10 more than

$\frac{9}{17}$ of C's share are all equal. A's

share is

- (1) ₹ 180 (2) ₹ 160

- (3) ₹ 150 (4) ₹ 140

(SSC SAS Exam. 26.06.2010

(Paper-1)

15. A sum of ₹ 86, 700 is to be di-

vided among A, B and C in such a manner that for every rupee that A gets, B gets 90 paise and for every rupee that B gets, C gets 100 paise. B's share will be

- (1) ₹ 26, 010 (2) ₹ 27,000

- (3) ₹ 28,000 (4) ₹ 28, 090

(SSC Data Entry Operator

Exam. 31.08.2008)

16. A sum of ₹ 7,000 is divided

among A, B, C in such a way that the shares of A and B are in the ratio 2 : 3 and those of B and C are in the ratio 4 : 5. The share of B is

- (1) ₹ 2,400 (2) ₹ 3,000

- (3) ₹ 1,600 (4) ₹ 2,000

(SSC CHSL DEO & LDC Exam.

21.10.2012 (Ist Sitting)

17. ₹ 180 are to be divided among

66 persons (men and women). The ratio of the total amount of money received by men and women is 5 : 4. But the ratio of the money received by each man and woman is 3 : 2. The number of men is

- (1) 20 (2) 24

- (3) 30 (4) 36

18. ₹ 738 is divided among A, B, C

so that their shares are in the ratio of 2 : 3 : 4. B's share is

- (1) ₹ 328 (2) ₹ 246

- (3) ₹ 264 (4) ₹ 164

(SSC Multi-Tasking Staff Exam.

10.03.2013, Ist Sitting : Patna)

19. ₹ 1740 is divided among A, B, and C such that 0.5 of A = ₹ 0.6 of B = ₹ 0.75 of C. Then C will get

- (1) ₹ 580 (2) ₹ 696

- (3) ₹ 348 (4) ₹ 464

(SSC Multi-Tasking Staff

Exam. 17.03.2013, IInd Sitting)

20. A certain amount of money is divided among x, y and z. If x receives 25% more than y and y receives 25% less than z, then x : y : z is equal to

- (1) 14 : 12 : 13

- (2) 15 : 12 : 16

- (3) 10 : 9 : 12

- (4) 12 : 10 : 11

(SSC Multi-Tasking Staff

Exam. 17.03.2013, IInd Sitting)

21. A sum of ₹ 53 is divided among A, B and C in such a way that A gets ₹ 7 more than what B gets and B gets ₹ 8 more than what C gets. The ratio of their share is

- (1) 16 : 9 : 18 (2) 25 : 18 : 10

- (3) 18 : 25 : 10 (4) 15 : 8 : 30

(SSC Multi-Tasking Staff

Exam. 17.03.2013, Kolkata Region)

22. ₹ 700 is divided among A, B, C in such a way that the ratio of the amount of A and B is 2 : 3 and that of B and C is 4 : 5. Find the amount (in ₹) each received, in the order A, B, C.

- (1) 150, 250, 300

- (2) 160, 240, 300

- (3) 150, 250, 290

- (4) 150, 240, 310

(SSC Graduate Level Tier-I

Exam. 21.04.2013)

23. Divide ₹ 2,600 among A, B, C in the ratio $\frac{1}{2} : \frac{1}{3} : \frac{1}{4}$. Find the share of each.

- (1) ₹ 1,200, ₹ 600, ₹ 800

- (2) ₹ 1,200, ₹ 800, ₹ 600

- (3) ₹ 600, ₹ 800, ₹ 1,200

- (4) ₹ 800, ₹ 600, ₹ 1,200

(SSC Graduate Level Tier-I

Exam. 19.05.2013 Ist Sitting)

24. A sum of ₹ 300 is divided among P, Q and R in such a way that Q gets ₹ 30 more than P and R gets ₹ 60 more than Q. The ratio of their share is

- (1) 5 : 3 : 2 (2) 2 : 3 : 5

- (3) 3 : 2 : 5 (4) 2 : 5 : 3

(SSC Graduate Level Tier-I

Exam. 19.05.2013 Ist Sitting)

RATIO AND PROPORTION

25. ₹ 900 is divided among A, B, C; the division is such that $\frac{1}{2}$ of A's

money = $\frac{1}{3}$ of B's money = $\frac{1}{4}$ of C's money. Find the amount (in ₹) received by A, B, C.

- (1) 300, 400, 200
- (2) 350, 450, 100
- (3) 200, 300, 400
- (4) 400, 150, 350

(SSC Graduate Level Tier-II Exam. 29.09.2013)

26. If ₹ 126.50 is divided among A, B and C in the ratio of 2 : 5 : 4, the share of B exceeds that of A by

- (1) ₹ 36.50 (2) ₹ 35.50
- (3) ₹ 34.50 (4) ₹ 33.50

(SSC Graduate Level Tier-II Exam. 29.09.2013)

27. A sum of ₹ 76 is divided among A, B and C in such a way that A gets ₹ 7 more than that what B gets and B gets ₹ 6 more than what C gets. The ratio of their shares is

- (1) 19 : 24 : 33 (2) 32 : 25 : 19
- (3) 32 : 24 : 20 (4) 19 : 25 : 33

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

28. ₹ 3,000 is divided between A, B

and C, so that A receives $\frac{1}{3}$ as much as B and C together receive

and B receives $\frac{2}{3}$ as much as A and C together receive. Then the share of C is

- (1) ₹ 600 (2) ₹ 525
- (3) ₹ 1,625 (4) ₹ 1,050

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IIInd Sitting))

29. ₹ 555 was to be divided among A, B and C in the ratio of

$\frac{1}{4} : \frac{1}{5} : \frac{1}{6}$. But by mistake it was divided in the ratio of 4 : 5 : 6. The amount in excess received by C was

- (1) ₹ 72 (2) ₹ 75
- (3) ₹ 22 (4) ₹ 52

(SSC CGL Tier-I Exam. 26.10.2014)

30. A man divides his property so that his son's share to his wife's and wife's share to his daughter's are both as in the ratio 3 : 1. If the daughter gets ₹ 10,000 less than son, the value (in rupees) of the whole property is

- (1) ₹ 16,250 (2) ₹ 16,000
- (3) ₹ 18,250 (4) ₹ 17,000

(SSC CGL Tier-II Exam. 21.09.2014)

31. A sum of ₹ 730 was divided among A, B and C in such a way that if A gets ₹ 3, then B gets ₹ 4 and if B gets ₹ 3.50 then C gets ₹ 3. The share of B exceeds that of C by

- (1) ₹ 30 (2) ₹ 40
- (3) ₹ 70 (4) ₹ 210

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014 TF No. 999 KPO)

32. A sum of money is divided among A, B, C and D in the proportion of 7 : 6 : 3 : 5. If B gets ₹ 270 more than C, then share of D is

- (1) ₹ 250 (2) ₹ 350
- (3) ₹ 450 (4) ₹ 455

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting TF No. 545 QP 6)

33. In a partnership business, B's capital was half of A's. If after 8 months, B withdrew half of his capital and after 2 months more

A withdrew $\frac{1}{4}$ th of his capital, then the profit ratio of A and B will be

- (1) 5 : 2 (2) 10 : 23
- (3) 2 : 5 (4) 23 : 10

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

34. A and B invest in the ratio 3 : 5. After 6 months, C joins the business investing an amount equal to B's. At the end of the year what will be the ratio of their profits?

- (1) 6 : 10 : 5 (2) 3 : 5 : 2
- (3) 8 : 10 : 5 (4) 3 : 5 : 5

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

35. A and B entered into a partnership investing Rs 16000 and Rs. 12000 respectively. After 3 months A withdrew Rs. 5000 while B invested Rs. 5000 more. After 3 more months C joins the business with a capital of Rs 21000. The share of B exceeds that of C, out of a total profit of Rs. 26400 after one year by

- (1) Rs. 2400 (2) Rs. 1200
- (3) Rs. 3600 (4) Rs. 4800

(SSC CGL Tier-I Exam. 09.08.2015 IIInd Sitting) TF No. 4239378)

36. In a business A and C invested amounts in the ratio 2 : 1, whereas A and B invested amounts in the ratio 3 : 2. If their annual profit be Rs. 157300, then B's share in the profit is

- (1) Rs. 24200 (2) Rs. 48000
- (3) Rs. 36300 (4) Rs. 48400

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 01.11.2015, IIInd Sitting)

37. An amount of Rs. 380 is to be divided among 5 men, 8 boys and 4 women such that the ratio of amount received by the three is in the ratio of 8 : 4 : 7. What is the share of a woman?

- (1) Rs. 35 (2) Rs. 36.5
- (3) Rs. 40 (4) Rs. 32.8

(SSC CPO SI, ASI Online Exam. 05.06.2016) (IIInd Sitting)

38. A certain sum of money was divided between A, B and C in the ratio 5 : 6 : 9. If A received Rs. 450, the sum divided was

- (1) Rs. 2000 (2) Rs. 1800
- (3) Rs. 2250 (4) Rs. 1000

(SSC CGL Tier-I (CBE) Exam. 09.09.2016) (Ist Sitting)

39. Rs. 490 is divided among A, B and C such that A's share is half that of B's and thrice that of C's. What is C's share?

- (1) Rs. 49 (2) Rs. 147
- (3) Rs. 294 (4) Rs. 245

(SSC CGL Tier-I (CBE) Exam. 27.08.2016) (Ist Sitting)

40. A profit of Rs. 960 is divided between A and B in the ratio $\frac{1}{3} : \frac{1}{2}$.

The difference of their profits is :

- (1) Rs. 120 (2) Rs. 160
- (3) Rs. 180 (4) Rs. 240

(SSC CGL Tier-I (CBE) Exam. 29.08.2016) (IIInd Sitting)

41. Three brothers divided Rs. 1620 among themselves in such a way that the share of second is equal

to $\frac{5}{13}$ of the share of other two, combined. What is the share of the second one?

- (1) Rs. 1170 (2) Rs. 450
- (3) Rs. 540 (4) Rs. 500

(SSC CGL Tier-I (CBE) Exam. 31.08.2016) (IIInd Sitting)

42. If a certain amount is fully distributed among A, B and C in such a way that A receives $\frac{1}{2}$ of the

amount, B receives $\frac{1}{3}$ of the

amount and C receives Rs. 1200, then how much money would A receive?

- (1) Rs. 4000 (2) Rs. 1600
- (3) Rs. 3600 (4) Rs. 1800

(SSC CGL Tier-I (CBE) Exam. 01.09.2016) (IIInd Sitting)

RATIO AND PROPORTION

43. A, B and C together start a business. Three times the investment of A equals four times the investment of B and the capital of B is twice that of C. The ratio of share of each in the profit is

- (1) 8 : 3 : 6 (2) 3 : 8 : 6

(3) 3 : 6 : 8 (4) 8 : 6 : 3
 (SSC CGL Tier-II (CBE)

Exam. 30.11.2016)

44. A sum of Rs. 770 has been divided among A, B and C in such

a way that A receives $\frac{2}{9}$ th of what B and C together receive.

Then A's share is

- (1) Rs. 140 (2) Rs. 154
 (3) Rs. 165 (4) Rs. 170
 (SSC CGL Tier-I (CBE)

Exam. 28.08.2016 (Ist Sitting)

45. A sum of Rs. 730 was divided among A, B and C in such a way that if A gets Rs. 3 then B gets Rs. 4 and if B gets Rs. 3.50 then C gets Rs. 3. The share of B exceeds that of C by

- (1) Rs. 30 (2) Rs. 40
 (3) Rs. 70 (4) Rs. 210

(SSC CGL Tier-I (CBE)

Exam. 09.09.2016 (IIrd Sitting)

46. A and B start an enterprise together, with A as active partner. A invests Rs. 4000 and Rs. 2000 more after 8 months. B invests Rs. 5000 and withdraws Rs. 2000 after 9 months. Being the active partner, A takes Rs. 100 per month as allowance, from the profit. What is the share of B if the profit for the year is Rs. 6700?

- (1) Rs. 3350 (2) Rs. 3250
 (3) Rs. 2700 (4) Rs. 2800

(SSC CGL Tier-II (CBE)

Exam. 12.01.2017)

47. A sum of Rs. 15525 is divided among Sunil, Anil and Jamil such that if Rs. 22, Rs. 35 and Rs. 48 be diminished from their shares respectively, their remaining sums shall be in the ratio 7 : 10 : 13. What would have been the ratio of their sums if Rs. 16, Rs. 77 and Rs. 37 respectively were added to their original shares?

- (1) 9 : 13 : 17 (2) 18 : 26 : 35
 (3) 36 : 52 : 67 (4) None of these
 (SSC CGL Tier-II (CBE)

Exam. 12.01.2017)

48. ₹ 1980 is divided among A, B and C so that half of A's part, one-third of B's part and one-sixth of C's part are equal. Then B's part is

- (1) ₹ 540 (2) ₹ 660
 (3) ₹ 1,080 (4) ₹ 360

(SSC Multi-Tasking Staff Exam. 30.04.2017)

49. A, B and C invested ₹ 13,000, ₹ 17,000 and ₹ 5,000 respectively in a business. At the end of the year, they earn a profit of ₹ 1,400. B's share of profit is

- (1) ₹ 680 (2) ₹ 410

(3) ₹ 630 (4) ₹ 720

(SSC Multi-Tasking Staff Exam. 30.04.2017)

50. ₹ 600 is divided among A, B and

C. ₹ 40 more than $\frac{2}{5}$ th of A's

share, ₹ 20 more than $\frac{2}{7}$ th of

B's share and ₹ 10 more than $\frac{9}{17}$ th of C's share are all equal.

Then A's share is

- (1) ₹ 150 (2) ₹ 170
 (3) ₹ 280 (4) ₹ 140

(SSC Multi-Tasking Staff Exam. 30.04.2017)

TYPE-XII

1. How many sides does a regular polygon have whose interior and exterior angles are in the ratio 2 : 1?

- (1) 3 (2) 5
 (3) 6 (4) 12

(SSC CGL Prelim Exam. 27.02.2000 (First Sitting))

2. The smallest integer, which subtracted from both the terms of 6 : 7 gives a ratio less than 16 : 21, is :

- (1) 5 (2) 4
 (3) 3 (4) 2

(SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))

3. Two numbers are in the ratio 17 : 45. One-third of the smaller is

less than $\frac{1}{5}$ of the bigger by 15.

The smaller number is

- (1) $25\frac{1}{2}$ (2) $67\frac{1}{2}$

- (3) $76\frac{1}{2}$ (4) $86\frac{1}{2}$

(SSC CPO S.I. Exam. 12.01.2003)

4. Tea worth ₹ 126 per kg and ₹ 135 per kg are mixed with a third variety in the ratio 1 : 1 : 2. If the mixture is worth ₹ 153 per kg, the price of the third variety per kg will be

- (1) ₹ 175.5 (2) ₹ 180.0

- (3) ₹ 169.5 (4) ₹ 170.0

(SSC CHSL DEO & LDC Exam. 21.10.2012 (1st Sitting))

5. Same quantity of rice is required for each member of a family of 15 members. On a particular day, due to the absence of some members of the family, the consumption of rice was reduced in the ratio 5 : 3. The number of members absent on that day was

- (1) 3 (2) 6
 (3) 8 (4) 9

(SSC CGL Prelim Exam. 13.11.2005 (Second Sitting))

6. Instead of dividing ₹ 117 among P, Q, R in the ratio

$\frac{1}{2} : \frac{1}{3} : \frac{1}{4}$, by mistake it was divided in the ratio 2 : 3 : 4. Who gained in the transaction?

- (1) Only P (2) Only Q
 (3) Only R (4) Both Q and R

(SSC CGL Prelim Exam. 13.11.2005 (Second Sitting))

7. The ratio of the first and second class train fares between two stations is 3 : 1 and that of the numbers of passengers travelling between the two stations by first and second classes is 1 : 50. If on a particular day, ₹ 1,325 are collected from passengers travelling between the two stations, then the amount collected from the second class passengers is

- (1) ₹ 1,250 (2) ₹ 1,000

- (3) ₹ 850 (4) ₹ 750

(SSC CGL Prelim Exam. 13.11.2005 (Second Sitting))

8. In an innings of a cricket match, three players A, B and C scored a total of 361 runs. If the ratio of the number of runs scored by A to that scored by B and also number of runs scored by B to that scored by C be 3 : 2, the number of runs scored by A was

- (1) 171 (2) 181

- (3) 185 (4) 161

(SSC CGL Prelim Exam. 04.02.2007 (First Sitting))

9. In an examination, the number of those who passed and the number of those who failed were in the ratio 25 : 4. If five more had appeared and the number of failures was 2 less than earlier, the ratio of passers to failures would have been 22 : 3. The total number who appeared at the examination is

- (1) 145 (2) 150

- (3) 155 (4) 180

(SSC CGL Prelim Exam. 04.02.2007 (Second Sitting))

RATIO AND PROPORTION

- 10.** In a cricket match the total number of runs scored by Sachin, Vinod and Sourav is 285. The ratio of the number of runs scored by Sachin and Sourav is 3 : 2 and that of the runs scored by Sourav and Vinod is also 3 : 2. The number of runs scored by Sachin in that match is
 (1) 135 (2) 90
 (3) 60 (4) 140
 (SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (Second Sitting))
- 11.** The total marks obtained by Arun in English and Mathematics are 170. If the difference between his marks in these two subjects is 10, then the ratio of his marks in these subjects is
 (1) 7 : 8 (2) 8 : 7
 (3) 9 : 8 (4) 9 : 7
 (SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))
- 12.** The weight of Mr. Gupta and Mrs. Gupta are in the ratio 7 : 8 and their total weight is 120 kg. After taking a dieting course Mr. Gupta reduces by 6 kg and the ratio between their weights changes to 5 : 6. So Mrs. Gupta has reduced by
 (1) 2 kg (2) 4 kg
 (3) 3 kg (4) 5 kg
 (SSC CPO S.I. Exam. 06.09.2009)
- 13.** The ratio of the numbers of boys and girls in a school was 5 : 3. Some new boys and girls were admitted to the school, in the ratio 5 : 7. At this, the total number of students in the school became 1200, and the ratio of boys to girls changed to 7 : 5. The number of students in the school before new admissions was
 (1) 700 (2) 720
 (3) 900 (4) 960
 (SSC SAS Exam. 26.06.2010 (Paper-1))
- 14.** The price of a refrigerator and a television set are in the ratio 5 : 3. If the refrigerator costs ₹ 5500 more than the television set, then the price of the refrigerator is:
 (1) ₹ 27500 (2) ₹ 8250
 (3) ₹ 13750 (4) ₹ 16500
 (SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting))
- 15.** A man leaves ₹ 8,600 to be divided among 5 sons, 4 daughters and 2 nephews. If each daughter receives four times as much as each nephew and each son receives five times as much as each nephew, how much does each daughter receive?
 (1) ₹ 100 (2) ₹ 600
 (3) ₹ 800 (4) ₹ 1,000
 (SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))
- 16.** A and B together have ₹ 158. C has ₹ 101 less than what A and B together have, and B has ₹ 23 more than C. The amount of A is :
 (1) ₹ 80 (2) ₹ 78
 (3) ₹ 57 (4) ₹ 88
 (SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))
- 17.** A sum of ₹ 340.68 is distributed among L, M and N such that L gets ₹ 5.72 more than N and M gets Rs. 2.24 more than L. N gets
 (1) ₹ 109 (2) ₹ 110.90
 (3) ₹ 113.56 (4) ₹ 114.72
 (SSC CGL Prelim Exam. 24.02.2002 (Middle Zone))
- 18.** The ratio of the first and second class fares between two railway stations is 4 : 1 and that of the number of passengers travelling by first and second classes is 1 : 40. If on a day ₹ 1,100 are collected as total fare, the amount collected from the first class passengers is
 (1) ₹ 315 (2) ₹ 275
 (3) ₹ 137.50 (4) ₹ 100
 (SSC Data Entry Operator Exam. 02.08.2009)
- 19.** Three persons walk from place A to place B. Their speeds are in the ratio 4 : 3 : 5. The ratio of the time taken by them to reach B will be :
 (1) 10 : 15 : 13 (2) 2 : 3 : 4
 (3) 15 : 20 : 12 (4) 16 : 18 : 15
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (Ist Sitting))
- 20.** From each of the two given unequal numbers, half the smaller number is subtracted. Then, of the resulting numbers, the larger one is five times than the smaller one. Then the ratio of the larger to smaller one is
 (1) 2 : 1 (2) 3 : 2
 (3) 3 : 1 (4) 1 : 4
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (Delhi Zone)))
- 21.** A person ordered 4 shirts of brand A and some shirts of brand B. The price of one shirt of brand A was twice that of brand B. When the order was executed, it was found that the numbers of the two brands has been interchanged. This increased the bill by 40%. The ratio of the number of brand A shirts to that of brand B shirts in the original order was
 (1) 1 : 2 (2) 1 : 3
 (3) 1 : 4 (4) 1 : 5
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (Delhi Zone)))
- 22.** The ratio of successful and unsuccessful examinees in an examination in a school is 6 : 1. The ratio would have been 9 : 1 if 6 more examinees had been successful. The total number of examinees is
 (1) 140 (2) 120
 (3) 200 (4) 160
 (SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (IInd Sitting))
- 23.** A box filled with paper bundles weighs 36 kg. If the weight of the box and paper bundles respectively are in the ratio of 3 : 22, then the weight of the papers (in grams) is
 (1) 30680 grams (2) 30710 grams
 (3) 31500 grams (4) 31680 grams
 (SSC Assistant Grade-III Exam. 11.11.2012 (IInd Sitting))
- 24.** Two numbers are such that the square of one is 224 less than 8 times the square of the other. If the numbers are in the ratio of 3 : 4, then their values are
 (1) 12, 16 (2) 6, 8
 (3) 9, 12 (4) 12, 9
 (SSC Assistant Grade-III Exam. 11.11.2012 (IInd Sitting))
- 25.** In a school, 10% of number of girls is equal to $\frac{1}{20}$ th of number of boys. Ratio between the number of boys to number of girls is
 (1) 1 : 2 (2) 2 : 1
 (3) 1 : 4 (4) 4 : 1
 (SSC Graduate Level Tier-I Exam. 19.05.2013)
- 26.** A policeman starts to chase a thief. When the thief goes 10 steps the policeman moves 8 steps. 5 steps of the policeman is equal to 7 steps of the thief. The ratio of the speeds of the policeman and the thief is
 (1) 25 : 28 (2) 25 : 26
 (3) 28 : 25 (4) 56 : 25
 (SSC CGL Tier-I Exam. 19.10.2014 (Ist Sitting))

RATIO AND PROPORTION

- 27.** A got twice as many marks in English as in Science. His total marks in English, Science and Mathematics is 180. If the ratio of his marks in English and Mathematics is 2 : 3, what is his marks in Science ?
 (1) 20 (2) 60
 (3) 30 (4) 40
 (SSC CHSL DEO & LDC Exam. 16.11.2014)
- 28.** Tom is chasing Jerry. In the same interval of time Tom jumps 8 times while Jerry jumps 6 times. But the distance covered by Tom in 7 jumps is equal to the distance covered by Jerry in 5 jumps. The ratio of speed of Tom and Jerry is
 (1) 48 : 35 (2) 28 : 15
 (3) 24 : 20 (4) 20 : 21
 (SSC CHSL DEO & LDC Exam. 16.11.2014)
- 29.** In a library the ratio of story books and other books is 7 : 2 and there are 1512 story books. Due the collection of some more story books the said ratio becomes 15 : 4. The number of story books collected is
 (1) 108 (2) 100
 (3) 205 (4) 97
 (SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)
- 30.** In a 500 metre race, the ratio of speeds of two runners P and Q is 3 : 5. P has a start of 200 metre then the distance between P and Q at the finish of the race is
 (1) P wins by 100 metre
 (2) Both reach at the same time
 (3) Q wins by 100 metre
 (4) Q wins by 50 metre
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015 IIInd Sitting)
- 31.** In a school there were 1554 students and the ratio of the number of the boys and girls was 4 : 3. After a few days, 30 girls joined the school but a few boys left; as a result the ratio of the boys and girls became 7 : 6. The number of boys who left the school is
 (1) 76 (2) 74
 (3) 84 (4) 86
 (SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)
- 32.** The ratio of the radii of two cylinders is 2 : 3, and the ratio of their heights is 5 : 3. The ratio of their volumes will be
 (1) 9 : 4 (2) 20 : 27
 (3) 4 : 9 (4) 27 : 20
 (SSC CPO Exam. 06.06.2016)
 (Ist Sitting)
- 33.** In a cricket match there are three types of tickets say A, B and C each costing Rs. 1000, Rs. 500 and Rs. 200 respectively. The ratio of the tickets sold of categories A, B and C is 3 : 2 : 5. If the total collection from selling the tickets is Rs 2.5 crore, find the total number of tickets sold?
 (1) 5000 (2) 4800
 (3) 50000 (4) 52000
 (SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016)
 (Ist Sitting)
- 34.** An office opens at 10 AM and closes at 5 PM. The lunch interval is for 30 minutes. The ratio of lunch interval to the total period of office hours is
 (1) 1 : 7 (2) 1 : 14
 (3) 7 : 1 (4) 14 : 1
 (SSC CGL Tier-I (CBE) Exam. 03.09.2016) (IIInd Sitting)
- 35.** The railway fares of air conditioned sleeper and ordinary sleeper class are in the ratio 4 : 1. The number of passengers travelled by air conditioned sleeper and ordinary sleeper classes were in the ratio 3 : 25. If the total collection was Rs. 37,000, how much did air conditioner sleeper passengers pay ?
 (1) Rs. 15,000 (2) Rs. 10,000
 (3) Rs. 12,000 (4) Rs. 16,000
 (SSC CGL Tier-I (CBE) Exam. 02.09.2016) (IIInd Sitting)
- 36.** The ratio of the amount of work done by $(x - 1)$ labours in $(x + 1)$ days and that done by $(x + 1)$ labours in $(x + 2)$ days is 5 : 6. Then the value of x is
 (1) 16 (2) 15
 (3) 17 (4) 14
 (SSC CGL Tier-II (CBE) Exam. 30.11.2016)
- 37.** If the ratio of cost price and selling price of an article is 4 : 5, then the percentage of profit will be
 (1) 20 (2) 0.1
 (3) 10 (4) 25
 (SSC CGL Tier-I (CBE) Exam. 03.09.2016) (IIInd Sitting)
- 38.** A shopkeeper earns a profit of 15% after selling a book at 20% discount on the printed price. The ratio of the cost price and printed price of the book is :
 (1) 20 : 23 (2) 23 : 20
 (3) 16 : 23 (4) 23 : 16
 (SSC CGL Tier-I (CBE) Exam. 04.09.2016) (IIIrd Sitting)
- 39.** The rates of working of A and B are in the ratio of 2 : 3. The number of days taken by each of them to finish the work is in the ratio :
 (1) 2 : 3 (2) 4 : 9
 (3) 3 : 2 (4) 9 : 4
 (SSC CGL Tier-I (CBE) Exam. 10.09.2016) (IIInd Sitting)
- 40.** In an army selection process, the ratio of selected to unselected candidates was 3 : 1. If 80 less had applied and 40 less selected, the ratio of selected to unselected candidates would have been 4 : 1. How many candidates had applied for the process?
 (1) 480 (2) 960
 (3) 240 (4) 1440
 (SSC CHSL (10+2) Tier-I (CBE) Exam. 15.01.2017) (IIInd Sitting)
- 41.** In an army selection process, the ratio of selected to unselected candidates was 4:1. If 90 less had applied and 20 less were selected, the ratio of selected to unselected candidates would have been 5:1. How many candidates had applied for the process ?
 (1) 1650 (2) 3300
 (3) 825 (4) 4950
 (SSC CHSL (10+2) Tier-I (CBE) Exam. 16.01.2017) (IIInd Sitting)

■ ■ ■ SHORT ANSWERS ■ ■ ■

TYPE-I

1. (1)	2. (3)	3. (3)	4. (4)
5. (1)	6. (3)	7. (1)	8. (3)
9. (4)	10. (2)	11. (4)	12. (1)
13. (1)	14. (2)	15. (3)	16. (2)
17. (3)	18. (3)	19. (4)	20. (1)
21. (3)	22. (2)	23. (2)	24. (2)
25. (3)	26. (3)	27. (3)	28. (4)
29. (4)	30. (4)	31. (1)	32. (1)
33. (2)	34. (4)	35. (1)	36. (3)
37. (1)	38. (2)	39. (3)	40. (2)

7

PERCENTAGE

Importance : For percentage it may be mentioned that in every chapter of arithmetic, percentage based questions are asked, hence practice and expertise is essential. Moreover by solving percentage questions we get idea of many other basic concepts.

Scope of questions : Percentage, based questions are mainly arithmetic and from sale, purchase, Profit & Loss, Discount, Interest, Number system, Alligation, Reduction in cost, Population based chapters.

Way to success : Deep study of percentage is required with complete accuracy and rechecking habit. Rechecking of answers is must for this chapter.

IMPORTANT POINTS

Percentage : Percentage refers to "Per hundred" i.e, 8% means 8 out of hundred or $\frac{8}{100}$. Percentage is denoted by '%'.
a represented as the per cent of b as, $\frac{a}{b} \times 100$

$$b\% \text{ of } a = a \times \frac{b}{100}$$

To Convert a fraction/Decimal into percentage multiply it by 100.

$$\text{As } 0.35 = \frac{35}{100} = \frac{35}{100} \times 100\% = 35\%$$

To convert a per cent into fraction divide it by 100

$$\text{As } 12.5\% = \frac{12.5}{100} = \frac{1}{8}$$

Rule 1 : If x is reduced to x_0 , then,

$$\text{Reduce \%} = \frac{x - x_0}{x} \times 100$$

Rule 2 : If x is increased to x_1 , then,

$$\text{Increment \%} = \frac{x_1 - x}{x} \times 100$$

Rule 3 : If an amount is increased by a% and then it is reduced by a% again, then percentage change will be a

$$\text{decrease of } \frac{a^2}{100}\%$$

Rule 4 : If a number is increased by a% and then it is decreased by b%, then resultant change in percentage will

$$\text{be } \left(a - b - \frac{ab}{100} \right)\%$$

(Negative for decrease, Positive for increase)

Rule 5 : If a number is decreased by a% and then it is increased by b%, then net increase or decrease per cent is

$$\left(-a + b - \frac{ab}{100} \right)\% \quad \begin{array}{l} \text{(Negative sign for decrease)} \\ \text{(Positive sign for increase)} \end{array}$$

Rule 6 : If a number is first decreased by a% and then by b%, then net decrease per cent is $\left(-a - b + \frac{ab}{100} \right)\%$ (-ve sign for decrease)

Rule 7 : If a number is first increased by a% and then again increased by b%, then total increase per cent is $\left(a + b + \frac{ab}{100} \right)\%$

Rule 8 : If the cost of an article is increased by A%, then how much to decrease the consumption of article, so that expenditure remains same is given by

OR

If the income of a man is A% more than another man, then income of another man is less in comparison to the 1st man by

$$\left(\frac{A}{(100+A)} \times 100 \right)\%$$

Rule 9 : If the cost of an article is decreased by A%, then the increase in consumption of article to maintain the expenditure will be?

OR

If 'x' is A% less than 'y', then y is more than 'x' by

$$\text{Required \%} = \left(\frac{A}{(100-A)} \times 100 \right)\% \text{ (increase)}$$

Rule 10 : If the length of a rectangle is increased by a% and breadth is increased by b%, then the area of rectangle will increase by

$$\text{Required Increase} = \left(a + b + \frac{ab}{100} \right)\%$$

Note: If a side is increased, take positive sign and if it is decreased, take negative sign. It is applied for two dimensional figures.

Rule 11 : If the side of a square is increased by a%, then, its area will increase by

$$\left(2a + \frac{a^2}{100} \right)\% = \left(a + a + \frac{a \cdot a}{100} \right)\%$$

The above formula is also implemented for circle where radius is used as side. This formula is used for two dimensional geometrical figures having both length and breadth equal.

Rule 12 : If the side of a square is decreased by a%, then the area of square will decrease by

$$\therefore \text{Decrease} = \left(-2a + \frac{a^2}{100} \right)\%$$

This formula is also applicable for circles, where decrease % of radius is given.

Rule 13 : If the length, breadth and height of a cuboid are increased by a%, b% and c% respectively, then, Increase% in volume

PERCENTAGE

$$= \left[a + b + c + \frac{ab + bc + ca}{100} + \frac{abc}{(100)^2} \right] \%$$

Rule 14 : If every side of cube is increased by a%, then increase % in volume

$$= \left(3a + \frac{3a^2}{100} + \frac{a^3}{(100)^2} \right) \%$$

This formula will also be used in calculating increase in volume of sphere, where increase in radius is given.

Rule 15 : If a% of a certain sum is taken by 1st man and b% of remaining sum is taken by 2nd man and finally c% of remaining sum is taken by 3rd man, then if 'x' rupee is the remaining amount then,

$$\text{Initial amount} = \frac{100 \times 100 \times 100 \times x}{(100-a)(100-b)(100-c)}$$

Rule 16 : If an amount is increased by a% and then again increased by b% and finally increased by c%, So, that resultant amount is 'x' rupees, then,

$$\text{Initial amount} = \frac{100 \times 100 \times 100 \times x}{(100+a)(100+b)(100+c)}$$

Rule 17 : If the population/cost of a certain town/article, is P and annual increment rate is r%, then

$$(i) \text{ After } 't' \text{ years population/cost} = P \left(1 + \frac{r}{100} \right)^t$$

$$(ii) \text{ Before } 't' \text{ years population/cost} = \frac{P}{\left(1 + \frac{r}{100} \right)^t}$$

Rule 18 : If the population/cost of a town/article is P and it decreases/reduces at the rate of r% annually, then,

$$(i) \text{ After } 't' \text{ years population/cost} = P \left(1 - \frac{r}{100} \right)^t$$

$$(ii) \text{ Before } 't' \text{ years population/cost} = \frac{P}{\left(1 - \frac{r}{100} \right)^t}$$

Rule 19 : On increasing/decreasing the cost of a certain article by x%, a person can buy 'a' kg article less/more in 'y' rupees, then

$$\text{Increased/decreased cost of the article} = \left(\frac{xy}{100 \times a} \right)$$

And initial cost

$$= \frac{xy}{(100 \pm x)a} \quad [\text{Negative sign when decreasing and positive sign when increasing}]$$

Rule 20 : If a person saves 'R' rupees after spending x% on food, y% on cloth and z% on entertainment of his income then,

$$\text{Monthly income} = \frac{100}{100 - (x + y + z)} \times R$$

Rule 21 : The amount of acid/milk is x% in 'M' litre mixture. How much water should be mixed in it so that percentage amount of acid/milk would be y%?

$$\text{Amount of water} = \frac{M(x-y)}{y}$$

Rule 22 : An examinee scored m% marks in an exam, and failed by p marks. In the same examination another examinee obtained n% marks and passed with q more marks than minimum, then

$$\therefore \text{Maximum marks} = \frac{100}{(n-m)} \times (p+q)$$

Rule 23 : In an examination, a% candidates failed in Maths and b% candidates failed in English. If c% candidate failed in both the subjects, then,

$$(i) \text{ Passed candidates in both the subjects} = 100 - (a + b - c)\%$$

$$(ii) \text{ Percentage of candidates who failed in either subject} = (a + b - c)\%$$

Rule 24 : In a certain examination passing marks is a%. If any candidate obtains 'b' marks and fails by 'c' marks, then,

$$\text{Total marks} = \frac{100(b+c)}{a}$$

Rule 25 : In a certain examination, 'B' boys and 'G' girls participated. b% of boys and g% of girls passed the examination, then,

$$\text{Percentage of passed students of the total students} =$$

$$\left(\frac{B.b + G.g}{B+G} \right) \%$$

Rule 26 : If a candidate got A% votes in a poll and he won or defeated by 'x' votes, then, what was the total no. of votes which was casted in poll ?

$$\therefore \text{Total no. of votes} = \frac{50 \times x}{(50-A)}$$

Rule 27 : If a number 'a' is increased or decreased by

$$b\%, \text{ then the new number will be } \left(\frac{100 \pm b}{100} \right) \times a$$

Rule 28 : If the present population of a town is P and the population increases or decreases at rate of R₁%, R₂% and R₃% in first, second and third year respectively.

then the population of town after 3 years =

$$P \left(1 \pm \frac{R_1}{100} \right) \left(1 \pm \frac{R_2}{100} \right) \left(1 \pm \frac{R_3}{100} \right)$$

'+' is used when population increases

'-' is used when population decreases.

The above formula may be extended for n number of years.

\Rightarrow Population after 'n' years

$$= P \left(1 \pm \frac{R_1}{100} \right) \left(1 \pm \frac{R_2}{100} \right) \dots \left(1 \pm \frac{R_n}{100} \right)$$

Rule 29 : If two numbers are respectively x% and y% less than the third number, first number as a percentage of

$$\text{second is } \frac{100-x}{100-y} \times 100\%$$

Rule 30 : If two numbers are respectively x% and y% more than a third number the first as percentage of second is $\frac{100+x}{100+y} \times 100\%$

Rule 31 : If the price of an article is reduced by a% and buyer gets c kg more for some Rs. b, the new

$$\text{price per kg of article} = \frac{ab}{100 \times c}$$



QUESTIONS ASKED IN PREVIOUS SSC EXAMS

TYPE-I

- 1.** If 80% of A = 50% of B and B = x% of A, then the value of x is :
 (1) 400 (2) 300
 (3) 160 (4) 150
 (SSC CGL Prelim Exam. 04.07.1999
 (First Sitting)
- 2.** If x is 80% of y, what percent of y is x?
 (1) 75% (2) 80%
 (3) 100% (4) 125%
 (SSC CGL Prelim Exam. 04.07.1999
 (First Sitting)
- 3.** If 8% of x is the same as 4% of y, then 20% of x is the same as:
 (1) 10% of y (2) 16% of y
 (3) 80% of y (4) 50% of y
 (SSC CGL Prelim Exam. 04.07.1999
 (Second Sitting)
- 4.** A student multiplied a number by $\frac{3}{5}$ instead of $\frac{5}{3}$. What is the percentage error in the calculation?
 (1) 44% (2) 34%
 (3) 54% (4) 64%
 (SSC CGL Prelim Exam. 04.07.1999
 (Second Sitting)
- 5.** If p% of p is 36, then p is equal to :
 (1) 3600 (2) 600
 (3) 60 (4) 15
 (SSC CGL Prelim Exam. 27.02.2000
 (First Sitting)
- 6.** 2 is what percent of 50?
 (1) 2 (2) 2.5
 (3) 4 (4) 5
 (SSC CGL Prelim Exam. 27.02.2000
 (First Sitting)
- 7.** $\frac{2}{3}$ is what percent of $\frac{1}{3}$?
 (1) 50% (2) $33\frac{1}{3}\%$
 (3) 150% (4) 200%
 (SSC CGL Prelim Exam. 27.02.2000
 (Second Sitting)
- 8.** 0.15% of $33\frac{1}{3}\%$ of ₹ 10000 is :
 (1) ₹ 5 (2) ₹ 150
 (3) ₹ 0.05 (4) ₹ 105
 (SSC CGL Prelim Exam. 24.02.2002
 (First Sitting)

- 9.** 30% of x is 72. The value of x is:
 (1) 216 (2) 240
 (3) 480 (4) 640
 (SSC CGL Prelim Exam. 24.02.2002
 (First Sitting)
- 10.** If 15% of (A + B) = 25% of (A - B), then what per cent of B is equal to A?
 (1) 10% (2) 60%
 (3) 200% (4) 400%
 (SSC CGL Prelim Exam. 24.02.2002
 (First Sitting)
- 11.** What is 20% of 25% of 300?
 (1) 150 (2) 60
 (3) 45 (4) 15
 (SSC CGL Prelim Exam. 24.02.2002
 (Second Sitting)
- 12.** If x% of $\frac{25}{2}$ is 150, then the value of x is :
 (1) 1000 (2) 1200
 (3) 1400 (4) 1500
 (SSC CGL Prelim Exam. 24.02.2002
 (Second Sitting)
- 13.** If 50% of (x - y) = 30% of (x + y), then what per cent of x is y?
 (1) 25% (2) $33\frac{1}{3}\%$
 (3) 40% (4) 400%
 (SSC CGL Prelim Exam. 24.02.2002
 (IInd Sitting) & 13.11.2005
 (Ist Sitting)
- 14.** If 50 % of P = 25% of Q, then P = x% of Q. Find x.
 (1) 0.5 (2) 2
 (3) 50 (4) 0.005
 (SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone)
- 15.** If 20% of A = 50% of B, then what per cent of A is B ?
 (1) 30% (2) 40%
 (3) 25% (4) 15%
 (SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone))
- 16.** In a school 40% of the students play football and 50% play cricket. If 18% of the students neither play football nor cricket, the percentage of the students playing both is :
 (1) 40% (2) 32%
 (3) 22% (4) 8%
 (SSC CPO S.I. Exam. 26.05.2005)
- 17.** If $20\% \text{ of } (P + Q) = 50\% \text{ of } (P - Q)$, then find P : Q
 (1) 7 : 8 (2) 7 : 3
 (3) 7 : 5 (4) 5 : 7
 (SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting))
- 18.** 0.01 is what per cent of 0.1 ?
 (1) 10 (2) $\frac{1}{10}$
 (3) 100 (4) $\frac{1}{100}$
 (SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting))
- 19.** 65g is what per cent of 2 kg ?
 (1) $\frac{13}{4}$ (2) $\frac{65}{2}$
 (3) $\frac{15}{8}$ (4) $\frac{13}{8}$
 (SSC CGL Prelim Exam. 27.07.2008
 (First Sitting))
- 20.** Half of 1 per cent, written as a decimal, is
 (1) 0.2 (2) 0.02
 (3) 0.005 (4) 0.05
 (SSC CGL Prelim Exam. 27.07.2008
 (First Sitting))
- 21.** The time duration of 1 hour 45 minutes is what percent of a day?
 (1) 7.218 % (2) 7.292 %
 (3) 8.3 % (4) 8.24 %
 (SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting))
- 22.** 1.14 expressed as a per cent of 1.9 is
 (1) 6% (2) 10%
 (3) 60% (4) 90%
 (SSC CGL Tier-I Exam. 16.05.2010
 (First Sitting))
- 23.** 32 is what per cent of 80 ?
 (1) 24% (2) 25.6%
 (3) 36% (4) 40%
 (SSC CPO S.I. Exam. 12.12.2010 (Paper-I))
- 24.** If 90% of A = 30% of B and B = x% of A, then the value of x is
 (1) 800 (2) 300
 (3) 700 (4) 400
 (SSC CGL Tier-1 Exam 19.06.2011
 (Second Sitting))
- 25.** If 90% of A = 30% of B and B = 2x% of A, then the value of x is
 (1) 450 (2) 400
 (3) 300 (4) 150
 (SSC CGL Tier-1 Exam 26.06.2011
 (First Sitting))

PERCENTAGE

- 26.** If 30% of A is added to 40% of B, the answer is 80% of B. What percentage of A is B?
- (1) 30% (2) 40%
 (3) 70% (4) 75%
- (SSC CGL Tier-1 Exam 26.06.2011 (First Sitting))
- 27.** If 40% of $(A + B)$ = 60% of $(A - B)$ then $\frac{2A - 3B}{A + B}$ is
- (1) $\frac{7}{6}$ (2) $\frac{6}{7}$
 (3) $\frac{5}{6}$ (4) $\frac{6}{5}$
- FCI Assistant Grade-III Exam. 25.02.2012 (Paper-I) North Zone (1st Sitting)
- 28.** 0.001 is equivalent to
- (1) 10% (2) 1%
 (3) 0.01% (4) 0.1%
- (SSC CPO S.I. Exam 12.12.2010 (Paper-I))
- 29.** What percent of 3.5 kg is 70 gms?
- (1) 3% (2) 4%
 (3) 5% (4) 2%
- (SSC Section Officer (Commercial Audit) Exam. 25.09.2005)
- 30.** One-third of 1206 is what percent of 134?
- (1) 100% (2) 150%
 (3) 200% (4) 300%
- (SSC CISF Constable (GD) Exam. 05.06.2011)
- 31.** If 120% of a is equal to 80% of b , then $\frac{b+a}{b-a}$ is equal to
- (1) 5 (2) 6
 (3) 7 (4) 8
- (SSC CHSL DEO CHSL DEO & LDC Exam. 11.12.2011 (1st Sitting (Delhi Zone)))
- 32.** If 20% of $(A + B)$ = 50% of B, then value of $\frac{2A - B}{2A + B}$ is
- (1) $\frac{1}{2}$ (2) $\frac{1}{3}$
 (3) $\frac{1}{4}$ (4) 1
- (SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (East Zone)))
- 33.** If $x\%$ of a is the same as $y\%$ of b , then $z\%$ of b will be
- (1) $\frac{yz}{x}\%$ of a (2) $\frac{zx}{y}\%$ of a
 (3) $\frac{xy}{z}\%$ of a (4) $\frac{y}{z}\%$ of a
- (SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (Ist Sitting))
- 34.** If Y% of one hour is 1 minute 12 seconds, then Y is equal to
- (1) 2 (2) 1
 (3) $\frac{1}{2}$ (4) $\frac{1}{4}$
- (SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (IInd Sitting))
- 35.** What percent of 3.6 kg is 72 gms?
- (1) 32% (2) 22%
 (3) 12% (4) 2%
- (SSC Graduate Level Tier-I Exam. 11.11.2012 (Ist Sitting))
- 36.** 31% of employees pay tax in the year 2008. Non-tax paying employees are 20,700. The total number of employees is:
- (1) 31,160 (2) 64,750
 (3) 30,000 (4) 66,775
- (SSC CHSL DEO & LDC Exam. 21.10.2012, IInd Sitting)
- 37.** A team played 40 games in a season and won in 24 of them. What percent of games played did the team win?
- (1) 70% (2) 40%
 (3) 60% (4) 35%
- (SSC CHSL DEO & LDC Exam. 04.11.2012, Ist Sitting)
- 38.** If 125% of x is 100, then x is:
- (1) 80 (2) 150
 (3) 400 (4) 125
- (SSC CHSL DEO & LDC Exam. 04.11.2012, Ist Sitting)
- 39.** 498 is 17% less than the number by
- (1) 610 (2) 580
 (3) 600 (4) 620
- (SSC Multi-Tasking Staff Exam. 10.03.2013, Ist Sitting : Patna)
- 40.** Given A is 50% larger than C and B is 25% larger than C, then A is what percent larger than B?
- (1) 25% (2) 50%
 (3) 75% (4) 20%
- (SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting)
- 41.** In a big garden 60% of the trees are coconut trees, 25% of the number of coconut trees are mango trees and 20% of the number of mango trees are apple trees. If the number of apple trees are 1500, then the number of trees in the garden is:
- (1) 48000 (2) 50000
 (3) 51000 (4) 45000
- (SSC CAPFs SI & CISF ASI Exam. 23.06.2013)
- 42.** The population of a village is 25,000. One fifth are females and the rest are males. 5% of males and 40% of females are uneducated. What percentage on the whole are educated?
- (1) 75% (2) 88%
 (3) 55% (4) 85%
- (SSC Multi-Tasking Staff Exam. 24.03.2013, Ist Sitting)
- 43.** What is to be added to 15% of 160 so that the sum may be equal to 25% of 240?
- (1) 24 (2) 84
 (3) 60 (4) 36
- (SSC Multi-Tasking Staff Exam. 10.03.2013)
- 44.** A number is divided into two parts in such a way that 80% of 1st part is 3 more than 60% of 2nd part and 80% of 2nd part is 6 more than 90% of the 1st part. Then the number is
- (1) 125 (2) 130
 (3) 135 (4) 145
- (SSC CHSL DEO & LDC Exam. 28.10.2012, Ist Sitting)
- 45.** In a college, 40% of the students were allotted group A, 75% of the remaining were given group B and the remaining 12 students were given group C. Then the number of students who applied for the group is
- (1) 100 (2) 60
 (3) 80 (4) 92
- (SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)
- 46.** A box has 100 blue balls, 50 red balls, 50 black balls. 25% of blue balls and 50% of red balls are taken away. Percentage of black balls at present is
- (1) 50% (2) 25%
 (3) $33\frac{1}{3}\%$ (4) 40%
- (SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

PERCENTAGE

- 47.** A dozen pairs of socks quoted at ₹ 180 are available at discount of 20%. How many pairs of socks can be bought for ₹ 48?
 (1) 3 pairs (2) 4 pairs
 (3) 2 pairs (4) 5 pairs
 (SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)
- 48.** If three-fifth of sixty per cent of a number is 36, the number is
 (1) 100 (2) 80
 (3) 75 (4) 90
 (SSC CPO S.I. Exam. 03.09.2006)
- 49.** If 50% of $(P - Q) = 30\%$ of $(P + Q)$ and $Q = x\%$ of P , then the value of x is :
 (1) 30 (2) 25
 (3) 20 (4) 50
 (SSC CAPFs SI & CISF ASI Exam. 23.06.2013)
- 50.** Out of two numbers, 40% of the greater number is equal to 60% of the smaller. If the sum of the numbers is 150, then the greater number is
 (1) 70 (2) 80
 (3) 90 (4) 60
 (SSC CGL Prelim Exam. 13.11.2005 (Second Sitting))
- 51.** If 80% of a number added to 80 gives the result as the number itself, then the number is
 (1) 200 (2) 300
 (3) 400 (4) 500
 (SSC CGL Prelim Exam. 04.07.1999 (First Sitting))
- 52.** If 120 is 20% of a number, then 120% of that number will be :
 (1) 20 (2) 120
 (3) 480 (4) 720
 (SSC CGL Prelim Exam. 04.07.1999 (IIInd Sitting) & (SSC SO Exam. 16.11.2003 & Data Entry & LDC Exam. 10.11.2013))
- 53.** When 60 is subtracted from 60% of a number, the result is 60. The number is :
 (1) 120 (2) 150
 (3) 180 (4) 200
 (SSC CGL Prelim Exam. 27.02.2000 (First Sitting))
- 54.** When 75% of a number is added to 75, the result is the same number. Find the number :
 (1) 225 (2) 270
 (3) 300 (4) 325
 (SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))
- 55.** Two numbers are respectively 20% and 50% of a third number. What per cent is the first number of the second?
 (1) 10% (2) 20%
 (3) 30% (4) 40%
 (SSC CGL Prelim Exam. 24.02.2002 (First Sitting))
- 56.** Two numbers are respectively 25% and 20% less than a third number. What per cent is the first number of the second ?
 (1) 5% (2) 75%
 (3) 80% (4) 93.75%
 (SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))
- 57.** The sum of the numbers of boys and girls in a school is 150. If the number of boys is x , the number of girls becomes $x\%$ of the total number of students. The number of boys is :
 (1) 90 (2) 50
 (3) 40 (4) 60
 (SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))
- 58.** 18% of which number is equal to 12% of 75 ?
 (1) 50 (2) 100
 (3) 2 (4) $\frac{3}{2}$
 (SSC CGL Prelim Exam. 24.02.2002 (Middle Zone))
- 59.** Difference of two numbers is 1660. If $6\frac{1}{2}\%$ of one number is $8\frac{1}{2}\%$ of the other number, the smaller number is
 (1) 7055 (2) 5395
 (3) 3735 (4) 2075
 (SSC CGL Prelim Exam. 11.05.2003 (Second Sitting))
- 60.** When 75 is added to 75% of a number, the answer is the number. Find 40% of that number.
 (1) 100 (2) 80
 (3) 120 (4) 160
 (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)
- 61.** The number that is to be added to 10% of 320 to have the sum as 30% of 230 is
 (1) 37 (2) 32
 (3) 23 (4) 73
 (SSC CGL Tier-II Exam. 21.09.2014)
- 62.** If X is 20% less than Y , then find the values of $\frac{Y-X}{Y}$ and $\frac{X}{X-Y}$.
 (1) $\frac{1}{5}, -4$ (2) $5, -\frac{1}{4}$
 (3) $\frac{2}{5}, -\frac{5}{2}$ (4) $\frac{3}{5}, -\frac{5}{3}$
 (SSC CHSL DEO & LDC Exam. 02.11.2014 (IIInd Sitting))
- 63.** 1% of 1% of 25% of 1000 is
 (1) 0.025 (2) 0.0025
 (3) 0.25 (4) 0.000025
 (SSC CHSL DEO & LDC Exam. 9.11.2014)
- 64.** 25% of 120 + 40% + 380 = ? of 637
 (1) $\frac{2}{7}$ (2) $\frac{1}{7}$
 (3) $\frac{4}{7}$ (4) $\frac{3}{7}$
 (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IIInd Sitting))
- 65.** In a village 30% of the population is literate. If the total population of the village is 6,600, then the number of illiterate is
 (1) 1980 (2) 4620
 (3) 2200 (4) 3280
 (SSC CHSL DEO & LDC Exam. 16.11.2014)
- 66.** If 8% of $x = 4\%$ of y , then 20% of x is
 (1) 10% of y (2) 16% of y
 (3) 40% of y (4) 80% of y
 (SSC CHSL DEO Exam. 16.11.2014 (Ist Sitting))
- 67.** If 40% of $\frac{4}{5}$ of $\frac{3}{4}$ of a number is 48, then what is 1% of the same number ?
 (1) 20 (2) 2
 (3) 10 (4) 1
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014 TF No. 999 KPO)
- 68.** The sum of (16% of 24.2) and (10% of 2.42) is
 (1) 4.114 (2) 41.14
 (3) 411.4 (4) 0.4114
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, Ist Sitting TF No. 333 LO 2)

PERCENTAGE

- 69.** What percent of 15 hours is 18 seconds ?

(1) 30% (2) $\frac{1}{30}$ %
 (3) 36% (4) $\frac{1}{36}$ %

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014 , Ist Sitting TF No. 333 LO 2)

- 70.** If $x\%$ of $y\%$ of 80 is the same as 25% of 900, then the value of xy is

(1) 30100 (2) 32500
 (3) 28125 (4) 34200
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014 , Ist Sitting TF No. 333 LO 2)

- 71.** A supply of juice lasts for 35 days. If its use is increased by 40% the number of days would the same amount of juice lasts, is

(1) 25 days (2) 30 days
 (3) 24 days (4) 27 days
 (SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

- 72.** If 60% of A = 30% of B, B = 40% of C, C = $x\%$ of A, then value of x is

(1) 200 (2) 500
 (3) 800 (4) 300
 (SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

- 73.** In an office, 40% of the staff is female. 70% of the female staff and 50% of the male staff are married. The percentage of the unmarried staff in the office is

(1) 64 (2) 60
 (3) 54 (4) 42
 (SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

- 74.** 50% of a number when added to 50 is equal to the number. The number is

(1) 50 (2) 75
 (3) 100 (4) 150
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IIInd Sitting)

- 75.** $83\frac{1}{3}\%$ of Rs. 90 is equal to 60% of ?

(1) Rs. 123 (2) Rs. 124
 (3) Rs. 122 (4) Rs. 125
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IIInd Sitting) TF No. 3441135)

- 76.** 51% of a whole number is 714. 25% of that number is

(1) 350 (2) 450
 (3) 550 (4) 250
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015 (Ist Sitting) TF No. 9692918)

- 77.** Due to 25% fall in the rate of eggs, one can buy 2 dozen eggs more than before by investing Rs.162. Then the original rate per dozen of the eggs is

(1) Rs. 22 (2) Rs. 24
 (3) Rs. 27 (4) Rs. 30

(SSC CGL Tier-II Online Exam.01.12.2016)

- 78.** What per cent of a day is 30 minutes?

(1) 2.83 (2) 2.083
 (3) 2.09 (4) 2.075

(SSC CGL Tier-II Online Exam.01.12.2016)

- 79.** A basket contains 300 mangoes. 75 mangoes were distributed among some students. Find the percentage of mangoes left in the basket.

(1) 70% (2) 72%
 (3) 76% (4) 75%

(SSC CHSL (10+2) Tier-I (CBE) Exam. 08.09.2016) (Ist Sitting)

- 80.** The weights of two iron balls are 3.5 kg and 7.5 kg. What is the percentage weight of the first ball with respect to second ball?

(1) $46\frac{2}{3}\%$ (2) 35%

(3) $46\frac{1}{3}\%$ (4) 45%

(SSC CGL Tier-I (CBE) Exam. 09.09.2016) (Ist Sitting)

- 81.** A store has an offer 'Buy 4 Get 1 Free'. What is the net percentage of discount?

(1) 25% (2) 33.3%
 (3) 20% (4) Insufficient Data

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016) (Ist Sitting)

- 82.** If A earns 25% more than B then how much percent does B earns less than A :

(1) 15% (2) 20%
 (3) 25% (4) 30%

(SSC CPO SI & ASI, Online Exam. 06.06.2016) (IIInd Sitting)

- 83.** What per cent of 1 day is 36 minutes?

(1) 25% (2) 2.5%
 (3) 3.6% (4) 0.25%

(SSC CGL Tier-I (CBE) Exam. 03.09.2016) (IIInd Sitting)

- 84.** One number is 25% of another number. The larger number is 12 more than the smaller. The larger number is

(1) 48 (2) 16
 (3) 4 (4) 12

(SSC CGL Tier-I (CBE)

Exam. 04.09.2016) (Ist Sitting)

- 85.** The number of students in a class is increased by 20% and the number now becomes 66. Initially the number was

(1) 45 (2) 50
 (3) 55 (4) 60

(SSC CGL Tier-I (CBE)

Exam. 02.09.2016) (IIInd Sitting)

- 86.** A number is increased by 20%. To get back to the original number, the increased number is to be reduced by

(1) 20% (2) 21%

(3) $16\frac{2}{3}\%$ (4) $14\frac{1}{3}\%$

(SSC CGL Tier-II (CBE)

Exam. 30.11.2016)

- 87.** A village lost 12% of its goats in a flood and 5% of remainder died from diseases. If the number left now is 8360, what was the original number before the flood?

(1) 1000 (2) 10000
 (3) 1,00,000 (4) 8360

(SSC CGL Tier-II (CBE)

Exam. 30.11.2016)

- 88.** If A is equal to 20% of B and B is equal to 25% of C; then what per cent of C is equal to A?

(1) 10 (2) 15
 (3) 5 (4) 20

(SSC CGL Tier-I (CBE)

Exam. 29.08.2016 (IST Sitting)

- 89.** In a school there are 1500 students, 44% of them are girls. Monthly fee of each boy is Rs. 540 and the fee of each girl is 25% less than that of a boy. The sum of fees of boys and girls both is

(1) Rs. 720600 (2) Rs. 720800
 (3) Rs. 720900 (4) Rs. 721000

(SSC CGL Tier-I (CBE)

Exam. 03.09.2016 (IIIrd Sitting)

- 90.** In a marriage party 32% are women, 54% are men and there are 196 children. How many men are there in the marriage party?

(1) 756 (2) 448
 (3) 332 (4) 324

(SSC CGL Tier-I (CBE)

Exam. 04.09.2016 (IIInd Sitting)

- 91.** $6\frac{1}{4}\%$ of 1600 + $12\frac{1}{2}\%$ of 800 equals

(1) 100 (2) 200
 (3) 300 (4) 400

(SSC CGL Tier-I (CBE)

Exam. 09.09.2016 (IIInd Sitting)

PERCENTAGE

- 92.** Refer the following data table and answer the following question.

	Boys	Girls
Medical	30	70
Engineering	75	25

What per cent of students who chose Engineering are girls?

- (1) 26.32 (2) 12.5
 (3) 25 (4) 33.33
 (SSC CHSL (10+2) Tier-I (CBE) Exam. 15.01.2017) (IInd Sitting)

- 93.** Refer the following data table and answer the following Question.

	Boys	Girls
Medical	35	60
Engineering	40	40

What per cent of students who chose Engineering are girls ?

- (1) 40 (2) 22.86
 (3) 50 (4) 100
 (SSC CHSL (10+2) Tier-I (CBE) Exam. 16.01.2017) (IInd Sitting)

- 94.** A boy found the answer for the

question "subtract the sum of $\frac{1}{4}$

and $\frac{1}{5}$ from unity and express the answer in decimals" as 0.45. The percentage of error in his answer was

- (1) $\left(\frac{100}{11}\right)\%$ (2) 50%
 (3) 10% (4) $\left(\frac{200}{11}\right)\%$
 (SSC CGL Tier-II (CBE) Exam. 12.01.2017)

TYPE-II

- 1.** If x is less than y by 25% then y exceed x by :

- (1) $33\frac{1}{3}\%$ (2) 25%
 (3) 75% (4) $66\frac{2}{3}\%$
 (SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))

- 2.** If x is 10% more than y , then by what per cent is y less than x ?

- (1) $9\frac{1}{11}\%$ (2) $7\frac{1}{11}\%$
 (3) $8\frac{1}{11}\%$ (4) $10\frac{1}{11}\%$
 (SSC CPO S.I. Exam. 07.09.2003)

- 3.** If A's height is 10% more than B's height, by how much per cent less is B's height than that of A ?

- (1) 10% (2) $10\frac{1}{9}\%$

- (3) $10\frac{1}{11}\%$ (4) $9\frac{1}{11}\%$

(SSC CPO S.I. Exam. 26.05.2005)

- 4.** B got 20% marks less than A. What per cent marks did A got more than B ?

- (1) 20% (2) 25%
 (3) 12% (4) 80%

(SSC CGL Prelim Exam. 27.07.2008 (First Sitting))

- 5.** If x earns 25% more than y . What percent less does y earn than x ?

- (1) 16% (2) 10%
 (3) 20% (4) 25%

(SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))

- 6.** The difference of two numbers is 20% of the larger number. If the smaller number is 20, the larger number is :

- (1) 25 (2) 45
 (3) 50 (4) 80

(SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))

- 7.** If a number x is 10% less than another number y and y is 10% more than 125, then x is equal to :

- (1) 150 (2) 143
 (3) 140.55 (4) 123.75

(SSC CGL Prelim Exam. 24.02.2002 (First Sitting))

- 8.** Two numbers are respectively

$12\frac{1}{2}\%$ and 25% more than a third number. The first number as percentage of second number is

- (1) 50 (2) 60
 (3) 75 (4) 90

(SSC CPO S.I. Exam. 12.01.2003)

- 9.** Which number is 40% less than 90 ?

- (1) 36 (2) 54
 (3) 50 (4) 60

(SSC CPO S.I. Exam. 07.09.2003)

- 10.** Two numbers are less than a third number by 30% and 37% respectively. The per cent by which the second number is less than the first is

- (1) 10% (2) 7%
 (3) 4% (4) 3%

(SSC SAS Exam 26.06.2010)

(Paper-1)

- 11.** A number when reduced by 10% gives 30. The number is

- (1) $33\frac{1}{2}$ (2) $33\frac{1}{3}$

- (3) 40 (4) 35

(SSC Multi-Tasking Staff Exam. 17.03.2013, IInd Sitting)

- 12.** How much $66\frac{2}{3}\%$ of Rs. 312 exceeds Rs. 200?

- (1) Rs. 96 (2) Rs. 4
 (3) Rs. 8 (4) Rs. 104

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IInd Sitting) TF No. 7203752)

- 13.** A's income is 25% more than B's income. B's income is what per cent of A's income ?

- (1) 80 (2) 75
 (3) 50 (4) 25

(SSC CGL Tier-I (CBE) Exam. 06.09.2016) (Ist Sitting)

- 14.** A's salary is 50% more than that of B. Then B's salary is less than that of A by

- (1) 50% (2) $33\frac{1}{3}\%$

- (3) $33\frac{1}{4}\%$ (4) $44\frac{1}{2}\%$

(SSC CGL Tier-I (CBE) Exam. 07.09.2016) (Ist Sitting)

- 15.** If the salary of Manoj is 40% less than that of Subhash, then by how much percentage is the salary of Subhash more than that of Manoj?

- (1) 60% (2) $66\frac{1}{4}\%$

- (3) $66\frac{2}{3}\%$ (4) 65%

(SSC CGL Tier-I (CBE) Exam. 01.09.2016) (IInd Sitting)

- 16.** The percentage change in a number when it is first decreased by 10% and then increased by 10% is

- (1) 0.1 % increase
 (2) 1 % decrease
 (3) 0.1 % decrease
 (4) No changes

(SSC CGL Tier-I (CBE) Exam. 01.09.2016 (IIIrd Sitting))

PERCENTAGE

- 17.** x is 5 times longer than y . The percentage by which y is less than x is :

(1) 50% (2) 40%
 (3) 80% (4) 70%

(SSC CGL Tier-I (CBE)
 Exam. 06.09.2016 (IIIrd Sitting)

TYPE-III

- 1.** A person who spends $66\frac{2}{3}\%$ of

his income is able to save ₹ 1,200 per month. His monthly expenses (in ₹) is :

(1) 1,200 (2) 2,400
 (3) 3,000 (4) 3,200

(SSC CGL Prelim Exam. 04.07.1999
 (First Sitting)

- 2.** The income of C is 20% more than B's and the income of B is 25% more than A's. Find by how much per cent is C's income more than A's ?

(1) 150% (2) 50%
 (3) 25% (4) 35%

(SSC CGL Prelim Exam. 04.07.1999
 (Second Sitting)

- 3.** If A's income is 40% less than that of B, how much percent B's income is more than that of A?

(1) 60% (2) 40%
 (3) 66.66% (4) 33.33%

(SSC CGL Prelim Exam. 27.02.2000
 (First Sitting)

- 4.** What per cent decrease in salaries would exactly cancel out the 20 per cent increase?

(1) 20% (2) $16\frac{2}{3}\%$

(3) $33\frac{1}{3}\%$ (4) 18%

(SSC CGL Prelim Exam. 27.02.2000
 (Second Sitting)

- 5.** Income of A is 10% more than income of B. Let B's income be $x\%$ less than A's income. Find x .

(1) $9\frac{1}{11}\%$ (2) $10\frac{1}{11}\%$
 (3) 11% (4) 10%

(SSC CGL Prelim Exam. 24.02.2002
 (Ist Sitting) & 13.11.2005
 (IIInd Sitting) & (SSC CPO SI
 Exam. 12.12.2010 (Paper-I) &
 (SSC Investigator Exam. 12.09.2010)

- 6.** If the income of Ram is $12\frac{1}{2}\%$

more than that of Shyam, the income of Shyam is less than that of Ram by

(1) $11\frac{1}{9}\%$ (2) $13\frac{1}{2}\%$

(3) $87\frac{1}{2}\%$ (4) $88\frac{1}{9}\%$

(SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone)

- 7.** If 60% of A's income is equal to 75% of B's income, then B's income is equal to $x\%$ of A's income. The value of x is :

(1) 70 (2) 60
 (3) 80 (4) 90

(SSC CGL Prelim Exam. 11.05.2003
 (First Sitting)

- 8.** A person gave 20% of his income to his elder son, 30% of the remaining to the younger son and 10% of the balance, he donated to a trust. He is left with ₹ 10080. His income was :

(1) ₹ 50000 (2) ₹ 40000
 (3) ₹ 30000 (4) ₹ 20000

(SSC CGL Prelim Exam. 11.05.2003
 (First Sitting)

- 9.** Radha spends 40% of her salary on food, 20% on house rent, 10% on entertainment and 10% on conveyance. If her savings at the end of a month are ₹ 1500, then her salary per month (in ₹) is

(1) ₹ 8000 (2) ₹ 7500
 (3) ₹ 6000 (4) ₹ 10000

(SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting)

- 10.** If the monthly salary of an employee is increased by $2\frac{2}{3}\%$, he gets 72 rupees more. His monthly salary (in rupees) is

(1) 7200 (2) 3600
 (3) 2700 (4) 2000

(SSC CPO S.I. Exam. 07.09.2003)

- 11.** If the total monthly income of 16 persons is ₹ 80,800 and the income of one of them is 120% of the average income, then his income is

(1) ₹ 5,050 (2) ₹ 6,060
 (3) ₹ 6,160 (4) ₹ 6,600

(SSC Section Officer (Commercial Audit) Exam. 16.11.2003)

- 12.** Mita's income is 25% more than that of Sita. What percent is Sita's income less than that of Mita ?

(1) 25% (2) 24%

(3) $22\frac{1}{2}\%$ (4) 20%

(SSC CISF ASI Exam 29.08.2010
 (Paper-1)

- 13.** A man spends $12\frac{1}{2}\%$ of his sal-

ary on items of daily use and 30% of the remainder on house rent. After that he is left with ₹ 2940. How much is his salary ?

(1) ₹ 4800 (2) ₹ 5200
 (3) ₹ 4500 (4) ₹ 4000

(SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting)

- 14.** The monthly income of a person was ₹ 13,500 and his monthly expenditure was ₹ 9,000. Next year his income increased by 14% and his expenditure increased by 7%. The per cent increase in his savings was

(1) 7% (2) 21%
 (3) 28% (4) 35%

(SSC CGL Prelim Exam. 08.02.2004
 (IIInd Sitting) & (SSC Section Officer Exam. 25.09.2005)

- 15.** A worker suffers a 20% cut in his wages. He may regain his original wages by obtaining a rise of

(1) 27.5% (2) 25.0%
 (3) 22.5% (4) 20.0%

(SSC CPO S.I. Exam. 05.09.2004)

- 16.** Given that 10% of A's income = 15% of B's income = 20% of C's income. If sum of their income is ₹ 7800, then B's income is:

(1) ₹ 3600 (2) ₹ 3000
 (3) ₹ 2400 (4) ₹ 1800

(SSC CGL Prelim Exam. 13.11.2005
 (First Sitting)

- 17.** If A's income is 25% less than B's income, by how much percent is B's income more than that of A ?

(1) 25% (2) 30%

(3) $33\frac{1}{3}\%$ (4) $66\frac{2}{3}\%$

(SSC CGL Tier-I Exam. 16.05.2010
 (Second Sitting)

PERCENTAGE

18. A's salary is 50% more than that of B. How much per cent is B's salary less than that of A?

- (1) 50% (2) $33\frac{1}{3}\%$

- (3) 45% (4) $66\frac{2}{3}\%$

(SSC CPO S.I. Exam. 03.09.2006)

19. Tulsiram's salary is 20% more than that of Kashyap. If Tulsiram saves ₹ 720 which is 4% of his salary, then Kashyap's salary is

- (1) ₹ 15,000 (2) ₹ 12,000
(3) ₹ 10,000 (4) ₹ 22,000

(SSC CPO S.I. Exam. 06.09.2009)

20. A's salary is 40% of B's salary and B's salary is 25% of C's salary. What percentage of C's salary is A's salary?

- (1) 5% (2) 10%
(3) 15% (4) 20%

(SSC CISF ASI Exam. 29.08.2010
(Paper-1))

21. If A's income is 50% less than that of B's, then B's income is what per cent more than that of A?

- (1) 125% (2) 100%
(3) 75% (4) 50%

(SSC CGL Tier-I Exam. 16.05.2010
(First Sitting))

22. X's income is 20% more than that of Y. What per cent is Y's income less than X?

- (1) $83\frac{1}{3}\%$ (2) $16\frac{2}{3}\%$

- (3) $83\frac{2}{3}\%$ (4) $16\frac{1}{3}\%$

(SSC CGL Prelim Exam. 24.02.2002
(IInd Sitting) & (SSC HSL DEO
& LDC Exam. 27.11.2010))

23. The allowances of an employee constitutes 165% of his basic pay. If he receives ₹ 11925 as gross salary, then his basic pay is (in ₹):

- (1) 4000 (2) 5000
(3) 4500 (4) 5500

FCI Assistant Grade-III
Exam. 05.02.2012 (Paper-I)
East Zone (IInd Sitting)

24. If Nita's salary is 25 per cent more than Papiya's salary, then the percentage by which Papiya's salary is less than Nita's salary is

- (1) 15% (2) 20%
(3) 25% (4) 32%

(SSC Section Officer (Commercial
Audit) Exam. 26.11.2006
(Second Sitting))

25. The salary of a person is decreased by 25% and then the decreased salary is increased by 25%. His new salary in comparison with his original salary is

- (1) the same (2) 6.25% more
(3) 6.25% less (4) 0.625% less

(SSC Data Entry Operator
Exam. 02.08.2009)

26. Ram saves 14% of his salary while Shyam saves 22%. If both get the same salary and Shyam saves ₹ 1540, what is the savings of Ram?

- (1) ₹ 990 (2) ₹ 980
(3) ₹ 890 (4) ₹ 880

(SSC CHSL DEO & LDC
Exam. 28.11.2010 (Ist Sitting))

27. A's salary is 25% more than B's salary. B's salary is how much less than A's salary?

- (1) 20 % (2) 24 %
(3) 25 % (4) 27.5 %

(SSC Section officer commercial
Audit Exam. 16.11.2003 & SSC
CPO S.I. Exam. 12.01.2003) &
(SSC CHSL DEO & LDC Exam.
28.11.2010 (Ist Sitting))

28. A man spends 75% of his income. His income increased by 20% and he increased his expenditure by 15%. His savings will then be increased by

- (1) 33% (2) $33\frac{1}{3}\%$
(3) 35% (4) 40%

(SSC CHSL DEO & LDC
Exam. 04.12.2011 (IInd Sitting
(North Zone))

29. Nitin's salary was reduced by 10% and then the reduced salary was increased by 10%. His new salary in comparison with his original salary is

- (1) the same (2) 1% more
(3) 1% less (4) 5% less

(SSC Data Entry Operator
Exam. 31.08.2008)

30. A man spends 40% of his monthly salary on food and one-third of the remaining on transport. If he saves ₹ 4,500 per month, which is equal to half the balance after spending on food and transport, his monthly salary is

- (1) ₹ 11,250 (2) ₹ 22,500
(3) ₹ 25,000 (4) ₹ 45,000

(SSC Data Entry Operator
Exam. 31.08.2008)

31. A saves 20% of his monthly salary. If his monthly expenditure is ₹ 6,000, then his monthly savings is

- (1) ₹ 1,500 (2) ₹ 1,800
(3) ₹ 1,200 (4) ₹ 4,800

(SSC CHSL DEO & LDC Exam.
21.10.2012 (IInd Sitting))

32. A's salary is increased by 10% and then decreased by 10%. Then, change in salary is

- (1) 0% (2) 1% decrease
(3) 1% increase (4) 2% decrease

(SSC CHSL DEO & LDC Exam.
04.11.2012 (IInd Sitting))

33. Kishan spends 30% of his salary on food and donates 3% in a Charitable Trust. He spends ₹ 2,310 on these two items, then total salary for that month is

- (1) ₹ 6,000 (2) ₹ 8,000
(3) ₹ 9,000 (4) ₹ 7,000

(SSC CHSL DEO & LDC Exam.
04.11.2012 (IInd Sitting))

34. A clerk received an annual salary of ₹ 3,660 in the year 1975. This was 20% more than his salary in 1974. What was his salary in 1974?

- (1) ₹ 3,005 (2) ₹ 3,000
(3) ₹ 3,500 (4) ₹ 3,050

(SSC FCI Assistant Grade-III Main
Exam. 07.04.2013)

35. Out of his total income, Mr. Kapur spends 20% on house rent and 70% of the rest on house-hold expenses. If he saves ₹ 1,800, what is his total income (in rupees)?

- (1) ₹ 7,800 (2) ₹ 7,000
(3) ₹ 8,000 (4) ₹ 7,500

(SSC FCI Assistant Grade-III Main
Exam. 07.04.2013)

36. Arbind spends 75% of his income and saves the rest. His income is increased by 20% and he increases his expenditure by 10%. Then the increase in savings in percentage is

- (1) 55% (2) 52%
(3) 50% (4) 48%

(SSC CHSL DEO & LDC Exam.
27.10.2013 IInd Sitting))

37. The enhanced salary of a man becomes ₹ 24,000 after 20% increment. His previous salary was

- (1) ₹ 20,000 (2) ₹ 21,000
(3) ₹ 16,000 (4) ₹ 18,000

(SSC Multi-Tasking Staff
Exam. 17.03.2013, Ist Sitting))

PERCENTAGE

38. The salary of a person was reduced by 10%. By what per cent should his reduced salary be raised so as to bring it at par with his original salary?

- (1) 9% (2) $11\frac{1}{9}\%$

- (3) $9\frac{1}{11}\%$ (4) 11%

(SSC CGL Prelim Exam. 08.02.2004
(First Sitting)

39. If A's salary is 50% more than that of B, then B's salary is less than A's by

- (1) 33% (2) $40\frac{1}{3}\%$

- (3) $45\frac{1}{3}\%$ (4) $33\frac{1}{3}\%$

(SSC CGL Tier-I
Exam. 19.10.2014 (Ist Sitting)

40. Mr. X spends 35% of his salary on food and 5% of his salary on children education. In January 2011, he spent ₹ 17,600 on these two items. His salary for that month is

- (1) ₹ 40,000 (2) ₹ 44,000
(3) ₹ 48,000 (4) ₹ 46,000

(SSC CHSL DEO & LDC
Exam. 02.11.2014 (IIInd Sitting)

41. The monthly salaries of A and B together amount to Rs. 40,000. A spends 85% of his salary and B, 95% of his salary. If now their savings are the same, then the salary (in Rs.) of A is

- (1) Rs. 10,000 (2) Rs. 12,000
(3) Rs. 16,000 (4) Rs. 18,000

(SSC CGL Tier-I Exam. 19.10.2014
TF No. 022 MH 3)

42. 25% of annual salary of A is equal to eighty percent of annual salary of B. Monthly salary of B is 40% of the monthly salary of C. Annual salary of C is Rs. 6 lac. What is the monthly salary of A?

- (1) Rs. 60,000 (2) Rs. 62,000
(3) Rs. 64,000 (4) Rs. 56,000

(SSC CGL Tier-II Exam.
2014 12.04.2015 (Kolkata Region)
TF No. 789 TH 7)

43. Two numbers are less than a third number by 30% and 37% respectively. How much percent is the second number less than the first?

- (1) 10 (2) 4
(3) 3 (4) 7

(SSC CGL Tier-II Exam,
2014 12.04.2015 (Kolkata Region)
TF No. 789 TH 7)

44. A man spends 75% of his income. His income is increased by 20% and he increased his expenditure by 10%. His savings are increased by

- (1) $37\frac{1}{2}\%$ (2) 50%

(3) 25% (4) 10%
(SSC CGL Tier-I Exam. 09.08.2015
(IIInd Sitting) TF No. 4239378)

45. Ram babu donated 3% of his income to a charity and deposited 12% of the rest in bank. If now he has Rs. 12804, then his income was :

- (1) Rs. 17460 (2) Rs. 15000
(3) Rs. 7500 (4) Rs. 14550
(SSC CHSL (10+2) LDC, DEO
& PA/SA Exam. 06.12.2015
(Ist Sitting) TF No. 1375232)

46. Mukesh has twice as much money as Soham. Soham has 50% more money than Pankaj. If the average money with them is Rs. 110, then Mukesh has

- (1) Rs. 155 (2) Rs. 160
(3) Rs. 180 (4) Rs. 175

(SSC CGL Tier-II Online
Exam.01.12.2016)

47. A man spends 75% of his income. His income increases by 20% and his expenditure also increases by 10%. Find the percentage increase in his savings.

- (1) 25% (2) 50%
(3) 15% (4) 10%

(SSC CGL Tier-II Online
Exam.01.12.2016)

48. Christy donated 10% of his income to an orphanage and deposited 20% of the remainder in his bank. If he has now Rs. 7200 left, what is his income.

- (1) Rs. 10000 (2) Rs. 8000
(3) Rs. 9000 (4) Rs. 8500
(SSC CPO Exam. 06.06.2016)
(Ist Sitting)

49. The average salary of male employees in a firm was Rs. 5200 and that of females was Rs. 4200. The mean salary of all the employees was Rs. 5000. What is the percentage of female employees?

- (1) 80% (2) 20%
(3) 40% (4) 30%
(SSC CGL Tier-I (CBE)
Exam. 09.09.2016) (Ist Sitting)

50. In a factory, the salary of each worker is increased in the ratio 22 : 25 but the number of work-

ers is decreased by $26\frac{2}{3}\%$.

The net effect on the salary is

- (1) $11\frac{1}{9}\%$ decrease

- (2) 20% increase

- (3) $16\frac{2}{3}\%$ decrease

(4) 10% decrease
(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 20.03.2016)
(IIInd Sitting)

51. If the income of Mohan is 150% higher than that of Mahesh, then by what percent the income of Mahesh is less than that of Mohan?

- (1) 40% (2) 50%
(3) 60% (4) 45%
(SSC CGL Tier-I (CBE)
Exam. 30.08.2016) (Ist Sitting)

52. A man spends 60% of his income on different items. His income is increased by 20% and his expenditure is also increased by 10%. Find the percentage decrease in his savings?

- (1) 10% (2) 15%
(3) 20% (4) 25%
(SSC CGL Tier-I (CBE)
Exam. 02.09.2016) (IIInd Sitting)

53. P's salary is 25% higher than Q, what percentage is Q's salary lower than that of P?

- (1) 20 (2) 29
(3) 31 (4) $33\frac{1}{3}$
(SSC CGL Tier-I (CBE)
Exam. 28.08.2016 (IST Sitting)

54. If A's salary is 40% less than that of B, then how much percent is B's salary more than that of A?

- (1) $33\frac{1}{3}$ (2) $66\frac{2}{3}$
(3) $33\frac{2}{3}$ (4) $66\frac{1}{3}$

(SSC CGL Tier-I (CBE)
Exam. 30.08.2016 (IIIrd Sitting)

PERCENTAGE

55. A's salary was decreased by 50% and subsequently increased by 50%. How much per cent does he lose?
 (1) 25% (2) 50%

- (3) $12\frac{1}{2}\%$ (4) No loss

(SSC CGL Tier-I (CBE)
Exam. 08.09.2016 (IIIrd Sitting)

56. A man spends 15% of his income. If his expenditure is Rs. 75, his income (in rupees) is :
 (1) 400 (2) 300
 (3) 750 (4) 500

(SSC CGL Tier-I (CBE)
Exam. 09.09.2016 (IIIrd Sitting)

57. If A's salary is 30% more than that of B, then by how much percent is B's salary less than that of A ?
 (1) 13.01% (2) 13.07%
 (3) 23.07% (4) 23.01%

(SSC CGL Tier-I (CBE)
Exam. 27.10.2016 (Ist Sitting)

58. The average monthly salary of all the employees in a factory is Rs. 8840. If the average salary of all the officers is Rs. 15000 and that of the remaining employees is Rs. 8000, then what is the percentage of the officers among the employees?
 (1) 10% (2) 12%
 (3) $8\frac{1}{3}\%$ (4) 11%

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

59. The monthly salary of Mr. Sachdev gets increased by 5%, thereby his salary becomes ₹ 15,120 per annum. His earlier monthly salary (before the increase) was
 (1) ₹ 1,320 (2) ₹ 1,200
 (3) ₹ 1,240 (4) ₹ 1,440

(SSC Multi-Tasking Staff
Exam. 30.04.2017)

TYPE-IV

1. If A exceeds B by 40%, B is less than C by 20%, then A : C is :
 (1) 28 : 25 (2) 26 : 25

- (3) 3 : 2 (4) 3 : 1

(SSC CGL Prelim Exam. 04.07.1999
(Ist Sitting) & (SSC Section Officer Exam. 16.11.2003)

2. If 10% of m is the same as 20% of n, then m : n is equal to :
 (1) 2 : 1 (2) 1 : 2

- (3) 1 : 10 (4) 1 : 20

(SSC CGL Prelim Exam. 27.02.2000
(First Sitting))

3. The ratio 5 : 4 expressed as a per cent equals :

- (1) 125% (2) 80%
 (3) 40% (4) 12.5%

(SSC CGL Prelim Exam. 27.02.2000
(First Sitting))

4. The ratio of the number of boys and girls in a college is 3 : 2. If 20% of boys and 25% of girls are adults, the percentage of those students who are not adults, is

- (1) 58% (2) 67.5%
 (3) 78% (4) 82.5%

(SSC CGL Prelim Exam. 24.02.2002
(Middle Zone) & (SSC DEO Exam. 02.08.2009))

5. The ratio of the number of boys to that of girls in a school is 4 : 1. If 75% of boys and 70% of the girls are scholarship-holders, then the percentage of students who do not get scholarship is

- (1) 50% (2) 28%
 (3) 75% (4) 26%

(SSC CGL Prelim Exam. 11.05.2003
(Second Sitting))

6. Two numbers are in the ratio 2 : 3. If 20% of the smaller number added to 20 is equal to the sum of 10% of the larger number and 25, then the smaller number is

- (1) 100 (2) 160
 (3) 180 (4) 200

(SSC Section Officer (Commercial Audit) Exam. 16.11.2003)

7. Two numbers are respectively 20% and 50% more than a third number. The ratio of the two numbers is

- (1) 2 : 5 (2) 3 : 5
 (3) 4 : 5 (4) 6 : 7

(SSC Section Officer (Commercial Audit) Exam. 16.11.2003 & CPO SI Exam. 26.05.2005) & (SSC CGL Exam. 13.11.2005 (First Sitting))

8. The difference of two numbers is 45% of their sum. The ratio of the larger number to the smaller number is

- (1) 20 : 9 (2) 9 : 20
 (3) 29 : 11 (4) 11 : 29

(SSC CGL Prelim Exam. 08.02.2004
(Second Sitting) & (SSC CGL Exam. 27.07.2008 (IIInd Sitting) & (SSC HSL DEO & LDC Exam. 27.11.2010) &

(SSC CGL Tier-I Exam. 26.06.2011
(Ist Sitting) & (SSC MTS Exam. 10.03.2013 (Patna)))

9. If 30% of A = 0.25 of B = $\frac{1}{5}$ of C, then A : B : C is equal to :
 (1) 5 : 6 : 4 (2) 5 : 24 : 5

- (3) 6 : 5 : 4 (4) 10 : 12 : 15

(SSC CGL Prelim Exam. 08.02.2004
(First Sitting))

10. In a class, the number of girls is 20% more than that of the boys. The strength of the class is 66. If 4 more girls are admitted to the class, the ratio of the number of boys to that of the girls is
 (1) 1 : 2 (2) 3 : 4
 (3) 1 : 4 (4) 3 : 5

(SSC CGL Prelim Exam. 13.11.2005
(Second Sitting))

11. The ratio of the number of boys and girls in a school is 3 : 2. If 20% of the boys and 30% of the girls are scholarship holders, then the percentage of students, who do not get scholarship, is
 (1) 50% (2) 72%
 (3) 75% (4) 76%

(SSC CGL Prelim Exam. 04.02.2007
(First Sitting))

12. The expenses on rice, fish and oil of a family are in the ratio 12 : 17 : 3. The prices of these articles are increased by 20%, 30% and 50% respectively. The total expenses of family on these articles are increased by
 (1) $14\frac{1}{8}\%$ (2) $7\frac{1}{8}\%$
 (3) $56\frac{1}{8}\%$ (4) $28\frac{1}{8}\%$

(SSC CGL Prelim Exam. 04.02.2007
(First Sitting))

13. If $20\% \text{ of } A = 30\% \text{ of } B = \frac{1}{6} \text{ of } C$, then A : B : C is
 (1) 2 : 3 : 16
 (2) 3 : 2 : 16
 (3) 10 : 15 : 18
 (4) 15 : 10 : 18

(SSC CGL Prelim Exam. 04.02.2007
(First Sitting))

14. The bus fare and train fare of a place from Kolkata were ₹ 20 and ₹ 30 respectively. Train fare has been increased by 20% and the bus fare has been increased by 10%. The ratio of new train fare to new bus fare is
 (1) 11 : 18 (2) 18 : 11
 (3) 5 : 3 (4) 3 : 5

(SSC CGL Prelim Exam. 04.02.2007
(First Sitting))

15. The difference of two numbers is 15% of their sum. The ratio of the larger number to the smaller number is
 (1) 23 : 17 (2) 11 : 9
 (3) 17 : 11 (4) 23 : 11

(SSC CGL Prelim Exam. 04.02.2007
(Second Sitting))

PERCENTAGE

- 16.** The price of sugar is increased by 20%. If the expenditure on sugar has to be kept the same as earlier, the ratio between the reduction in consumption and the original consumption is
 (1) 1 : 3 (2) 1 : 4
 (3) 1 : 6 (4) 1 : 5
 (SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting)
- 17.** Rama's expenditures and savings are in the ratio 5 : 3. If her income increases by 12% and expenditure by 15%, then by how much per cent do her savings increase ?
 (1) 12% (2) 7%
 (3) 8% (4) 13%
 (SSC CGL Prelim Exam. 27.07.2008
 (First Sitting)
- 18.** The ratio of two numbers is 4:5 when the first is increased by 20% and the second is decreased by 20%, the ratio of the resulting numbers is
 (1) 4 : 5 (2) 5 : 4
 (3) 5 : 6 (4) 6 : 5
 (SSC CPO S.I. Exam. 09.11.2008)
- 19.** If $60\% \text{ of } A = \frac{3}{4} \text{ of } B$, then $A : B$ is
 (1) 9 : 20 (2) 20 : 9
 (3) 4 : 5 (4) 5 : 4
 (SSC CGL Tier-I Exam. 16.05.2010
 (First Sitting))
- 20.** If A exceeds B by 60% and B is less than C by 20%, then A : C is
 (1) 32 : 25 (2) 25 : 32
 (3) 8 : 5 (4) 4 : 5
 (SSC CISF ASI Exam. 29.08.2010
 (Paper-1))
- 21.** If $30\% \text{ of } (B - A) = 18\% \text{ of } (B + A)$, then the ratio A : B is equal to
 (1) 4 : 1 (2) 1 : 4
 (3) 5 : 4 (4) 5 : 9
 (SSC CPO S.I.
 Exam. 12.12.2010 (Paper-1))
- 22.** The ratio of the number of boys and girls in a school is 3 : 2. If 20% of the boys and 25% of the girls are scholarship holders, then the percentage of the students, who do not get the scholarship, is :
 (1) 78% (2) 75%
 (3) 60% (4) 55%
 (SSC CHSL DEO & LDC
 Exam. 27.11.2010)
- 23.** When 60% of a number is subtracted from another number, the second number reduces to its 52%; the ratio of the first number to the second number is :
 (1) 6 : 5 (2) 5 : 3
 (3) 5 : 4 (4) 4 : 5
 (SSC CHSL DEO & LDC Exam.
 11.12.2011 (IInd Sitting (Delhi Zone))
- 24.** The population of a town is 3,11,250. The ratio between women and men is 43 : 40. If there are 24% literate among men and 8% literate among women, the total number of literate persons in the town is
 (1) 41,800 (2) 48,900
 (3) 56,800 (4) 99,600
 (SSC Graduate Level Tier-II
 Exam. 16.09.2012)
- 25.** The prices of a school bag and a shoe are in the ratio 7 : 5. The price of a school bag is ₹ 200 more than the price of a shoe. Then the price of a shoe is
 (1) ₹ 200 (2) ₹ 700
 (3) ₹ 500 (4) ₹ 1,200
 (SSC Graduate Level Tier-I
 Exam. 19.05.2013 Ist Sitting)
- 26.** If 15% of x is same as 20 % of y then $x : y$ is
 (1) 4 : 3 (2) 5 : 4
 (3) 6 : 5 (4) 3 : 4
 (SSC CGL Tier-I
 Re-Exam. (2013) 27.04.2014)
- 27.** The ratio of the number of boys and girls in a school is 2 : 3. If 25% of the boys and 30% of the girls are scholarship holders, the percentage of the school students who are not scholarship holders is
 (1) 72 (2) 36
 (3) 54 (4) 60
 (SSC CGL Tier-I Re-Exam. (2013)
 20.07.2014 (IInd Sitting))
- 28.** Two numbers A and B are such that the sum of 5% of A and 4% of B is $\frac{2}{3}$ rd of the sum of 6% of A and 8% of B. The ratio A : B is
 (1) 4 : 3 (2) 3 : 4
 (3) 1 : 1 (4) 2 : 3
 (SSC CGL Tier-I Exam. 19.10.2014)
- 29.** In what ratio must 25% hydrochloric acid be mixed with 60% hydrochloric acid to get a mixture of 40% hydrochloric acid ?
 (1) 5 : 12 (2) 4 : 3
 (3) 3 : 4 (4) 12 : 5
 (SSC CHSL (10+2) DEO & LDC
 Exam. 16.11.2014 , Ist Sitting
 TF No. 333 LO 2)
- 30.** If $50\% \text{ of } x = 30\% \text{ of } y$, then $x : y$ is
 (1) 2 : 3 (2) 5 : 3
 (3) 3 : 2 (4) 3 : 5
 (SSC CGL Tier-II Exam. 12.04.2015
 TF No. 567 TL 9)
- 31.** The ratio of the number of boys to that of girls in a village is 3 : 2. If 30% of boys and 70% of girls appeared in an examination, the ratio of the number of villagers, appeared in the examination to that not appeared in the same examination is
 (1) 9 : 14 (2) 23 : 27
 (3) 1 : 1 (4) 27 : 23
 (SSC CAPFs SI, CISF ASI & Delhi
 Police SI Exam, 21.06.2015
 IInd Sitting)
- 32.** A milkman mixed some water with milk to gain 25% by selling the mixture at the cost price. The ratio of water and milk is respectively
 (1) 5 : 4 (2) 4 : 5
 (3) 1 : 5 (4) 1 : 4
 (SSC CHSL (10+2) LDC, DEO
 & PA/SA Exam, 15.11.2015
 (Ist Sitting) TF No. 6636838)
- 33.** The ratio of syrup and water in a mixture is 3 : 1, then the percentage of syrup in this mixture is :
 (1) 75% (2) 25%
 (3) $66\frac{2}{3}\%$ (4) $33\frac{1}{3}\%$
 (SSC CHSL (10+2) LDC, DEO
 & PA/SA Exam, 15.11.2015
 (IInd Sitting) TF No. 7203752)
- 34.** There is a ratio of 5: 4 between two numbers. If 40 % of the first number is 12, then what would be 50 % of the second number?
 (1) 12 (2) 24
 (3) 18 (4) Data Inadequate
 (SSC CPO SI, ASI Online
 Exam.05.06.2016) (IInd Sitting)
- 35.** If 10% of x is 3 times 15% of y, then find $x : y$.
 (1) 7 : 2 (2) 9 : 2
 (3) 8 : 3 (4) 11 : 4
 (SSC CGL Tier-I (CBE)
 Exam. 27.08.2016) (IInd Sitting)
- 36.** The ratio between Ram's age and Rahim's age is 10:11. What is the age of Rahim in percentage of Ram's age ?
 (1) $109\frac{1}{11}\%$ (2) 110%
 (3) $111\frac{1}{9}\%$ (4) 111%
 (SSC CGL Tier-I (CBE)
 Exam. 01.09.2016) (Ist Sitting)

PERCENTAGE

37. The ratio of the number of boys and girls in a school is 3:2. If 20% of the boys and 25% of the girls are scholarship holders, the percentage of the school students who are not scholarship holders is

- (1) 56 (2) 78
 (3) 70 (4) 80

(SSC CGL Tier-II (CBE)
 Exam. 30.11.2016)

38. If 35% of A's income is equal to 25% of B's income, then the ratio of A's income to B's income is

- (1) 7 : 5 (2) 5 : 7
 (3) 4 : 7 (4) 4 : 3

(SSC CGL Tier-I (CBE)
 Exam. 09.09.2016 (IInd Sitting)

TYPE-V

1. A sample of 50 litres of glycerine is found to be adulterated to the extent of 20%. How much pure glycerine should be added to it so as to bring down the percentage of impurity to 5%?

- (1) 155 litres (2) 150 litres
 (3) 150.4 litres (4) 149 litres
 (SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting))

2. 1 litre of water is added to 5 litres of alcohol-water solution containing 40% alcohol strength. The strength of alcohol in the new solution will be

- (1) 30% (2) 33%
 (3) $33\frac{2}{3}\%$ (4) $33\frac{1}{3}\%$

(SSC CGL Prelim Exam. 04.02.2007
 (First Sitting))

3. If 4 litres of water is evaporated on boiling from 12 litres of salt solution containing 7 percentage salt, the percentage of salt in the remaining solution is

- (1) 10.5% (2) 11.5%
 (3) 12% (4) 13%
 (SSC CPO S.I. Exam. 06.09.2009)

4. A vessel has 60 litres of solution of acid and water having 80% acid. How much water be added to make it a solution in which acid forms 60%?

- (1) 48 litres (2) 20 litres
 (3) 36 litres
 (4) None of these

(SSC CHSL DEO & LDC Exam.
 04.12.2011 (1st Sitting (North Zone))

5. 75 gm of sugar solution has 30% sugar in it. Then the quantity of sugar that should be added to the solution to make the quantity of the sugar 70% in the solution, is

- (1) 125 gm (2) 100 gm
 (3) 120 gm (4) 130 gm

(SSCCHSL DEO & LDC
 Exam. 04.12.2011

(IInd Sitting (East Zone))

6. A litre of pure alcohol is added to 6 litres of 30% alcohol solution. The percentage of water in the solution is

- (1) 50% (2) 65%
 (3) 60% (4) 40%

(SSC CHSL DEO& LDC Exam. 11.12.2011
 (Ist Sitting (Delhi Zone))

7. An ore contains 25% of an alloy that has 90% iron. Other than this, in the remaining 75% of the ore, there is no iron. To obtain 60 kg of pure iron, the quantity of the ore needed (in kgs) is approximately :

- (1) 250.57 (2) 266.67
 (3) 275.23 (4) 300

(SSCCHSL DEO & LDC
 Exam. 11.12.2011

(IInd Sitting (Delhi Zone))

8. How much water must be added to 100 ml of 80 per cent solution of boric acid to reduce it to a 50 per cent solution?

- (1) 30 ml (2) 40 ml
 (3) 50 ml (4) 60 ml

(SSC CHSL DEO & LDC
 Exam. 11.12.2011

(Ist Sitting (East Zone))

9. In one litre of a mixture of alcohol and water, water is 30%. The amount of alcohol that must be added to the mixture so that the part of water in the mixture becomes 15% is :

- (1) 1000 ml (2) 700 ml
 (3) 300 ml (4) 900 ml

(SSC CHSL DEO & LDC
 Exam. 11.12.2011

(IInd Sitting (East Zone))

10. One type of liquid contains 20% water and the second type of liquid contains 35% of water. A glass is filled with 10 parts of first liquid and 4 parts of second liquid. The water in the new mixture in the glass is

- (1) 37% (2) 46%
 (3) $12\frac{1}{7}\%$ (4) $24\frac{2}{7}\%$

(SSC CHSL DEO & LDC Exam.

10.11.2013, IInd Sitting)

11. 40 litres of a mixture of milk and water contains 10% of water, the water to be added, to make the water content 20% in the new mixture is :

- (1) 6 litres (2) 6.5 litres
 (3) 5.5 litres (4) 5 litres

(SSC CGL Prelim Exam. 11.05.2003
 (1st Sitting) & (HSL DEO LDC
 Exam. 28.11.2010)

12. How much pure alcohol has to be added to 400 ml of a solution containing 15% of alcohol to change the concentration of alcohol in the mixture to 32%?

- (1) 60 ml (2) 100 ml
 (3) 128 ml (4) 68 ml

(SSC CGL Prelim Exam.
 11.05.2003 (Second Sitting))

13. In 50 gm alloy of gold and silver, the gold is 80% by weight. How much gold should be mixed to this alloy so that the weight of gold would become 95%?

- (1) 200 gm (2) 150 gm
 (3) 50 gm (4) 10 gm

(SSC Section Officer (Commercial
 Audit) Exam. 25.09.2005)

14. 200 litres of a mixture contains 15% water and the rest is milk. The amount of milk that must be added so that the resulting mixture contains 87.5% milk is

- (1) 30 litres (2) 35 litres
 (3) 40 litres (4) 45 litres

(SSC Section Officer (Commercial
 Audit) Exam. 30.09.2007
 (Second Sitting))

15. In what ratio must a mixture of 30% alcohol strength be mixed with that of 50% alcohol strength so as to get a mixture of 45% alcohol strength?

- (1) 1 : 2 (2) 1 : 3
 (3) 2 : 1 (4) 3 : 1

(SSC CGL Prelim Exam.
 27.07.2008 (First Sitting))

16. The ratio in which two sugar solutions of the concentrations 15% and 40% are to be mixed to get a solution of concentration 30% is

- (1) 2 : 3 (2) 3 : 2
 (3) 8 : 9 (4) 9 : 8

(SSC CGL Prelim Exam.
 27.07.2008 (Second Sitting))

17. 15 litres of a mixture contains alcohol and water in the ratio 1 : 4. If 3 litres of Water is mixed in it, the percentage of alcohol in the new mixture will be

- (1) 15% (2) $16\frac{2}{3}\%$
 (3) 17% (4) $18\frac{1}{2}\%$

(SSC Graduate Level Tier-I
 Exam. 21.04.2013)

PERCENTAGE

- 18.** In an alloy there is 12% of copper. To get 69 kg of copper, how much alloy will be required?

(1) 424 kg (2) 575 kg
 (3) 828 kg (4) $1736 \frac{2}{3}$ kg

(SSC CGL Prelim Exam.
24.02.2002 (Middle Zone)

- 19.** In what ratio must 25% of alcohol be mixed with 50% of alcohol to get a mixture of 40% strength alcohol?

(1) 1 : 2 (2) 2 : 1
 (3) 2 : 3 (4) 3 : 2

(SSC CGL Tier-I Re-Exam. (2013)
20.07.2014 (Ist Sitting)

- 20.** 20 litres of a mixture contains 20% alcohol and the rest water. If 4 litres of water be mixed in it, the percentage of alcohol in the new mixture will be

(1) $33\frac{1}{3}\%$ (2) $16\frac{2}{3}\%$
 (3) 25% (4) $12\frac{1}{2}\%$

(SSC CGL Tier-II Exam. 21.09.2014)

- 21.** 300 grams of sugar solution has 40% of sugar in it. How much sugar should be added to make it 50% in the solution?

(1) 40 gram (2) 10 gram
 (3) 60 gram (4) 80 gram

(SSC CGL Tier-II Exam.
25.10.2015, TF No. 1099685)

- 22.** A sugar solution of 3 litre contain 60% sugar. One liter of water is added to this solution. Then the percentage of sugar in the new solution is:

(1) 30 (2) 45
 (3) 50 (4) 60

(SSC CPO SI, ASI Online
Exam.05.06.2016) (IIInd Sitting)

- 23.** 8 litres of water is added to 32 litres of a solution containing 20% of alcohol in water. What is the approximate concentration of alcohol in the solution now?

(1) 24% (2) 16%
 (3) 8% (4) 12%

(SSC CPO SI & ASI, Online
Exam. 06.06.2016) (IIInd Sitting)

TYPE-VI

- 1.** Price of sugar rises by 20%. By how much percent should the consumption of sugar be reduced so that the expenditure does not change?

(1) 20% (2) 10%
 (3) $16\frac{2}{3}\%$ (4) 15%

(SSC CGL Prelim Exam. 04.07.1999
(Ist Sitting) & (SSC CGL Tier-I
Exam. 19.06.2011 (Ist Sitting)

- 2.** If food prices go up by 10%, by how much should a man reduce his consumption so as not to increase his expenditure?

(1) $9\frac{1}{11}\%$ (2) 10%
 (3) $11\frac{1}{9}\%$

(4) The data is not sufficient
(SSC CGL Prelim Exam. 27.02.2000
(Second Sitting)

- 3.** In the new budget, the price of kerosene oil rose by 25%. By how much per cent must a person reduce his consumption of kerosene oil so that his expenditure on it does not increase?

(1) 20% (2) 25%
 (3) 50% (4) 40%

(SSC CGL Prelim Exam. 24.02.2002
(IIInd Sitting) & (SSC CGL
Exam. 13.11.2005 (IIInd Sitting)

- 4.** If the price of tea is increased by 20%, by how much per cent the consumption of tea be reduced so that there is no increase in the expenditure on it?

(1) $83\frac{1}{3}\%$ (2) 20%
 (3) $16\frac{2}{3}\%$ (4) $8\frac{1}{3}\%$

(SSC CPO S.I. Exam. 05.09.2004)

- 5.** If the price of a commodity is decreased by 20% and its consumption is increased by 20%, what will be the increase or decrease in the expenditure on the commodity?

(1) 4% increase (2) 4% decrease
 (3) 8% decrease (4) 8% increase
(SSC CPO S.I. Exam. 16.12.2007)

- 6.** The price of a certain item is increased by 15%. If a consumer wants to keep his expenditure on the item the same as before, how much per cent must he reduce

his consumption of that item?

(1) 15% (2) $13\frac{1}{23}\%$
 (3) $16\frac{2}{3}\%$ (4) $10\frac{20}{23}\%$

(SSC CGL Prelim Exam. 04.02.2007
(First Sitting)

- 7.** If the price of a commodity is increased by 50%, by what fraction must its consumption be reduced so as to keep the same expenditure on its consumption?

(1) $\frac{1}{4}$ (2) $\frac{1}{3}$
 (3) $\frac{1}{2}$ (4) $\frac{2}{3}$

(SSC CGL Prelim Exam. 27.07.2008
(First Sitting)

- 8.** If the price of rice be raised by 25%, the percent by which a house-holder must reduce his consumption of rice so as not to increase his expenditure on rice is

(1) 225% (2) 25.75%
 (3) 25% (4) 20%

(SSC Multi-Tasking Staff
Exam. 17.03.2013, Ist Sitting)

- 9.** If the duty on an article is reduced by 40% of its present rate, by how much per cent must its consumption increase in order that the revenue remains unaltered?

(1) 60% (2) $62\frac{1}{3}\%$
 (3) 72% (4) $66\frac{2}{3}\%$

(SSC CPO S.I. Exam. 09.11.2008)

- 10.** Price of milk has increased by 20%. To keep the expenditure unchanged, the present consumption is to be reduced by :

(1) 20% (2) 18%
 (3) 10% (4) $16\frac{2}{3}\%$

(SSC Multi-Tasking Staff
Exam. 10.03.2013)

- 11.** The price of a commodity rises from ₹ 6 per kg to ₹ 7.50 per kg. If the expenditure cannot increase, the percentage of reduction in consumption is

(1) 15% (2) 20%
 (3) 25% (4) 30%
(SSC CGL Tier-1 Exam 19.06.2011
(Second Sitting)

PERCENTAGE

- 12.** Water tax is increased by 20% but its consumption is decreased by 20%. Then the increase or decrease in the expenditure of the money is
 (1) 5% decrease (2) 4% decrease
 (3) No change (4) 4% increase

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

- 13.** Price of a commodity has increased by 60%. By what per cent must a consumer reduce the consumption of the commodity so as not to increase the expenditure ?

(1) 37% (2) 37.5%
 (3) 40.5% (4) 60%
 (SSC CGL Tier-I Exam 26.06.2011 (Second Sitting))

- 14.** The price of petrol is increased by 25%. By how much per cent a car owner should reduce his consumption of petrol so that the expenditure on petrol would not be increased ?

(1) 25% (2) 30%
 (3) 50% (4) 20%
 (SSC Section Officer (Commercial Audit) Exam. 25.09.2005)

- 15.** If the price of petrol be raised by 20%, then the percentage by which a car owner must reduce his consumption so as not to increase his expenditure on petrol is

(1) $16\frac{1}{3}\%$ (2) $16\frac{2}{3}\%$
 (3) $15\frac{2}{3}\%$ (4) $15\frac{1}{3}\%$

(SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (Second Sitting))

TYPE-VII

- 1.** In an examination, there were 1000 boys and 800 girls. 60% of the boys and 50% of the girls passed. Find the percent of the candidates failed ?
 (1) 46.4% (2) 48.4%
 (3) 44.4% (4) 49.6%
 (SSC CGL Prelim Exam. 04.07.1999 (First Sitting))

- 2.** In an examination, a student who gets 20% of the maximum marks fails by 5 marks. Another student who scores 30% of the maximum marks gets 20 marks more than the pass marks. The necessary percentage required for passing is :

(1) 32% (2) 23%
 (3) 22% (4) 20%
 (SSC CGL Prelim Exam. 27.02.2000 (First Sitting))

- 3.** In an examination a candidate must secure 40% marks to pass. A candidate, who gets 220 marks, fails by 20 marks. What are the maximum marks for the examination?

(1) 1200 (2) 800
 (3) 600 (4) 450

(SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))

- 4.** A student has to obtain 33% of total marks to pass. He got 25% of total marks and failed by 40 marks. The number of total marks is

(1) 800 (2) 300
 (3) 500 (4) 1000

(SSC CPO S.I. Exam. 12.01.2003)

- 5.** Two students appeared at an examination. One of them secured 9 marks more than the other and his marks were 56% of the sum of their marks. The marks obtained by them are :

(1) 42, 33 (2) 43, 34
 (3) 41, 32 (4) 39, 30

(SSC CGL Prelim Exam. 08.02.2004 (Second Sitting))

- 6.** In the annual examination Mahuya got 10% less marks than Supriyo in Mathematics. Mahuya got 81 marks. The marks of Supriyo are

(1) 90 (2) 87
 (3) 88 (4) 89

(SSC CHSL DEO & LDC Exam. 20.10.2013)

- 7.** A student has to secure 40% marks to pass. He gets 90 marks and fails by 10 marks. Maximum marks are :

(1) 200 (2) 225
 (3) 250 (4) 275

(SSC CPO S.I. Exam. 26.05.2005)

- 8.** In an examination, 65% of the students passed in Mathematics, 48% passed in Physics and 30% passed in both. How much per cent of students failed in both the subjects ?

(1) 17% (2) 43%
 (3) 13% (4) 47%

(SSC CGL Prelim Exam. 04.02.2007 (Second Sitting))

- 9.** 72% of the students of a certain class took Biology and 44% took Mathematics. If each student took at least one subject from Biology or Mathematics and 40 took both, then the total number of students in the class is :

(1) 200 (2) 240
 (3) 250 (4) 320

(SSC CPO S.I. Exam. 16.12.2007)

- 10.** In an examination, a student had to obtain 33% of the maximum marks to pass. He got 125 marks and failed by 40 marks. The maximum marks were

(1) 500 (2) 600
 (3) 800 (4) 1000

(SSC CPO S.I.)

Exam 12.12.2010 (Paper-I)

- 11.** For an examination it is required to get 36 % of maximum marks to pass. A student got 113 marks and failed by 85 marks. The maximum marks for the examination are :

(1) 500 (2) 550
 (3) 565 (4) 620

(SSC CHSL DEO & LDC Exam. 28.11.2010 (Ist Sitting))

- 12.** A student scored 32% marks in science subjects out of 300. How much should he score in language papers out of 200 if he is to get overall 46% marks ?

(1) 72% (2) 67%
 (3) 66% (4) 60%

(SSC CHSL DEO & LDC Exam. 28.11.2010 (IIInd Sitting))

- 13.** In an examination in which full marks were 500, A got 10% less than B. B got 25% more than C. C got 20% less than D. If A got 360 marks, what percentage of full marks was obtained by D ?

(1) 90% (2) 80%
 (3) 50% (4) 60%

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting (East Zone)))

- 14.** In an examination, 1100 boys and 900 girls appeared. 50% of the boys and 40% of the girls passed the examination. The percentage of candidates who failed

(1) 45% (2) 45.5%
 (3) 50% (4) 54.5%

(SSC Multi-Tasking (Non-Technical) Staff Exam. 22.02.2011)

- 15.** In an examination 80% of the boys passed in English and 85% passed in Mathematics, while 75% passed in both. If 45 boys failed in both, the number of boys who sat for the examination was

(1) 400 (2) 450
 (3) 200 (4) 150

(SSC CPO SI Exam. 09.11.2008)

& (SSC Constable (GD) Exam. 12.05.2013)

PERCENTAGE

- 16.** In a class 60% of the student pass in Hindi and 45% pass in Sanskrit. If 25% of them pass in atleast one subject, what percentage of the students fail in both the subjects ?
 (1) 80% (2) 75%
 (3) 20% (4) 25%
 (SSC CGL Prelim Exam. 27.02.2000
 (First Sitting)
- 17.** In an examination 60% of the students pass in English, 70% pass in Hindi and 40% pass in both. What percent of students fail in both English and Hindi?
 (1) 10% (2) 20%
 (3) 25% (4) 30%
 (SSC CGL Prelim Exam. 27.02.2000
 (Second Sitting)
- 18.** In an examination 70% of the candidates passed in English. 80% passed in Mathematics. 10% failed in both the subjects. If 144 candidates passed in both, the total number of candidates were :
 (1) 125 (2) 200
 (3) 240 (4) 375
 (SSC CGL Prelim Exam. 11.05.2003
 (First Sitting)
- 19.** A candidate who gets 20% marks in an examination fails by 30 marks but another candidate who gets 32% gets 42 marks more than the passing marks. Then the percentage of pass marks is :
 (1) 52% (2) 50%
 (3) 33% (4) 25%
 (SSC CGL Prelim Exam. 11.05.2003
 (First Sitting)
- 20.** In an examination there were 640 boys and 360 girls. 60% of boys and 80% of girls were successful. The percentage of failure was :
 (1) 20% (2) 60%
 (3) 30.5% (4) 32.8%
 (SSC CGL Prelim Exam. 11.05.2003
 (First Sitting)
- 21.** In an examination 34% failed in Mathematics and 42% failed in English. If 20% failed in both the subjects, the percentage of students who passed in both subjects was
 (1) 54% (2) 50%
 (3) 44% (4) 56%
 (SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting)
- 22.** A candidate secured 30% marks in an examination and failed by 6 marks. Another secured 40% marks and got 6 marks more than the bare minimum to pass. The maximum marks are
 (1) 150 (2) 120
 (3) 100 (4) 180
 (SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting)
- 23.** In an examination, 52% students failed in Hindi and 42% in English. If 17% failed in both the subjects, what percentage of students passed in both the subjects ?
 (1) 38% (2) 33%
 (3) 23% (4) 18%
 (SSC CGL Prelim Exam. 08.02.2004
 (Ist Sitting) & (SSC SAS Exam.
 26.06.2010 (Paper-II) & (SSC GL
 Tier-II Exam. 16.09.2012)
- 24.** In a group of students, 70% can speak English and 65% can speak Hindi. If 27% of the students can speak none of the two languages, then what per cent of the group can speak both the languages ?
 (1) 38% (2) 62%
 (3) 28% (4) 23%
 (SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting)
- 25.** 25% of the candidates who appeared in an examination failed to qualify and only 450 candidates qualified. The number of candidates, who appeared in the examination, was
 (1) 700 (2) 600
 (3) 550 (4) 500
 (SSC CPO S.I. Exam. 05.09.2004)
- 26.** In two successive years 100 and 75 students of a school appeared at the final examination. Respectively, 75% and 60% of them passed. The average rate of pass is
 (1) $68\frac{4}{7}\%$ (2) 78%
 (3) $80\frac{1}{2}\%$ (4) 80%
 (SSC CPO S.I. Exam. 03.09.2006)
- 27.** A student has to secure minimum 35% marks to pass in an examination. If he gets 200 marks and fails by 10 marks, then the maximum marks are
 (1) 300 (2) 400
 (3) 500 (4) 600
 (SSC CPO S.I. Exam. 03.09.2006)
- 28.** A candidate who scores 30 per cent fails by 5 marks, while another candidate who scores 40 per cent marks gets 10 more than minimum pass marks. The minimum marks required to pass are
 (1) 50 (2) 70
 (3) 100 (4) 150
 (SSC Section Officer (Commercial Audit) Exam. 26.11.2006 (Second Sitting)
- 29.** In an examination, 60% of the candidates passed in English and 70% of the candidates passed in Mathematics, but 20% failed in both of these subjects. If 2500 candidates passed in both the subjects, the number of candidates who appeared at the examination was
 (1) 3000 (2) 3500
 (3) 4000 (4) 5000
 (SSC CGL Prelim Exam. 04.02.2007
 (First Sitting)
- 30.** In a test a student got 30% marks and failed by 25 marks. In the same test another student got 40% marks and secured 25 marks more than the essential minimum pass marks. The maximum marks for the test were
 (1) 400 (2) 480
 (3) 500 (4) 580
 (SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (Second Sitting)
- 31.** In an examination 80% candidates passed in English and 85% candidates passed in Mathematics. If 73% candidates passed in both these subjects, then what per cent of candidates failed in both the subjects ?
 (1) 8% (2) 15%
 (3) 27% (4) 35%
 (SSC CGL Prelim Exam. 27.07.2008
 (First Sitting)
- 32.** In an examination, 35% of the candidates failed in Mathematics and 25% in English. If 10% failed in both Mathematics and English, then how much percent of candidates passed in both the subjects ?
 (1) 50% (2) 55%
 (3) 57% (4) 60%
 (SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting))

PERCENTAGE

- 33.** In an examination, 93% of students passed and 259 failed. The total number of students appearing at the examination was
 (1) 3700 (2) 3850
 (3) 3950 (4) 4200
 (SSC CISF ASI Exam. 29.08.2010
 (Paper-1)
- 34.** 90% of the students in a school passed in English, 85% passed in Mathematics and 150 students passed in both the subjects. If no student failed in both the subjects, find the total number of students.
 (1) 120 (2) 220
 (3) 200 (4) 300
 (SSC Graduate Level Tier-I Exam. 11.11.2012 (1st Sitting)
- 35.** Three sets of 40, 50 and 60 students appeared for an examination and the pass percentage was 100, 90 and 80 respectively. The pass percentage of the whole set is
 (1) $88\frac{2}{3}\%$ (2) $84\frac{2}{3}\%$
 (3) $88\frac{1}{3}\%$ (4) $84\frac{1}{3}\%$
 (SSC Graduate Level Tier-II Exam. 29.09.2013)
- 36.** In an examination A got 25% marks more than B, B got 10% less than C and C got 25% more than D. If D got 320 marks out of 500, the marks obtained by A were
 (1) 405 (2) 450
 (3) 360 (4) 400
 (SSC Graduate Level Tier-II Exam. 29.09.2013)
- 37.** In two successive years, 80 and 60 students of a school appeared at the final examination of which 60% and 80% passed respectively. The average rate of students passed (in percent) is
 (1) 68% (2) $68\frac{4}{7}\%$
 (3) 70% (4) $72\frac{3}{7}\%$
 (SSC CGL Tier-I Exam. 19.10.2014 (1st Sitting))
- 38.** In an examination, 19% students fail in Mathematics and 10% students fail in English. If 7% of all students fail in both subjects, then the number of students passed in both subjects is
- (1) 36 % of all students
 (2) 64% of all students
 (3) 71% of all students
 (4) 78% of all students
 (SSC CHSL DEO & LDC Exam. 02.11.2014 (IInd Sitting))
- 39.** A class has two sections, which contain 20 and 30 students. The pass percentage of these sections are 80% and 60% respectively. The pass percentage of whole class is
 (1) 60 (2) 68
 (3) 70 (4) 78
 (SSC CHSL DEO Exam. 02.11.2014 (1st Sitting))
- 40.** In an examination 75% candidates passed in English and 60% passed in Mathematics. 25% failed in both and 240 passed the examination. Find the total number of candidates.
 (1) 492 (2) 300
 (3) 500 (4) 400
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014 TF No. 999 KPO)
- 41.** In a quarterly examination a student secured 30% marks and failed by 12 marks. In the same examination another student secured 40% marks and got 28 marks more than minimum marks to pass. The maximum marks in the examination is
 (1) 300 (2) 500
 (3) 700 (4) 400
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IInd Sitting TF No. 545 QP 6)
- 42.** In an examination there are three subjects of 100 marks each. A student scores 60% in the first subject and 80% in the second subject. He scored 70% in aggregate. His percentage of marks in the third subject is
 (1) 80 (2) 60
 (3) 65 (4) 70
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 21.06.2015 IInd Sitting)
- 43.** In an examination, a student must get 36% marks to pass. A student who gets 190 marks failed by 35 marks. The total marks in that examination is
 (1) 450 (2) 810
 (3) 500 (4) 625
 (SSC CGL Tier-I Exam. 16.08.2015 (1st Sitting) TF No. 3196279)
- 44.** A candidate who gets 20% marks in an examination, fails by 30 marks. But if he gets 32% marks, he gets 42 marks more than the minimum pass marks. Find the pass percentage of marks.
 (1) 52% (2) 20%
 (3) 25% (4) 12%
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 15.11.2015 (IInd Sitting) TF No. 7203752)
- 45.** In an examination 73% of the candidates passed in quantitative aptitude test, 70% passed in General awareness and 64% passed in both. If 6300 failed in both subjects the total number of examinees was
 (1) 60000 (2) 50000
 (3) 30000 (4) 25000
 (SSC CGL Tier-II Online Exam. 01.12.2016)
- 46.** In a certain school, 10% of the students have less than 75% attendance and are not allowed to sit in the exam, but 20% of the students who have less than 75% attendance are allowed to sit in the exam. What percent of the students in the school have less than 75% attendance ?
 (1) 30% (2) 12.5%
 (3) 15% (4) 10.5%
 (SSC CPO Exam. 06.06.2016 (1st Sitting))
- 47.** There are 1400 students in a school, 25% of them wear spectacles and $\frac{2}{7}$ of them wearing spectacles are boys. How many girls in the school do wear spectacles ?
 (1) 250 (2) 100
 (3) 200 (4) 300
 (SSC CGL Tier-I (CBE) Exam. 27.08.2016) (1st Sitting)
- 48.** If 60% of the students in a school are boys and the number of girls is 812, how many boys are there in the school?
 (1) 1128 (2) 1218
 (3) 1821 (4) 1281
 (SSC CGL Tier-I (CBE) Exam. 02.09.2016) (1st Sitting)
- 49.** A scored 72% in a paper with a maximum marks of 900 and 80% in another paper with a maximum marks of 700. If the result is based on the combined percentage of two papers, the combined percentage is
 (1) 75.5% (2) 76%
 (3) 76.5% (4) 77%
 (SSC CGL Tier-II (CBE) Exam. 30.11.2016)

PERCENTAGE

- 50.** In an examination, 35% of total students failed in Hindi, 45% failed in English and 20% failed in both. Find the percentage of those students who passed in both the subjects ?
 (1) 45% (2) 35%
 (3) 20% (4) 40%
 (SSC CGL Tier-I (CBE)
 Exam. 31.08.2016 (IIInd Sitting)
- 51.** The average marks obtained in a class of 50 students is 70%. The average of first 25 is 60% and that of 24 is 80%. What is the marks obtained by the last student?
 (1) 90% (2) 60%
 (3) 80% (4) 70%
 (SSC CGL Tier-I (CBE)
 Exam. 09.09.2016 (IIInd Sitting)
- 52.** Two students appeared for an examination. One of them secured 9 marks more than the other and his marks were 56% of the sum of their marks. The marks obtained by them are
 (1) 40 and 31 (2) 72 and 63
 (3) 42 and 33 (4) 68 and 59
 (SSC CHSL (10+2) Tier-I (CBE)
 Exam. 15.01.2017) (IInd Sitting)
- 53.** An engineering student has to secure 25% marks to pass. He gets 47 and fails by 43 marks. What are the maximum marks of the examination ?
 (1) 385 marks (2) 410 marks
 (3) 360 marks (4) 435 marks
 (SSC CHSL (10+2) Tier-I (CBE)
 Exam. 16.01.2017) (IInd Sitting)
- 54.** An examinee has to secure 40% marks to pass an examination. He secures 180 marks and fails by an equal number of marks. The total number of marks in the examination is
 (1) 900 (2) 1000
 (3) 1050 (4) 800
 (SSC Multi-Tasking Staff
 Exam. 30.04.2017)
- 2.** A number is increased by 20% and then it is decreased by 10%. Find the net increase or decrease per cent.
 (1) 10% increase
 (2) 10% decrease
 (3) 8% increase
 (4) 8% decrease
 (SSC CGL Prelim Exam. 24.02.2002
 (Second Sitting)
- 3.** The tax imposed on an article is decreased by 10% and its consumption increases by 10%. Find the percentage change in revenue from it.
 (1) 10% increase (2) 2% decrease
 (3) 1% decrease (4) 11% increase
 (SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone)
- 4.** The price of an article was decreased by 10% and again reduced by 10%. By what per cent should the price have been reduced once, in order to produce the same effect as these two successive reductions ?
 (1) 15% (2) 19%
 (3) 20% (4) 25%
 (SSC CPO S.I. Exam. 12.01.2003)
- 5.** If price of a book is first decreased by 25% and then increased by 20%, the net change in the price of the book will be
 (1) 10% decrease
 (2) 5% decrease
 (3) no change
 (4) 5% increase
 (SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting)
- 6.** The price of an article is reduced by 25% but the daily sale of the article is increased by 30%. The net effect on the daily sale receipts is
 (1) $2\frac{1}{2}\%$ increase
 (2) $2\frac{1}{2}\%$ decrease
 (3) 2 % increase
 (4) 2% decrease
 (SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting)
- 7.** Two successive price increases of 10% and 10% of an article are equivalent to a single price increase of
 (1) 19% (2) 20%
 (3) 21% (4) 22%
 (SSC CGL Tier-I Exam. 16.05.2010
 (First Sitting)
- 8.** The price of an article was first increased by 10% and then again by 20%. If the last increased price be ₹ 33, the original price was
 (1) ₹ 30 (2) ₹ 27.50
 (3) ₹ 26.50 (4) ₹ 25
 (SSC CGL Tier-I Exam. 16.05.2010
 (Second Sitting)
- 9.** If a number is increased by 20% and the resulting number is again increased by 20%, what per cent is the total increase ?
 (1) 48% (2) 44%
 (3) 41% (4) 40%
 (SSC SAS Exam 26.06.2010 (Paper-1)
- 10.** A number is increased by 10% and then it is decreased by 10%. The net change in the number is
 (1) no increase or decrease
 (2) 2% decrease
 (3) 1% increase
 (4) 1% decrease
 (SSC CGL Prelim Exam. 11.05.2003
 (Ist Sitting) & (SSC (South Zone)
 Investigator Exam. 12.09.2010) &
 CHSL DEO & LDC Exam. 04.11.2012)
- 11.** A number is first increased by 10% and then it is further increased by 20%. The original number is increased altogether by
 (1) 30% (2) 15%
 (3) 32% (4) 36%
 (SSC CGL Exam. 04.02.2007
 (Ist Sitting) & (FCI Assistant Grade-III
 Exam. 25.02.2012 (Paper-I)
 North Zone (Ist Sitting)
- 12.** When the price of an article was reduced by 20% its sale increased by 80%. What was the net effect on the sale?
 (1) 44% increase
 (2) 44% decrease
 (3) 66% increase
 (4) 75% increase
 (SSC CGL Tier-1 Exam 19.06.2011
 (First Sitting)
- 13.** The length of a rectangle is increased by 10% and breadth decreased by 10% Then the area of the new rectangle is
 (1) neither decreased nor increased
 (2) increased by 1%
 (3) decreased by 1%
 (4) decreased by 10%
 (SSC CGL Prelim Exam. 04.02.2007
 (First Sitting)
- 14.** When the price of cloth was reduced by 25%, the quantity of cloth sold increased by 20%. What was the effect on gross receipt of the shop?
 (1) 5% increase (2) 5% decrease
 (3) 10% increase (4) 10% decrease
 (SSC Multi-Tasking (Non-Technical)
 Staff Exam. 20.02.2011)

TYPE-VIII

- 1.** Salary of a person is first increased by 20%, then it is decreased by 20%. Percentage change in his salary is :
 (1) 4% decreased
 (2) 4% increased
 (3) 8% decreased
 (4) 20% increased
 (SSC CGL Prelim Exam. 24.02.2002
 (First Sitting)

PERCENTAGE

- 15.** The cost of an article worth ₹ 100 is increased by 10% first and again increased by 10%. The total increase in rupees is
 (1) 20 (2) 21
 (3) 110 (4) 121
 (SSC Multi-Tasking (Non-Technical) Staff Exam. 27.02.2011)
- 16.** The numerator of a fraction is increased by 20% and denominator is decreased by 20%. The value of the fraction becomes $\frac{4}{5}$. The original fraction is
 (1) $\frac{2}{3}$ (2) $\frac{8}{15}$
 (3) $\frac{7}{11}$ (4) $\frac{4}{5}$
 (SSC Delhi Police S.I. (SI) Exam. 19.08.2012)
- 17.** If the numerator of a fraction is increased by 20% and the denominator is decreased by 5%, the value of the new fraction becomes $\frac{5}{2}$. The original fraction is
 (1) $\frac{24}{19}$ (2) $\frac{3}{18}$
 (3) $\frac{95}{48}$ (4) $\frac{48}{95}$
 (SSC CGL Prelim Exam. 13.11.2005 (Second Sitting))
- 18.** If a number is increased by 25% and the resulting number is decreased by 25%, then the percentage increase or decrease finally is
 (1) no change
 (2) decreased by $6\frac{1}{4}\%$
 (3) increased by $6\frac{1}{4}\%$
 (4) increased by 6%
 (SSC CHSL DEO & LDC Exam. 10.11.2013, 1st Sitting)
- 19.** The sum of two numbers is 520. If the bigger number is decreased by 4% and the smaller number is increased by 12%, then the numbers obtained are equal. The smaller number is
 (1) 280 (2) 210
 (3) 240 (4) 300
 (SSC CHSL DEO & LDC Exam. 27.10.2013 IIInd Sitting)
- 20.** The price of an article is first decreased by 20% and then increased by 30%. If the resulting price is ₹ 416, the original price of the article is
 (1) ₹ 350 (2) ₹ 405
 (3) ₹ 400 (4) ₹ 450
 (SSC Graduate Level Tier-I Exam. 19.05.2013)
- 21.** A number increased by $22\frac{1}{2}\%$ gives 98. The number is
 (1) 45 (2) 18
 (3) 80 (4) 81
 (SSC Graduate Level Tier-II Exam. 29.09.2013)
- 22.** The price of an article is decreased by 10%. To restore its former value the new price must be increased by :
 (1) 10% (2) 11%
 (3) $9\frac{1}{11}\%$ (4) $11\frac{1}{9}\%$
 (SSC CGL Prelim Exam. 27.02.2000 (First Sitting))
- 23.** A number reduced by 25% becomes 225. What per cent should it be increased so that it becomes 375?
 (1) 25% (2) 30%
 (3) 35% (4) 75%
 (SSC CPO S.I. Exam. 05.09.2004)
- 24.** A number is increased by 20% and then again by 20%. By what per cent should the increased number be reduced so as to get back the original number?
 (1) $30\frac{5}{9}\%$ (2) $19\frac{11}{31}\%$
 (3) 40% (4) 44%
 (SSC CGL Prelim Exam. 08.02.2004) (First Sitting)
- 25.** The number of employees working in a farm is increased by 25% and the wages per head are decreased by 25%. If it results in x % decrease in total wages, then the value of x is
 (1) 0% (2) 25%
 (3) 20% (4) $\frac{25}{4}\%$
 (SSC CGL Prelim Exam. 08.02.2004) (Second Sitting)
- 26.** A number is first decreased by 10% and then increased by 10%. The number so obtained is 50 less than the original number. The original number is
 (1) 5900 (2) 5000
 (3) 5500 (4) 5050
 (SSC CGL Prelim Exam. 13.11.2005 (Second Sitting))
- 27.** If the income tax is increased by 19%, the net income is reduced by 1%. The rate of income tax is
 (1) 6% (2) 4%
 (3) 5% (4) 7.2%
 (SSC CGL Prelim Exam. 04.02.2007 (Second Sitting))
- 28.** A man spends 75% of his income. His income increases by 20% and his expenditure also increases by 10%. The percentage of increase in his savings is
 (1) 40% (2) 30%
 (3) 50% (4) 25%
 (SSC CGL Tier-I Exam. 19.10.2014)
- 29.** If each side of a cube is increased by 10% the volume of the cube will increase by
 (1) 30% (2) 10%
 (3) 33.1% (4) 25%
 (SSC CGL Tier-II Exam. 21.09.2014)
- 30.** The strength of a school increases and decreases in every alternate year by 10%. It started with increase in 2000. Then the strength of the school in 2003 as compared to that in 2000 was
 (1) increased by 8.9%
 (2) decreased by 8.9%
 (3) increased by 9.8%
 (4) decreased by 9.8%
 (SSC CGL Tier-II Exam. 21.09.2014)
- 31.** The difference between the value of the number increased by 20% and the value of the number decreased by 25% is 36. Find the number.
 (1) 7.2 (2) 0.8
 (3) 720 (4) 80
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)
- 32.** A number is first decreased by 20%. The decreased number is then increased by 20%. The resulting number is less than the original number by 20. Then the original number is
 (1) 200 (2) 400
 (3) 500 (4) 600
 (SSC CHSL DEO Exam. 02.11.2014 (1st Sitting))

PERCENTAGE

- 33.** A number is increased by $x\%$; to get back to the original number, it is to be reduced by

$$(1) x\% \quad (2) \frac{100x}{100+x}\%$$

$$(3) \frac{10x}{100+x}\% \quad (4) \frac{x}{100+x}\%$$

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015 (1st Sitting) (TF No. 8037731)

- 34.** A number is decreased by 10% and the resulting number is again decreased by 20%. What is the final percentage of decrease?

$$(1) 25\% \quad (2) 26\% \\ (3) 27\% \quad (4) 28\%$$

(SSC CGL Tier-I (CBE) Exam. 11.09.2016) (1st Sitting)

- 35.** The price of an edible oil is increased by 25%. To maintain the budget, Sushma reduces the consumption of this oil by 20%. The increase in expenditure due to this edible oil is:

$$(1) 0 \quad (2) 1 \\ (3) 2 \quad (4) 3$$

(SSC CPO SI, ASI Online Exam. 05.06.2016) (IIInd Sitting)

TYPE-IX

- 1.** 8% of the voters in an election did not cast their votes. In this election, there were only two candidates. The winner by obtaining 48% of the total votes defeated his contestant by 1100 votes. The total number of voters in the election was :

$$(1) 21000 \quad (2) 23500 \\ (3) 22000 \quad (4) 27500$$

(SSC CGL Prelim Exam. 11.05.2003 (First Sitting)

- 2.** In an election between two candidates, 75% of the voters cast their votes, out of which 2% votes were declared invalid. A candidate got 9261 votes which were 75% of the valid votes. The total number of voters enrolled in that election was

$$(1) 16000 \quad (2) 16400 \\ (3) 16800 \quad (4) 18000$$

(SSC CGL Prelim Exam. 11.05.2003 (Second Sitting)

- 3.** In an election between two candidates, the candidate getting 60% of the votes polled, is elected by a majority of 14,000 votes. The number of votes polled by the winning candidate is

$$(1) 28,000 \quad (2) 32,000 \\ (3) 42,000 \quad (4) 46,000$$

(SSC CGL Prelim Exam. 08.02.2004 (Second Sitting)

- 4.** In an office 40% of the staff is female, 40% of the females and 60% of the males voted for me. The percentage of votes I got was

$$(1) 24\% \quad (2) 42\% \\ (3) 50\% \quad (4) 52\%$$

(SSC Multi-Tasking (Non-Technical) Staff Exam. 27.02.2011)

- 5.** In an election there were only two candidates. One of the candidates secured 40% of votes and is defeated by the other candidate by 298 votes. The total number of votes polled is

$$(1) 745 \quad (2) 1460 \\ (3) 1490 \quad (4) 1500$$

(SSC Graduate Level Tier-II Exam. 16.09.2012)

- 6.** In an assembly election, a candidate got 55% of the total valid votes. 2% of the total votes were declared invalid. If the total number of voters is 104000, then the number of valid votes polled in favour of the candidate is:

$$(1) 56506 \quad (2) 56650 \\ (3) 56560 \quad (4) 56056$$

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IIInd Sitting)

- 7.** Two candidates contested in an election. One got 60% of the votes and won by 1600 votes. What is the number of votes polled ?

$$(1) 9000 \quad (2) 8000 \\ (3) 10000 \quad (4) 7500$$

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IIInd Sitting)

- 8.** In an election, three candidates contested. The first candidate got 40% votes and the second got 36% votes. If total number of votes polled were 36000, find the number of votes got by the 3rd candidate.

$$(1) 8040 \quad (2) 8640 \\ (3) 9360 \quad (4) 9640$$

(SSC Constable (GD) Exam. 12.05.2013 Ist Sitting)

- 9.** Two persons contested an election of Parliament. The winning candidate secured 57% of the total votes polled and won by a majority of 42,000 votes. The number of total votes polled is

$$(1) 5,00,000 \quad (2) 6,00,000 \\ (3) 3,00,000 \quad (4) 4,00,000$$

(SSC Multi-Tasking Staff Exam. 17.03.2013, IIInd Sitting)

- 10.** In an election, a candidate who gets 84 % of the votes is elected by a majority of 476 votes. What is the total number of votes polled ?

$$(1) 900 \quad (2) 810$$

$$(3) 600 \quad (4) 700$$

(SSC CGL Tier-I Exam. 26.10.2014)

- 11.** At an election there were two candidates. A candidate got 38% of votes and lost by 7200 number of votes. The total number of valid votes were

$$(1) 13000 \quad (2) 13800$$

$$(3) 16200 \quad (4) 30000$$

(SSC CHSL DEO Exam. 16.11.2014 (Ist Sitting)

- 12.** In a college election a candidate secured 62% of the votes and is elected by a margin of 144 votes. The total number of votes polled is :

$$(1) 925 \quad (2) 600$$

$$(3) 1200 \quad (4) 800$$

(SSC Constable (GD) Exam. 04.10.2015, Ist Sitting)

- 13.** In an election 10% of the voters on the voters' list did not cast their votes and 60 voters cast their ballot papers blank. There were only two candidates. The winner was supported by 47% of all the voters in the list and he got 308 votes more than his rival. The number of voters on the list was

$$(1) 3600 \quad (2) 6200$$

$$(3) 4575 \quad (4) 6028$$

(SSC CPO SI, ASI Online Exam. 05.06.2016) (IIInd Sitting)

- 14.** In an election, a candidate secures 40% of the votes but is defeated by the only other candidate by a majority of 298 votes. Find the total number of votes recorded.

$$(1) 1580 \quad (2) 1490$$

$$(3) 1470 \quad (4) 1530$$

(SSC CGL Tier-I (CBE) Exam. 02.09.2016) (IIInd Sitting)

PERCENTAGE

TYPE-X

- 1.** The present population of a city is 180000. If it increases at the rate of 10% per annum, its population after 2 years will be :
 (1) 207800 (2) 227800
 (3) 217800 (4) 237800
 (SSC CGL Prelim Exam. 11.05.2003
 (First Sitting)
- 2.** The value of an equipment depreciates by 20% each year. How much less will the value of the equipment be after 3 years ?
 (1) 48.8% (2) 51.2%
 (3) 54% (4) 60%
 (SSC CISF ASI Exam. 29.08.2010 (Paper-1)
- 3.** A district has 64000 inhabitants. If the population increases at the rate of $2\frac{1}{2}\%$ per annum, the number of inhabitants at the end of 3 years will be
 (1) 70000 (2) 69200
 (3) 68921 (4) 68911
 (SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting)
- 4.** The value of a property depreciates every year by 10% of its value at the beginning of the year. The present value of the property is ₹ 8100. What was its value 2 years ago ?
 (1) ₹ 10,000
 (2) ₹ $\left(\frac{90}{100}\right)^2 \times 8100$
 (3) ₹ $\left(\frac{100}{110}\right)^2 \times 8100$
 (4) ₹ 9801
 (SSC CPO S.I. Exam. 07.09.2003)
- 5.** The population of a town 2 years ago was 62,500. Due to migration to big cities, it decreases every year at the rate of 4%. The present population of the town is:
 (1) 57,600 (2) 56,700
 (3) 76,000 (4) 75,000
 (SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting)
- 6.** The population of a town increases every year by 4%. If its present population is 50,000, then after 2 years it will be
 (1) 53,900 (2) 54,000
 (3) 54,080 (4) 54,900
 (SSC CGL Prelim Exam. 27.07.2008
 (First Sitting)

- 7.** A man received ₹ 8,80,000 as his annual salary of the year 2007 which was 10% more than his annual salary in 2006. His annual salary in the year 2006 was
 (1) ₹ 4,80,000 (2) ₹ 8,00,000
 (3) ₹ 4,00,000 (4) ₹ 8,40,000
 (SSC Data Entry Operator Exam. 02.08.2009)
- 8.** Present population of a village is 67600. It has been increasing annually at the rate of 4%. What was the population of the village two years ago ?
 (1) 62500 (2) 63000
 (3) 64756 (4) 65200
 (SSC CHSL DEO & LDC Exam. 27.11.2010)
- 9.** The value of a machine depreciates by 5% every year. If its present value is ₹ 2,00,000, its value after 2 years will be
 (1) ₹ 1,80,500 (2) ₹ 1,99,000
 (3) ₹ 1,80,000 (4) ₹ 2,10,000
 (SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (Ist Sitting)
- 10.** The value of a property decreases every year at the rate of 5%. If its present value is ₹ 4,11,540, what was its value 3 years ago ?
 (1) ₹ 4,50,000 (2) ₹ 4,60,000
 (3) ₹ 4,75,000 (4) ₹ 4,80,000
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (IIInd Sitting))
- 11.** If the population of a town is 64000 and its annual increase is 10%, then its correct population at the end of 3 years will be :
 (1) 80000 (2) 85184
 (3) 85000 (4) 85100
 (SSC (CHSL DEO & LDC Exam. 21.10.2012 (IIInd Sitting))
- 12.** The population of a village decreases at the rate of 20% per annum. If its population 2 years ago was 10,000, the present population is
 (1) 4600 (2) 6400
 (3) 7600 (4) 6000
 (SSC CHSL DEO & LDC Exam. 04.11.2012 (IIInd Sitting))
- 13.** If a man receives on one-fourth of his capital 3% interest, on two third 5% and on the remainder 11%, the percentage he receives on the whole is
 (1) 4.5 (2) 5
 (3) 5.5 (4) 5.2
 (SSC CHSL DEO & LDC Exam. 04.11.2012, IIInd Sitting)
- 14.** The value of a machine is ₹ 6,250. It decreases by 10% during the first year, 20% during the second year and 30% during the third year. What will be the value of the machine after 3 years?
 (1) ₹ 2,650 (2) ₹ 3,050
 (3) ₹ 3,150 (4) ₹ 3,510
 (SSC Multi-Tasking Staff Exam. 24.03.2013, Ist Sitting)
- 15.** The value of a machine depreciates every year by 10%. If its present value is ₹ 50,000 then the value of the machine after 2 years is _____.
 (1) ₹ 40,050 (2) ₹ 45,000
 (3) ₹ 40,005 (4) ₹ 40,500
 (SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting)
- 16.** The value of a machine depreciates every year at the rate of 10% on its value at the beginning of that year. If the current value of the machine is ₹ 729, its worth 3 years ago was:
 (1) ₹ 1000 (2) ₹ 750.87
 (3) ₹ 947.10 (4) ₹ 800
 (SSC Graduate Level Tier-I Exam. 21.04.2013)
- 17.** Raman's salary is increased by 5% this year. If his present salary is ₹ 1,806, the last year's salary was
 (1) ₹ 1720 (2) ₹ 1620
 (3) ₹ 1520 (4) ₹ 1801
 (SSC Constable (GD) Exam. 12.05.2013)
- 18.** In a town, the population was 8000. In one year, male population increased by 10% and female population increased by 8% but the total population increased by 9%. The number of males in the town was :
 (1) 4000 (2) 4500
 (3) 5000 (4) 6000
 (SSC CGL Prelim Exam. 04.07.1999
 (First Sitting))
- 19.** The population of a village was 9800. In a year, with the increase in population of males by 8% and that of females by 5%, the population of the village became 10458. What was the number of males in the village before increase ?
 (1) 4200 (2) 4410
 (3) 5600 (4) 6048
 (SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting))

PERCENTAGE

20. The population of a village has increased annually at the rate of 25%. If at the end of 3 years it is 10,000, the population in the beginning of the first year was

- (1) 5120 (2) 5000
 (3) 4900 (4) 4500

(SSC CPO S.I. Exam. 07.09.2003)

21. If population of women in a village is 90% of population of men, what is the population of men as a percentage of population of women?

- (1) 100% (2) 105%
 (3) 108% (4) 111%

(SSC CISF Constable (GD)
 Exam. 05.06.2011)

22. The population of a town increases each year by 4% of its total at the beginning of the year. If the population on 1st January 2001 was 500000, what was it on 1st January, 2004?

- (1) 562432 (2) 652432
 (3) 465223 (4) 564232

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

23. The population of a village increases by 5% annually. If its present population is 4410, then its population 2 years ago was

- (1) 4500 (2) 4000
 (3) 3800 (4) 3500

(SSC CHSL DEO & LDC Exam. 9.11.2014)

24. A TV was bought at a price of ₹ 21,000. After one year the value of TV was depreciated by 5%. Find the value of the TV after one year.

- (1) ₹ 19,950 (2) ₹ 20,950
 (3) ₹ 18,950 (4) ₹ 17,950

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting TF No. 545 QP 6)

25. From 1980-1990, the population of a country increased by 20%. From 1990-2000, the population of the country increased by 20%. From 2000-2010, the population of the country increased by 20%. Then the overall increased population (in percentage) of the country from 1980-2010 was

- (1) 72.2 % (2) 60 %
 (3) 72.8 % (4) 62.8 %

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

26. Of the 1000 inhabitants in a town 60% are males of whom 20% are literate. If of all the inhabitants, 25% are literate, then what percentage of the females of the town are illiterate?

- (1) 27.5 (2) 32.5
 (3) 37.5 (4) 22.5

(SSC CGL Tier-II Exam.
 2014 12.04.2015 (Kolkata Region)
 TF No. 789 TH 7)

27. In a factory, the production of cycles rose to 48, 400 from 40,000 in 2 years. The rate of growth per annum is

- (1) 9% (2) 8%
 (3) 10.5% (4) 10%

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 21.06.2015
 (Ist Sitting) TF No. 8037731)

28. The present price of a scooter is Rs. 7,290. If its value decreases every year by 10%, then its value 3 years back was

- (1) Rs. 10, 500 (2) Rs. 8,000
 (3) Rs. 10,000 (4) Rs. 11,500

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 21.06.2015
 IIInd Sitting)

29. The population of a town increases by 5% every year. If the present population is 9261, the population 3 years ago was

- (1) 8000 (2) 5700
 (3) 6000 (4) 7500

(SSC CGL Tier-I Exam. 09.08.2015
 (Ist Sitting) TF No. 1443088)

30. An epidemic broke out in a village in which 5% of the population died. Of the remaining, 20% fled out of panic. If the present population is 4655, then the population of the village originally was

- (1) 6000 (2) 6125
 (3) 5955 (4) 5995

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 01.11.2015, IIInd Sitting)

31. The population of a town is 9000. If the number of females increases by 5% and the males by 7.5%, what will be the total population after increase. The number of females currently is 3000.

- (1) 9600 (2) 9200
 (3) 10500 (4) 9540

(SSC CAPFs (CPO) SI & ASI,
 Delhi Police Exam. 05.06.2016
 (Ist Sitting))

32. In a city, 40% of the people are illiterate and 60% are poor. Among the rich, 10% are illiterate. The percentage of the illiterate poor population is

- (1) 36 (2) 60
 (3) 40 (4) 50

(SSC CGL Tier-I (CBE)
 Exam. 31.08.2016) (Ist Sitting)

33. The population of a city is 20000. It increases by 20% during the first year and 30% during the second year. The population after two years will be:

- (1) 32000 (2) 40000
 (3) 31200 (4) 30000

(SSC CGL Tier-I (CBE)
 Exam. 02.09.2016) (IIInd Sitting)

34. In a village panchayat society 574 names are enlisted as 'below poverty level'. If 14% of the villagers are below poverty level, the total number of villagers is

- (1) 4100 (2) 4200
 (3) 4000 (4) 3800

(SSC CGL Tier-I (CBE)
 Exam. 01.09.2016 (IIIrd Sitting))

TYPE-XI

1. The Government reduced the price of sugar by 10 per cent. By this a consumer can buy 6.2 kg more sugar for ₹ 837. The reduced price per kg of sugar is

- (1) ₹ 12.50 (2) ₹ 13.00
 (3) ₹ 13.50 (4) ₹ 14.00

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006
 (Second Sitting))

2. The price of sugar is reduced by 20%. Now a person can buy 500g more sugar for ₹ 36. The original price of the sugar per kilogram was

- (1) ₹ 14.40 (2) ₹ 18
 (3) ₹ 15.60 (4) ₹ 16.50

(SSC CGL Prelim Exam. 27.07.2008
 (First Sitting))

3. A reduction of 10% in the price of sugar enables a housewife to buy 6.2 kg more for ₹ 1116. The reduced price per kg is

- (1) ₹ 12 (2) ₹ 14
 (3) ₹ 16 (4) ₹ 18

(SSC CPO S.I. Exam. 06.09.2009)

4. When the price of sugar decreases by 10%, a man could buy 1 kg more for ₹ 270. Then the original price of sugar per kg is

- (1) ₹ 25 (2) ₹ 30
 (3) ₹ 27 (4) ₹ 32

(SSC CGL Tier-I Exam 26.06.2011
 (First Sitting))

PERCENTAGE

- 5.** A reduction of 20% in the price of an apple enables a man to buy 10 apples more for ₹ 54. The reduced price of apples per dozen is :
 (1) ₹ 4.32 (2) ₹ 12.96
 (3) ₹ 10.80 (4) ₹ 14.40
 (SSC CGL Tier-I Exam 26.06.2011 (Second Sitting))
- 6.** Due to an increase of 50% in the price of eggs, 4 eggs less are available for ₹ 24. The present rate of eggs per dozen is :
 (1) ₹ 24 (2) ₹ 27
 (3) ₹ 36 (4) ₹ 42
 (SSC CHSL DEO & LDC Exam. 27.11.2010)
- 7.** A reduction of 20% in the price of wheat enables Lalita to buy 5 kg more wheat for ₹ 320. The original rate (in rupees per kg) of wheat was
 (1) 16 (2) 18
 (3) 20 (4) 21
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (IInd Sitting))
- 8.** Due to an increase of 20% in the price of eggs, 2 eggs less are available for ₹ 24. The present rate of eggs per dozen is :
 (1) ₹ 25.00 (2) ₹ 26.20
 (3) ₹ 27.80 (4) ₹ 28.80
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (Ist Sitting))
- 9.** A reduction of 25% in the price of rice enables a person to buy 10 kg more rice for ₹ 600. The reduced per kg price of rice is
 (1) ₹ 30 (2) ₹ 25
 (3) ₹ 20 (4) ₹ 15
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (IIInd Sitting))
- 10.** A reduction in the price of apples enables a person to purchase 3 apples for ₹ 1 instead of ₹ 1.25. What is the % of reduction in price (approximately)?
 (1) 20% (2) 25%
 (3) 30% (4) $33\frac{1}{3}\%$
 (SSC Graduate Level Tier-I Exam. 21.04.2013)
- 11.** A number, on subtracting 15 from it, reduces to its 80%. What is 40% of the number?
 (1) 75 (2) 60
 (3) 30 (4) 90
 (SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (IIInd Sitting))
- 12.** A reduction of 21% in the price of an item enables a person to buy 3 kg more for ₹ 100. The reduced price of item per kg is
 (1) ₹ 5.50 (2) ₹ 7.50
 (3) ₹ 10.50 (4) ₹ 7.00
 (SSC CGL Tier-II Exam. 21.09.2014)
- 13.** A reduction of 20% in the price of sugar enables a purchaser to obtain 8 kg more for Rs. 160. Then the price per kg before reduction was
 (1) Rs. 5 (2) Rs. 6
 (3) Rs. 10 (4) Rs. 4
 (SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)
- 14.** The price of an item was increased by 10%. This reduced the monthly total sales by 20%. The overall effect on the value of monthly sales is a
 (1) 10% increase
 (2) 10% decrease
 (3) 12% increase
 (4) 12% decrease
 (SSC CGL Tier-I Re-Exam, 30.08.2015)
- 15.** The price of rice has increased by 60%. In order to restore the original price, the new price must be reduced by
 (1) $33\frac{1}{3}\%$ (2) $37\frac{1}{2}\%$
 (3) 40% (4) 45%
 (SSC CGL Tier-I (CBE) Exam. 10.09.2016)
- 16.** If the price of sugar increases by 20%, one can buy 2 kg less for Rs. 50. What is the amount of sugar that could be bought before price hike?
 (1) 10 kg. (2) 12 kg.
 (3) 14 kg. (4) 16 kg.
 (SSC CGL Tier-I (CBE) Exam. 27.08.2016 (IIInd Sitting))
- 17.** The price of an article is decreased by 10%. To restore it to its former value, the new price must be increased by :
 (1) $9\frac{1}{11}\%$ (2) 10%
 (3) 11% (4) $11\frac{1}{9}\%$
 (SSC CGL Tier-I (CBE) Exam. 29.08.2016 (IIInd Sitting))
- 18.** The salary of a person is reduced by 20%. To restore the previous salary, his present salary is to be increased by
 (1) 20% (2) 25%
 (3) 17.5% (4) 22.5%
 (SSC CGL Tier-I (CBE) Exam. 31.08.2016) (IIInd Sitting)
- 19.** Due to a price hike of 20%, 4 kg. less sugar is available for Rs. 120. What is the initial price per kg of sugar ?
 (1) Rs. 5 per kg.
 (2) Rs. 4 per kg.
 (3) Rs. 6 per kg.
 (4) Rs. 5.5 per kg.
 (SSC CGL Tier-I (CBE) Exam. 04.09.2016 (IIIrd Sitting))
- 20.** In 2001, the price of a building was 80% of its original price. In 2002, the price was 60% of its original price. By what percent did the price decrease ?
 (1) 15% (2) 20%
 (3) 25% (4) 30%
 (SSC CGL Tier-I (CBE) Exam. 27.10.2016 (Ist Sitting))

TYPE-XII

- 1.** In a school 70% of the students are girls. The number of boys are 510. Then the total number of students in the school is :
 (1) 850 (2) 1700
 (3) 1830 (4) 1900
 (SSC CGL Prelim Exam. 04.07.1999 (First Sitting))
- 2.** If 60% of the students in a school are boys and the number of girls is 972, how many boys are there in the school ?
 (1) 1258 (2) 1458
 (3) 1324 (4) 1624
 (SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))
- 3.** If 70% of the students in a school are boys and the number of girls be 504, the number of boys is :
 (1) 1176 (2) 1008
 (3) 1208 (4) 3024
 (SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))
- 4.** If the sales tax on a television set increases from $7\frac{1}{2}\%$ to 8%, what more amount will have to be paid for the television whose price (excluding sales taxes) is ₹ 19000 ?
 (1) ₹ 190 (2) ₹ 95
 (3) ₹ 180 (4) ₹ 90
 (SSC CGL Prelim Exam. 24.02.2002 (Middle Zone))

PERCENTAGE

5. A spider climbed $62\frac{1}{2}\%$ of the

height of the pole in one hour and in the next hour it covered

$12\frac{1}{2}\%$ of the remaining height.

If pole's height is 192 m, then distance climbed in second hour is

- (1) 3 m (2) 5 m
 - (3) 7 m (4) 9 m
- (SSC Section Officer (Commercial Audit) Exam. 16.11.2003)

6. Fresh fruit contains 68% water and dry fruit contains 20% water. How much dry fruit can be obtained from 100 kgs of fresh fruits?

- (1) 32 kgs. (2) 40 kgs.
 - (3) 52 kgs. (4) 80 kgs.
- (SSC CGL Prelim Exam. 08.02.2004 (First Sitting))

7. An individual pays 30% income tax. On this tax he has to pay a surcharge of 10%. Thus, the net tax rate, he has to pay, is

- (1) 45% (2) 40%
 - (3) 33% (4) 27%
- (SSC CPO S.I. Exam. 05.09.2004)

8. X has twice as much money as that of Y and Y has 50% more money than that of Z. If the average money of all of them is ₹ 110, then the money, which X has, is

- (1) ₹ 55 (2) ₹ 60
 - (3) ₹ 90 (4) ₹ 180
- (SSC CGL Prelim Exam. 04.02.2007 (Second Sitting))

9. p is six times as large as q. The per cent that q is less than p, is

- (1) $83\frac{1}{3}\%$ (2) 70%
 - (3) $63\frac{1}{3}\%$ (4) 50%
- (SSC CGL Prelim Exam. 04.02.2007 (Second Sitting))

10. In the expression xy^2 , the values of both variables x and y are decreased by 20%. By this, the value of the expression is decreased by

- (1) 40% (2) 80%
 - (3) 48.8% (4) 51.2%
- (SSC CPO S.I. Exam. 16.12.2007)

11. Two numbers are respectively 10% and 25% more than a third number. What per cent is the first of the second?

- (1) 88% (2) 65%
- (3) 75% (4) 80%

(SSC CPO S.I. Exam. 06.09.2009)

12. A boy who was asked to find

$3\frac{1}{2}\%$ of a sum of money misread the question and found

$5\frac{1}{2}\%$ of it. His answer was ₹ 220. What would have been the correct answer?

- (1) ₹ 120 (2) ₹ 140
- (3) ₹ 160 (4) ₹ 150

(SSC CPO S.I. Exam. 06.09.2009)

13. In a factory 60% of the workers are above 30 years and of these 75% are males and the rest are females. If there are 1350 male workers above 30 years, the total number of workers in the factory is

- (1) 3000 (2) 2000
- (3) 1800 (4) 1500

(SSC CGL Tier-1 Exam 19.06.2011

(First Sitting))

14. First and second numbers are less than a third number by 30% and 37% respectively. The second number is less than the first by

- (1) 7% (2) 4%
- (3) 3% (4) 10%

(SSC CGL Tier-1 Exam 19.06.2011

(Second Sitting))

15. Rani's weight is 25% that of Meena's and 40% that of Tara's. What percentage of Tara's weight is equal to Meena's weight?

- (1) 160% (2) 140%
- (3) 120% (4) 100%

(SSC CPO (SI, ASI & Intelligence Officer) Exam 28.08.2011 (Paper-I))

16. Out of 2500 people, only 60% have the saving habit. If 30% save with bank, 32% with post office and the rest with shares, the number of shareholders are

- (1) 450 (2) 570
- (3) 950 (4) 1250

(SSC CPO (SI, ASI & Intelligence Officer) Exam 28.08.2011 (Paper-I))

17. The value of a commodity depreciates 10% annually. If it was purchased 3 years ago and its present value is ₹ 5,832, what was its purchase price?

- (1) ₹ 7200 (2) ₹ 7862
- (3) ₹ 8000 (4) ₹ 8500

(SSC CPO S.I. Exam. 09.11.2008)

18. A and B are two fixed points 5 cm apart and C is a point on AB such that AC is 3 cm. If the length of AC is increased by 6%, the length of CB is decreased by

- (1) 6% (2) 7%
- (3) 8% (4) 9%

(SSC CGL Prelim Exam. 04.02.2007

(First Sitting))

19. If 24-carat gold is considered to be hundred per cent pure gold, then the percentage of pure gold in 22-carat gold is :

- (1) $91\frac{3}{4}\%$ (2) $91\frac{2}{3}\%$

- (3) $91\frac{1}{3}\%$ (4) $90\frac{2}{3}\%$

(SSC CHSL DEO & LDC Exam. 27.11.2010)

20. In a class, the average score of girls in an examination is 73 and that of boys is 71. The average score for the whole class is 71.8. Find the percentage of girls.

- (1) 40% (2) 50%
- (3) 55% (4) 60%

(SSC Multi-Tasking (Non-Technical) Staff Exam. 27.02.2011)

21. Shelf A has $\frac{4}{5}$ of the number of

books that shelf B has. If 25% of the books in A are transferred to B and then 25% of the books from B are transferred to A, then the percentage of the total number of books that A will have is

- (1) 25% (2) 50%
- (3) 75% (4) 100%

(SSC CHSL DEO & LDC Exam. 04.12.2011 (1st Sitting (North Zone)))

22. Tickets for all but 100 seats in a 10,000 seat stadium were sold. Of the tickets sold, 20% were sold at half price and the remaining tickets were sold at the full price of ₹ 20. The total revenue from the ticket sales, in ₹ was

- (1) 158400 (2) 178200
- (3) 180000 (4) 198000

(SSC CHSL DEO & LDC Exam. 11.12.2011 (1st Sitting (East Zone)))

PERCENTAGE

23. Neha's weight is 140% of Tina's weight. Mina's weight is 90% of Lina's weight. Lina weighs twice as much as Tina. If Neha's weight is $x\%$ of Mina's weight, then x is equal to :

- (1) $64\frac{2}{9}$ (2) $77\frac{7}{9}$
 (3) 90 (4) $128\frac{4}{7}$

(SSC CHSL DEO & LDC Exam. 11.12.2011
 (IInd Sitting (East Zone)

24. The number of seats in a cinema hall is increased by 25%. The cost of each ticket is also increased by 10%. The effect of these changes on the revenue collection will be an increase of
 (1) 37.5% (2) 45.5%
 (3) 47.5% (4) 49.5%

(SSC Data Entry Operator Exam. 31.08.2008)

25. A man had a certain amount with him. He spent 20% of that to buy an article and 5% of the remaining on transport. Then he gifted ₹ 120. If he is left with ₹ 1,400, the amount he spent on transport is

- (1) ₹ 76 (2) ₹ 61
 (3) ₹ 95 (4) ₹ 80

(SSC Graduate Level Tier-II Exam. 16.09.2012)

26. 31% of employees pay tax in the year 2008. Non-tax paying employees are 20,700. The total number of employees are :

- (1) 31,160 (2) 64,750
 (3) 30,000 (4) 66,775

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting))

27. A fruit seller had some apples. He sells 40% apples and still has 420 apples. Originally, he had :
 (1) 588 apples (2) 600 apples
 (3) 672 apples (4) 700 apples
 (SSC CGL Prelim Exam. 24.02.2002
 (First Sitting))

28. Two numbers are more than the third number by 20% and 50% respectively. First number is what per cent of the second number ?
 (1) 100% (2) 150%
 (3) 80% (4) 120%
 (SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone) & (SSC Data Entry Operator Exam. 02.08.2009))

29. A batsman scored 110 runs which included 3 boundaries and 8 sixes. What per cent of his total score, did he make by running between the wickets ?

- (1) 45% (2) $45\frac{5}{11}\%$

- (3) $54\frac{6}{11}\%$ (4) 55%

(SSC CGL Prelim Exam. 08.02.2004
 (First Sitting))

30. The price of an article was increased by $r\%$. Later the new price was decreased by $r\%$. If the latest price was ₹1, then the original price was :

- (1) ₹1 (2) $\frac{1-r^2}{100}$
 (3) ₹ $\frac{\sqrt{1-r^2}}{100}$ (4) ₹ $\left(\frac{10000}{10000-r^2}\right)$

(SSC CGL Prelim Exam. 08.02.2004
 (First Sitting))

31. If a number x is 10% less than another number y and y is 10% more than 125, then x is equal to
 (1) 150 (2) 143
 (3) 140.55 (4) 123.75

(SSC CGL Prelim Exam. 13.11.2005
 (First Sitting))

32. An interval of 3 hours 40 minutes is wrongly estimated as 3 hours 45.5 minutes. The error percentage is

- (1) 5.5% (2) 5.2%
 (3) 5% (4) 2.5%

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006 (Second Sitting))

33. In a village, each of the 60% of families has a cow; each of the 30% of families has a buffalo and each of the 15% of families has both a cow and buffalo. In all there are 96 families in the village. How many families do not have a cow or a buffalo ?

- (1) 20 (2) 24
 (3) 26 (4) 28

(SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting))

34. A man invests a part of ₹ 10,000 at 5% and the remainder at 6%. The 5% investment yields annually ₹ 76.50 more than the 6% investment. The amount invested at 6% is

- (1) ₹ 3,600 (2) ₹ 3,550
 (3) ₹ 3,850 (4) ₹ 4,000

(SSC CPO S.I. Exam. 09.11.2008)

35. For every set of 19 kites sold, a vendor gives 1 kite extra, free of cost. In order to give a discount of 10%, the number of extra kites he should give in a sale of 27 kites to the nearest integer is

- (1) 3 (2) 6
 (3) 7 (4) 8

(SSC Graduate Level Tier-I Exam. 21.04.2013 IIInd Sitting)

36. A number is divided into two parts in such a way that 80% of 1st part is 3 more than 60% of 2nd part and 80% of 2nd part is 6 more than 90% of the 1st part. Then the number is

- (1) 125 (2) 130

- (3) 135 (4) 145

(SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting))

37. A man invested ₹ 27,000 in $12\frac{1}{2}\%$ stock at 108, then his yield percentage is

- (1) $18\frac{3}{4}\%$ (2) $11\frac{31}{54}\%$

- (3) 15% (4) $8\frac{1}{2}\%$

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))

38. The percentage of metals in a mine of lead ore is 60%. Now the

percentage of silver is $\frac{3}{4}\%$ of

metals and the rest is lead. If the mass of ore extracted from this mine is 8000 kg, the mass (in kg.) of lead is :

- (1) 4763 (2) 4762
 (3) 4764 (4) 4761

(SSC CGL Tier-I Exam. 16.08.2015
 (IInd Sitting) TF No. 2176783)

39. The sum of two positive numbers is 20% of the sum of their squares and 25% of the difference of their squares. If the num-

bers are x and y then, $\frac{x+y}{x^2}$ is equal to

- (1) $\frac{1}{4}$ (2) $\frac{3}{8}$

- (3) $\frac{1}{3}$ (4) $\frac{2}{9}$

(SSC Constable (GD) Exam. 04.10.2015, IInd Sitting))

40. A man bought some eggs of which 10% are rotten. He gives 80% of the remainder to his neighbours. Now he is left out with 36 eggs. How many eggs he bought ?

- (1) 40 (2) 100
 (3) 200 (4) 72

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 15.11.2015
 (Ist Sitting) TF No. 6636838)

PERCENTAGE

- 41.** A man gives 50% of his money to his son and 30% to his daughter. 80% of the rest is donated to a trust. If he is left with Rs. 16,000 now, how much money did he have in the beginning?
 (1) Rs. 40,000 (2) Rs. 8,00,000
 (3) Rs. 80,000 (4) Rs. 4,00,000
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015
 (1st Sitting) TF No. 9692918)
- 42.** A businessman's earning increases by 25% in one year but decreases by 4% in the next year. Going by this pattern, after 5 years, his total earnings would be Rs.72000. What is his present earning ?
 (1) Rs. 10000 (2) Rs. 80000
 (3) Rs. 40000 (4) Rs. 54000
 (SSC CGL Tier-II Online Exam.01.12.2016)
- 43.** The red blood cells in a blood sample grows by 10% per hour in first two hours, decreases by 10% in next one hour, remains constant in next one hour and again increases by 5% per hour in next two hours. If the original count of the red blood cells in the sample is 40000, find the **approximate** red blood cell count at the end of 6 hours.
 (1) 40000 (2) 45025
 (3) 48025 (4) 50025
 (SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016)
 (1st Sitting)
- 44.** A factory's yearly budget for the purchase of employees' protection shoes increased by 60% this year over last year. If the price of the shoes increased by 20% this year, then the number of shoes it can purchase this year is what percent greater than the number of shoes it purchased last year ?
 (1) 40% (2) $33\frac{1}{3}\%$
 (3) 42% (4) 48%
 (SSC CPO SI & ASI, Online Exam. 06.06.2016) (IIInd Sitting)
- 45.** A Set A consists of integers 27, 28, 30, 32, and 33. If integer k is included in the average of set A will increase by 30%. What is the value of integer K ?
 (1) 68 (2) 79
 (3) 84 (4) 92
 (SSC CPO SI & ASI, Online Exam. 06.06.2016) (IIInd Sitting)
- 46.** A person loses 75% of his money in the first bet, 75% of the remaining in the second and 75% of the remaining in the third bet and returns home with Rs. 2 only. His initial money was
 (1) Rs. 64 (2) Rs. 128
 (3) Rs. 256 (4) Rs. 512
 (SSC CGL Tier-I (CBE) Exam. 28.08.2016) (IIInd Sitting)
- 47.** An army lost 10% of its men in war, 10% of the remaining died due to disease and 10% of the rest were declared disabled. Thus the strength of the army was reduced to 7,29,000 active men. The original strength of the army was
 (1) 1500000 (2) 1000000
 (3) 1200000 (4) 1100000
 (SSC CGL Tier-II (CBE) Exam. 30.11.2016)
- 48.** If the value of a company stock drops from Rs. 25 per share to Rs. 21 per share, the percentage decrease per share is :
 (1) 4 (2) 8
 (3) 12 (4) 16
 (SSC CGL Tier-I (CBE) Exam. 03.09.2016 (IIInd Sitting))
- 49.** Starting with 8000 workers, the company increases the number of workers by 5%, 10% and 20% at the end of first, second and third year respectively. The number of workers in the fourth year was
 (1) 10188 (2) 11088
 (3) 11008 (4) 11808
 (SSC CGL Tier-I (CBE) Exam. 04.09.2016 (IIInd Sitting))
- 50.** If "basis points" are defined so that 1 per cent is equal to 100 basis points, then by how many basis points is 82.5 per cent greater than 62.5 per cent ?
 (1) 0.2 (2) 20
 (3) 200 (4) 2000
 (SSC CGL Tier-I (CBE) Exam. 10.09.2016 (IIInd Sitting))
- 51.** In the last financial year, a car company sold 41,800 cars. In this year, the target is to sell 51,300 cars. By what per cent must the sale be increased ?
 (1) $11\frac{9}{22}\%$ (2) $8\frac{9}{22}\%$
 (3) $8\frac{11}{23}\%$ (4) $22\frac{8}{11}\%$
 (SSC CGL Tier-I (CBE) Exam. 10.09.2016 (IIIrd Sitting))
- 52.** In a motor of 120 machine parts, 5% parts were defective. In another motor of 80 machine parts, 10% parts were defective. For the two motors considered together, the percentage of defective machine parts was
 (1) 7 (2) 6.5
 (3) 7.5 (4) 8
 (SSC CGL Tier-I (CBE) Exam. 11.09.2016 (IIIrd Sitting))
- 53.** A line of length 1.5 metres was measured as 1.55 metres by mistake. What will be the value of error per cent ?
 (1) 0.05% (2) $3\frac{7}{31}\%$
 (3) $3\frac{1}{3}\%$ (4) 0.5%
 (SSC CGL Tier-II (CBE) Exam. 12.01.2017)
- 54.** A businessman imported Laptops, worth Rs. 210000, Mobile phones worth Rs. 100000 and Television sets worth Rs. 150000. He had to pay 10% duty on laptops, 8% on Phones and 5% on Television sets as a special case. How much total duty (in Rupees) he had to pay on all items as per above details?
 (1) 36500 (2) 37000
 (3) 37250 (4) 37500
 (SSC CGL Tier-II (CBE) Exam. 12.01.2017)
- 55.** A man spends $\frac{1}{2}\%$ of his money and after spending 75% of the remaining he had Rs. 370 left. How much money did he have?
 (1) Rs. 1200 (2) Rs. 1600
 (3) Rs. 1500 (4) Rs. 1400
 (SSC CGL Tier-II (CBE) Exam. 12.01.2017)
- 56.** On a certain date, Pakistan has a success rate of 60% against India in all the ODIs played between the two countries. They lost the next 30 ODIs in a row to India and their success rate comes down to 30%. The total number of ODIs played between the two countries is
 (1) 50 (2) 45
 (3) 60 (4) 30
 (SSC CGL Tier-II (CBE) Exam. 12.01.2017)

SHORT ANSWERS

TYPE-I

1. (3)	2. (4)	3. (1)	4. (4)
5. (3)	6. (3)	7. (4)	8. (1)
9. (2)	10. (4)	11. (4)	12. (2)
13. (1)	14. (3)	15. (2)	16. (4)
17. (2)	18. (1)	19. (1)	20. (3)
21. (2)	22. (3)	23. (4)	24. (2)
25. (4)	26. (4)	27. (1)	28. (4)
29. (4)	30. (4)	31. (1)	32. (1)

8

PROFIT AND LOSS

Importance : Profit and Loss questions are important from both examination point of view as well as in different, life situations. Different competitive exams include 1 or 2 questions.

Scope of questions : Asked questions are based on per cent Profit/Loss, cost price, selling price, price after increase or decrease in rates, cost price of certain number of things equal to S.P. of certain number of, how much price to increase to get certain profit.

Way to success : Practice is most important here. Remember all calculations on Profit/Loss are on cost price and not on selling price.

C.P. → Cost Price (Purchasing Price + Repairing/Maintenance Cost, if any) S.P. → Selling Price

RULE 1 : If S.P. > C.P. then there will be profit
Profit = S.P. - C.P.

$$\text{Profit\%} = \frac{\text{Profit} \times 100}{\text{C.P.}}$$

Note: Both profit and loss are always calculated on cost price only.

RULE 2 : If C.P. > S.P., then there will be Loss

$$\text{Loss\%} = \frac{\text{Loss} \times 100}{\text{C.P.}}$$

RULE 3 : If an object is sold on r% Profit.

$$\text{then, S.P.} = \text{C.P.} \left[\frac{100 + \text{Profit\%}}{100} \right] \text{ or C.P.} \\ = \text{S.P.} \left[\frac{100}{100 + \text{Profit\%}} \right]$$

Similarly, If an object is sold on r% loss, then

$$\text{S.P.} = \left[\frac{100 - \text{Loss\%}}{100} \right] \text{ or C.P.} = \text{S.P.} \left[\frac{100}{100 - \text{Loss\%}} \right]$$

RULE 4 : Successive Profits : If A sells an article to B at a% profit and B sells it to C at b% profit

OR

If a% and b% are two successive profits

$$\text{then Total Profit\%} = \left(a + b + \frac{ab}{100} \right) \%$$

If A sells an article to B at a% profit and B sells it to C at b% profit and if C paid ₹ x, then amount paid by

$$A = x \times \left(\frac{100}{100+a} \right) \left(\frac{100}{100+b} \right)$$

RULE 5 : If a% and b% are two successive losses then (negative sign shows loss and positive sign shows profit).

$$\text{Total loss\%} = \left(-a - b + \frac{ab}{100} \right) \%$$

RULE 6 : If a% profit and b% loss occur, simultaneously

$$\text{then overall loss or profit\% is } \left(a - b - \frac{ab}{100} \right) \%$$

(-ve sign for loss, +ve sign for profit)

RULE 7 : If a% loss and b% profit occur then, total loss/profit is $\left(-a + b - \frac{ab}{100} \right) \%$ (negative sign for loss and positive sign for profit)

RULE 8 : If cost price of 'x' articles is equal to selling price of 'y' articles, then Selling Price = x, Cost Price = y

$$\text{Hence, Profit or Loss\%} = \frac{x-y}{y} \times 100$$

RULE 9 : On selling 'x' articles the profit or loss is equal to Selling of 'y' articles, then Profit% $\frac{y \times 100}{x-y}$

$$\text{Loss\%} = \frac{y \times 100}{x+y}$$

RULE 10 : If a man sells two similar objects, one at a loss of x% and another at a gain of x%, then he always incurs loss in this transaction and loss% is $\frac{x^2}{100}\%$

RULE 11 : A man sells his items at a profit/loss of x%. If he had sold it for ₹ R more, he would have gained/lost y%. Then.

$$\text{C.P. of items} = \frac{R}{(y \pm x)} \times 100$$

'+' = When one is profit and other is loss.

'-' = When both are either profit or loss.

RULE 12 : If a man purchases 'a' items for ₹ x and sells 'b' items for ₹ y, then his profit or loss per cent is given by $\left(\frac{ay - bx}{bx} \right) \times 100\%$ OR

RULE 13 : If the total cost of 'a' articles having equal cost is ₹ x and the total selling price of 'b' articles is ₹ y, then in the transaction gain or loss per cent is given by $\left(\frac{ay - bx}{bx} \right) \times 100\%$

Where positive value signifies 'profit' and negative value signifies 'loss'

RULE 14 : A dishonest shopkeeper sells his goods at C.P. but uses false weight, then his

$$\text{Gain\%} = \frac{\text{True weight} - \text{False weight}}{\text{False weight}} \times 100$$

$$\text{or Gain\%} = \frac{\text{Error}}{\text{True value} - \text{Error}} \times 100$$

RULE 15 : If A sells an article to B at a profit (loss) of r₁% and B sells the same article to C at a profit (loss) of r₂%, then the cost price of article for C will be given by C.P. of article for C

$$= \text{C.P. of } A \times \left(1 \pm \frac{r_1}{100} \right) \left(1 \pm \frac{r_2}{100} \right)$$

(Positive and negative sign conventions are used for profit and loss.)

RULE 16 : If a vendor used to sell his articles at x% loss on cost price but uses y grams instead of z grams, then his profit or loss% is

$$\left[(100-x) \frac{z}{y} - 100 \right] \%$$

(Profit or loss as per positive or negative sign).



QUESTIONS ASKED IN PREVIOUS SSC EXAMS

TYPE-I

- 1.** A man buys a cycle for ₹ 1400 and sells it at a loss of 15%. What is the selling price of the cycle?
 (1) ₹ 1202 (2) ₹ 1190
 (3) ₹ 1160 (4) ₹ 1000
 (SSC CGL Prelim Exam. 24.02.2002
 (First Sitting)

- 2.** On selling an article for ₹ 651, there is a loss of 7%. The cost price of that article is
 (1) ₹ 744 (2) ₹ 751
 (3) ₹ 793 (4) ₹ 700
 (SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone)

- 3.** A milkman bought 70 litres of milk for ₹ 630 and added 5 litres of water. If he sells it at ₹ 9.00 per litre, his profit percentage is
 (1) $8\frac{1}{5}\%$ (2) 7%
 (3) $8\frac{2}{5}\%$ (4) $7\frac{1}{7}\%$
 (SSC CISF Constable (GD)
 Exam. 05.06.2011)

- 4.** In terms of percentage profit, which is the best transaction?

C.P. (in ₹) **Profit (In ₹)**

(I)	36	17
(II)	50	24
(III)	40	19
(IV)	60	29

- (1) I (2) II
 (3) III (4) IV

(SSC CPO S.I.
 Exam. 12.01.2003)

- 5.** A man bought an old typewriter for ₹ 1200 and spent ₹ 200 on its repair. He sold it for ₹ 1680. His profit per cent is :

- (1) 20% (2) 10%
 (3) 8% (4) 16%

(SSC CGL Prelim Exam. 11.05.2003
 (First Sitting)

- 6.** If the cost price is 95% of the selling price, what is the profit percent ?

- (1) 4% (2) 4.75%
 (3) 5% (4) 5.26%

(SSC Multi-Tasking (Non-Technical)
 Staff Exam. 27.02.2011)

- 7.** A merchant buys an article for ₹ 27 and sells it at a profit of 10% of the selling price. The selling price of the article is :
 (1) ₹ 29.70 (2) ₹ 30
 (3) ₹ 37 (4) ₹ 32
 (SSC CPO S.I. Exam. 26.05.2005)

- 8.** If the cost price of an article is 80% of its selling price, the profit per cent is :

- (1) 20 % (2) $22\frac{1}{2}\%$
 (3) 24% (4) 25%

(SSC CHSL DEO & LDC Exam.
 28.11.2010 (Ist Sitting)

- 9.** Krishnan bought a camera and paid 20% less than its original price. He sold it at 40% profit on the price he had paid. The percentage of profit earned by Krishnan on the original price was
 (1) 22% (2) 32%
 (3) 12% (4) 15%
 (SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting)

- 10.** By what per cent must the cost price be raised in fixing the sale price in order that there may be a profit of 20% after allowing a commission of 10% ?

- (1) 25% (2) $133\frac{1}{3}\%$
 (3) $33\frac{1}{3}\%$ (4) 30%

(SSC Section Officer (Commercial Audit)
 Exam. 30.09.2007 (Second
 Sitting)

- 11.** By selling an article, a man makes a profit of 25% of its selling price. His profit per cent is

- (1) 20% (2) 25%

- (3) $16\frac{2}{3}\%$ (4) $33\frac{1}{3}\%$

(SSC CGL Tier-I Exam. 16.05.2010
 (First Sitting)

- 12.** If there is a profit of 20% on the cost price of an article, the percentage of profit calculated on its selling price will be

- (1) 24 (2) $16\frac{2}{3}\%$
 (3) $8\frac{1}{3}\%$ (4) 20

(SSC CGL Tier-I Exam. 16.05.2010
 (Second Sitting)

- 13.** A man purchased a bedsheets for ₹ 450 and sold it at a gain of 10% calculated on the selling price. The selling price of the bedsheets was
 (1) ₹ 460 (2) ₹ 475
 (3) ₹ 480 (4) ₹ 500
 (SSC CHSL DEO & LDC Exam.
 28.11.2010 (IInd Sitting)

- 14.** By selling an article for ₹ 960 a man incurs a loss of 4%; what was the cost price ?
 (1) ₹ 1,000 (2) ₹ 784
 (3) ₹ 498.4 (4) ₹ 300
 (SSC CISF Constable (GD)
 Exam. 05.06.2011)

- 15.** A salesman expects a gain of 13% on his cost price. If in a month his sale was ₹ 7,91,000, what was his profit ?
 (1) ₹ 85,659 (2) ₹ 88,300
 (3) ₹ 91,000 (4) ₹ 97,786
 (SSC CHSL DEO & LDC Exam.
 21.10.2012 (Ist Sitting)

- 16.** By selling a car for ₹ 64,000, Mr. Rao lost 20%. Then the cost price of the car is :
 (1) ₹ 72,000 (2) ₹ 76,800
 (3) ₹ 80,000 (4) ₹ 84,000
 (SSC CHSL DEO & LDC Exam.
 21.10.2012 (IInd Sitting)

- 17.** A retailer buys a radio for ₹ 225. His overhead expenses are ₹ 15. He sells the radio for ₹ 300. The profit per cent of the retailer is :

- (1) 25% (2) $26\frac{2}{3}\%$
 (3) 20% (4) $33\frac{1}{3}\%$

(SSC CHSL DEO & LDC Exam.
 21.10.2012 (IInd Sitting) & (SSC Constable & GD Exam. 12.05.2013)

- 18.** An item when sold for ₹ 1,690 earned 30% profit on the cost price. Then the cost price is
 (1) ₹ 507 (2) ₹ 630
 (3) ₹ 1,300 (4) ₹ 130

(SSC Assistant Grade-III
 Exam. 11.11.2012 (IInd Sitting)

- 19.** A fan is listed at ₹ 150 and a discount of 20% is given. Then the selling price is
 (1) ₹ 180 (2) ₹ 150
 (3) ₹ 120 (4) ₹ 110
 (SSC CHSL DEO & LDC Exam.
 28.10.2012, Ist Sitting)

PROFIT AND LOSS

- 20.** By selling 33 metres of cloth, a person gains the cost of 11 metres. Find his gain%.

(1) $33\frac{1}{3}\%$ (2) $33\frac{1}{2}\%$

(3) 33% (4) $34\frac{1}{3}\%$

(SSC CHSL DEO & LDC Exam. 28.10.2012, Ist Sitting)

- 21.** While selling to the retailer, a company allows 30% discount on the marked price of their products. If the retailer sells those products at marked price, his profit % will be :

(1) 30% (2) $42\frac{1}{7}\%$

(3) 40% (4) $42\frac{6}{7}\%$

(SSC Multi-Tasking Staff Exam. 10.03.2013)

- 22.** A merchant purchases a wrist watch for ₹ 450 and fixes its list price in such a way that after allowing a discount of 10%, he earns a profit of 20%. Then the list price of the watch is

(1) ₹ 650 (2) ₹ 700
(3) ₹ 550 (4) ₹ 600

(SSC Multi-Tasking Staff Exam. 17.03.2013, IIInd Sitting)

- 23.** The cost price of a radio is ₹ 600. The 5% of the cost price is charged towards transportation. After adding that, if the net profit to be made is 15%, then the selling price of the radio must be

(1) ₹ 704.50 (2) ₹ 724.50
(3) ₹ 664.50 (4) ₹ 684.50

(SSC Multi-Tasking Staff Exam. 17.03.2013, IIInd Sitting)

- 24.** If a shirt costs ₹ 64 after 20% discount is allowed, what was its original price in ₹ ?

(1) 76.80 (2) 80
(3) 88 (4) 86.80

(SSC Constable (GD) Exam. 12.05.2013)

- 25.** The total cost of 8 buckets and 5 mugs is ₹ 92 and the total cost of 5 buckets and 8 mugs is ₹ 77. Find the cost of 2 mugs and 3 buckets.

(1) ₹ 35 (2) ₹ 70
(3) ₹ 30 (4) ₹ 38

(SSC Graduate Level Tier-I Exam. 19.05.2013)

- 26.** If books bought at prices from ₹ 150 to ₹ 300 are sold at prices ranging from ₹ 250 to ₹ 350, what is the greatest possible profit that might be made in selling 15 books ?

(1) Cannot be determined
(2) ₹ 750
(3) ₹ 4,250
(4) ₹ 3,000

(SSC CHSL DEO & LDC Exam. 20.10.2013)

- 27.** If there is a profit of 20% on the cost price, the percentage of profit on the sale price is

(1) $16\frac{2}{3}\%$ (2) 12 %

(3) $15\frac{1}{3}\%$ (4) 16 %

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IInd Sitting))

- 28.** Nisha bought a number of oranges at 2 for a rupee and an equal number at 3 for a rupee. To make a profit of 20% she should sell a dozen for

(1) ₹ 6 (2) ₹ 8
(3) ₹ 10 (4) ₹ 12

(SSC CGL Tier-I Exam. 19.10.2014 (Ist Sitting))

- 29.** There is a profit of 20% on the cost price of an article. The % of profit, when calculated on selling price is

(1) $16\frac{2}{3}\%$ (2) 20%

(3) $33\frac{1}{3}\%$ (4) None of these

(SSC CGL Tier-II Exam. 21.09.2014)

- 30.** If selling price of an article is $1\frac{1}{3}$ of cost price, find gain %.

(1) 25% (2) $33\frac{1}{3}\%$

(3) 1.33% (4) $66\frac{2}{3}\%$

(SSC CHSL DEO Exam. 02.11.2014 (Ist Sitting))

- 31.** A merchant loses 10% by selling an article. If the cost price of the article is ₹ 15, then the selling price of the article is

(1) ₹ 13.20 (2) ₹ 16.50
(3) ₹ 12.30 (4) ₹ 13.50
(SSC CHSL DEO Exam. 16.11.2014 (Ist Sitting))

- 32.** Pooja wants to sell a watch at a profit of 20%. She bought it at 10% less and sold it at ₹ 30 less, but still she gained 20%. The cost price of watch is

(1) ₹ 240 (2) ₹ 220
(3) ₹ 250 (4) ₹ 225
(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

- 33.** A fruit merchant makes a profit of 25% by selling mangoes at a certain price. If he charges Re. 1 more on each mango, he would gain 50%. At first the price of one mango was

(1) Rs. 5 (2) Rs. 7
(3) Rs. 4 (4) Rs. 6
(SSC Constable (GD) Exam, 04.10.2015, Ist Sitting))

- 34.** There is 10% loss if an article is sold at Rs. 270. Then the cost price of the article is

(1) Rs. 300 (2) Rs. 270
(3) Rs. 320 (4) Rs. 250
(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IIInd Sitting))

- 35.** If bananas are bought at the rate of 4 for a rupee, how many must be sold for a rupee so as to gain

$33\frac{1}{3}\%?$
(1) 2.5 (2) 2
(3) 3 (4) 4
(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (Ist Sitting) TF No. 6636838)

- 36.** By selling an article for Rs. 450, I lose 20%. For what price should I sell it to gain 20% ?

(1) Rs. 490 (2) Rs. 675
(3) Rs. 470 (4) Rs. 562.50
(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IIInd Sitting) TF No. 3441135)

- 37.** If the profit on selling an article for Rs. 425 is the same as the loss on selling it for Rs. 355, then the cost price of the article is

(1) Rs. 410 (2) Rs. 380
(3) Rs. 400 (4) Rs. 390
(SSC CGL Tier-II Online Exam.01.12.2016)

PROFIT AND LOSS

- 38.** The C.P of 10 articles is equal to the S.P. of 15 articles. What is the profit or loss percentage ?

(1) 25.5% (2) 35%
(3) 10% (4) 33.3%

(SSC CPO Exam. 06.06.2016)
(Ist Sitting)

- 39.** The selling price of 6 bananas is equal to the cost price of 8 bananas. Then the percentage of profit is :

(1) 20 (2) $33\frac{1}{3}$
(3) 25 (4) 30

(SSC CHSL (10+2) Tier-I (CBE)
Exam. 08.09.2016) (Ist Sitting)

- 40.** By selling a bag at Rs. 230, profit of 15% is made. The selling price of the bag, when it is sold at 20% profit would be

(1) Rs. 250 (2) Rs. 205
(3) Rs. 240 (4) Rs. 200

(SSC CGL Tier-I (CBE)
Exam. 09.09.2016) (Ist Sitting)

- 41.** A man gains 20% by selling an article for a certain price. If he sells it at double the price, the percentage of profit will be

(1) 40% (2) 100%
(3) 120% (4) 140%

(SSC CGL Tier-I (CBE)
Exam. 27.08.2016) (IIInd Sitting)

- 42.** A trader sold a cycle at a loss of 10%. If the selling price had been increased by Rs. 200, there would have been a gain of 6%. The cost price of the cycle is

(1) Rs. 1200 (2) Rs. 1205
(3) Rs. 1250 (4) Rs. 1275

(SSC CGL Tier-I (CBE)
Exam. 31.08.2016) (Ist Sitting)

- 43.** The cost price of 25 books is equal to the selling price of 20 books. The profit per cent is

(1) 20% (2) 22%
(3) 24% (4) 25%

(SSC CGL Tier-I (CBE)
Exam. 04.09.2016) (Ist Sitting)

- 44.** If the selling price of 40 articles is equal to the cost price of 50 articles, the loss or gain per cent is

(1) 25% gain (2) 20% gain
(3) 25% loss (4) 20% loss

(SSC CGL Tier-I (CBE)
Exam. 06.09.2016) (Ist Sitting)

- 45.** By selling a tape-recorder for Rs. 1040 a man gains 4%. If he sells it for Rs. 950, his loss will be

(1) 5% (2) 4%
(3) 4.5% (4) 9%

(SSC CGL Tier-I (CBE)
Exam. 30.08.2016) (IIInd Sitting)

- 46.** If the cost price of 20 books is the same as selling price of 25 books, then the loss percentage is

(1) 20 (2) 25
(3) 22 (4) 24

(SSC CGL Tier-I (CBE)
Exam. 02.09.2016) (IIInd Sitting)

- 47.** By what fraction selling price (S.P.) must be multiplied to get the cost price (C.P.) if the loss is 20% ?

(1) $\frac{4}{5}$	(2) $\frac{8}{5}$
(3) $\frac{5}{4}$	(4) $\frac{6}{5}$

(SSC CGL Tier-II (CBE)
Exam. 30.11.2016)

- 48.** A store sells a watch for a profit of 25% of its cost price. Then the percentage of profit against selling price is :

(1) 22% (2) 20%
(3) 18% (4) 15%

(SSC CGL Tier-I (CBE)
Exam. 29.08.2016 (IST Sitting)

- 49.** To make a profit of 20% the selling price of the goods is Rs. 240. The cost price of the goods is :

(1) Rs. 200 (2) Rs. 210
(3) Rs. 220 (4) Rs. 230

(SSC CGL Tier-I (CBE)
Exam. 31.08.2016 (IIIrd Sitting)

- 50.** The per cent profit made when an article is sold for Rs. 78 is twice as much as when it is sold for Rs. 69. The cost price of the article is

(1) Rs. 60 (2) Rs. 51
(3) Rs. 55.50 (4) Rs. 70

(SSC CGL Tier-I (CBE)
Exam. 01.09.2016 (IIIrd Sitting)

- 51.** The profit (in Rs.) after selling an article for Rs. 524 is the same as the loss (in Rs.) after selling it for Rs. 452. The cost price of the article is:

(1) Rs. 480 (2) Rs. 485
(3) Rs. 488 (4) Rs. 500

(SSC CGL Tier-I (CBE)
Exam. 02.09.2016 (IIInd Sitting)

TYPE-II

- 1.** The cost price of 36 books is equal to the selling price of 30 books. The gain per cent is :

(1) 20% (2) $16\frac{4}{6}\%$

(3) 18% (4) $82\frac{2}{6}\%$

(SSC CGL Prelim Exam. 04.07.1999
(First Sitting)

- 2.** The cost price of 15 articles is same as the selling price of 10 articles. The profit percent is :

(1) 30% (2) 40%
(3) 50% (4) 45%

(SSC CGL Prelim Exam. 04.07.1999
(Second Sitting)

- 3.** The selling price of 5 articles is the same as the cost price of 3 articles. The gain or loss percent is :

(1) 20% gain (2) 25% gain
(3) 33.33% loss (4) 40% loss

(SSC CGL Prelim Exam. 27.02.2000
(IIInd Sitting) & (SSC CGL Tier-I
Exam. 16.05.2010 (IIInd Sitting)
& (SSC SAS Exam. 26.06.2010)

- 4.** If the cost price of 15 tables be equal to the selling price of 20 tables, the loss per cent is :

(1) 20% (2) 30%
(3) 25% (4) 37.5%

(SSC CGL Prelim Exam. 24.02.2002
(First Sitting) and SSC CHSL
DEO & LDC Exam. 11.12.2011
(IIInd Sitting (East Zone))

- 5.** The cost price of 18 articles is equal to the selling price of 15 articles. The gain per cent is :

(1) 15% (2) 20%
(3) 25% (4) 18%

(SSC CGL Prelim Exam. 24.02.2002
(Second Sitting))

- 6.** A person sells 400 mangoes at the cost price of 320 mangoes. His percentage of loss is

(1) 10% (2) 15%
(3) 20% (4) 25%

(SSC CHSL DEO & LDC Exam.
11.12.2011(Ist Sitting (Delhi Zone))

- 7.** If the cost price of 50 oranges is equal to the selling price of 40 oranges, then the profit per cent is

(1) 5% (2) 10%
(3) 20% (4) 25%

(SSC CGL Prelim Exam. 11.05.2003
(First Sitting))

PROFIT AND LOSS

- 8.** If the cost price of 12 oranges is equal to selling price of 10 oranges, then the percentage of profit is

(1) $16\frac{2}{3}\%$ (2) 20%

(3) 18% (4) 25%

(SSC CGL Prelim Exam. 11.05.2003
(IInd Sitting) & (SSC SO
(Commercial) Exam. 16.11.2003)

- 9.** If the cost price of 10 articles is equal to the selling price of 9 articles, the gain or loss per cent is

(1) $11\frac{1}{9}\%$ profit

(2) $7\frac{6}{17}\%$ profit

(3) $11\frac{1}{9}\%$ loss

(4) $1\frac{12}{13}\%$ loss

(SSC CPO S.I. Exam. 07.09.2003)

- 10.** A man sells 320 mangoes at the cost price of 400 mangoes. His gain percent is :

(1) 15% (2) 20%

(3) 25% (4) 10%

(SSC CGL Prelim Exam. 24.02.2002
& (SSC CHSL DEO & LDC Exam.
11.12.2011 (IInd Sitting (Delhi Zone))

- 11.** If the cost price of 12 pens is equal to the selling price of 8 pens, the gain per cent is :

(1) $33\frac{1}{3}\%$ (2) $66\frac{2}{3}\%$

(3) 25% (4) 50%

(SSC CGL Prelim Exam. 08.02.2004
(Second Sitting))

- 12.** The cost price of 8 articles is equal to the selling price of 9 articles. The profit or loss per cent in the transaction is

(1) $12\frac{1}{2}\%$ loss (2) $12\frac{1}{2}\%$ profit

(3) $11\frac{1}{9}\%$ loss (4) $11\frac{1}{9}\%$ profit

(SSC CPO S.I. Exam. 05.09.2004)

- 13.** A sold an article to B at 20% profit and B sold to C at 15% loss. If A sold it to C at the selling price of B, then A would make

(1) 5% profit (2) 2% profit

(3) 2% loss (4) 5% loss

(SSC CGL Tier-I Exam. 19.10.2014)

TF No. 022 MH 3)

- 14.** If the cost price of 10 articles is equal to the selling price of 7 articles, then the gain or loss per cent is :

(1) 51% gain (2) $42\frac{6}{7}\%$ gain

(3) 35 % loss (4) $42\frac{6}{7}\%$ loss

(SSC CPO S.I. Exam. 26.05.2005)

- 15.** Mahesh purchased a radio at $\frac{9}{10}$

of its selling price and sold it at 8% more than its original selling price. His gain per cent is :

(1) 20 % (2) 18%

(3) 10 % (4) 8 %

(SSC CHSL DEO & LDC Exam.
28.11.2010 (Ist Sitting))

- 16.** A coconut merchant finds that the cost price of 2750 coconuts is the same as the selling price of 2500 coconuts. The loss or gain per cent is

(1) 5% loss (2) 15% loss

(3) 20% gain (4) 10% gain

(SSC CGL Prelim Exam. 04.02.2007
(IInd Sitting) & (SSC CPO S.I.
Exam. 03.09.2006))

- 17.** If the cost price of 10 articles is equal to the selling price of 16 articles, then the loss per cent is

(1) 30% (2) 37.5%

(3) 42.5% (4) 45%

(SSC CISF ASI Exam. 29.08.2010
(Paper-1) & (SSC (South Zone)
Investigator Exam 12.09.2010)
& (SSC CHSL DEO & LDC
Exam. 04.12.2011))

- 18.** If the selling price of 4 articles is equal to the cost price of 5 articles, the profit percent is

(1) 20% (2) $22\frac{1}{2}\%$

(3) 25% (4) 30%

(SSC CPO S.I.
Exam. 12.12.2010 (Paper-1))

- 19.** The selling price of 10 oranges is the cost price of 13 oranges. Then the profit percentage is

(1) 30% (2) 10%

(3) 13% (4) 3%

(SSC CGL Tier-I Exam. 19.06.2011)

(First Sitting))

- 20.** If the selling price of 10 articles is equal to the cost price of 11 articles, then the gain percent is

(1) 10% (2) 11%

(3) 15% (4) 25%

(SSC CGL Tier-1 Exam 26.06.2011
(First Sitting))

- 21.** If the cost price of 10 articles is equal to the selling price of 8 articles, then gain per cent is

(1) 10% (2) 8%

(3) 50% (4) 25%

(SSC CGL Tier-1 Exam 26.06.2011
(Second Sitting))

- 22.** The cost price of 25 articles is equal to the selling price of 20 of them. The gain or loss percent is given by

(1) 20% loss (2) 25% gain

(3) 60% loss (4) 75% gain

(SSC CPO S.I. Exam. 12.01.2003) &
(SSC CHSL DEO & LDC
Exam. 04.12.2011) & FCI Assistant
Grade-III Exam. 25.02.2012
(Paper-I) North Zone (Ist Sitting))

- 23.** The cost price of 24 apples is the same as the selling price of 18 apples. The percentage of gain is :

(1) $12\frac{1}{2}\%$ (2) $14\frac{2}{3}\%$

(3) $16\frac{2}{3}\%$ (4) $33\frac{1}{3}\%$

(SSC CHSL DEO & LDC
Exam. 27.11.2010))

- 24.** The cost price of 400 lemons is equal to the selling price of 320 lemons. Then the profit percent is

(1) 15% (2) 20%

(3) 25% (4) 40%

(SSC CHSL DEO & LDC Exam.
04.12.2011 (IInd Sitting (North Zone)))

- 25.** The cost price of 20 oranges is same with selling price of 16 oranges. The profit percentage is

(1) 30% (2) 20%

(3) 25% (4) 16%

(SSC CPO S.I. Exam. 05.09.2004)
& (SSC CHSL DEO & LDC Exam.
04.12.2011 (IInd Sitting (East Zone)))

- 26.** The selling price of 12 articles is equal to the cost price of 15 articles. The gain per cent is

(1) $6\frac{2}{3}\%$ (2) 20%

(3) 25% (4) 80%

(SSC CGL Tier-I Exam. 19.06.2011
& (SSC CHSL DEO & LDC Exam.
11.12.2011 (Ist Sitting (East Zone)))

PROFIT AND LOSS

27. If the cost price of 18 articles is equal to the selling price of 16 articles, the gain or loss is
 (1) 25% gain (2) 25% loss

- (3) $12\frac{1}{2}\%$ loss (4) $12\frac{1}{2}\%$ gain

(SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (1st Sitting))

28. The cost price of 40 articles is the same as the selling price of 25 articles. Find the gain per cent.
 (1) 65% (2) 60%
 (3) 15% (4) 75%

(SSC Graduate Level Tier-II Exam. 16.09.2012)

29. The cost price of a book is ₹ 150. At what price should it be sold to gain 20%?
 (1) ₹ 120 (2) ₹ 180
 (3) ₹ 100 (4) ₹ 80

(SSC CHSL DEO & LDC Exam. 20.10.2013)

30. A cloth merchant on selling 33 metres of cloth obtains a profit equal to the selling price of 11 metres of cloth. The profit percent is
 (1) 40% (2) 22%
 (3) 50% (4) 11%

(SSC CHSL DEO & LDC Exam. 10.11.2013, 1st Sitting)

31. A shopkeeper buys 144 items at 90 paise each. On the way 20 items are broken. He sells the remainder at ₹ 1.20 each. His gain per cent correct to one place of decimal is
 (1) 13.8% (2) 14.6%
 (3) 14.8% (4) 15.8%

(SSC CGL Tier-II Exam. 21.09.2014)

32. If goods be purchased for ₹ 450 and one third sold at a loss of 10%. At what gain percent should the remainder be sold so as to gain 20% on the whole transaction?
 (1) 32% (2) 35%
 (3) 28% (4) 30%

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

33. A shoe company sold 50 pairs of shoes on a day costing ₹ 189.50 each for ₹ 10,000. Then the profit obtained in ₹ is
 (1) 522 (2) 525
 (3) 573 (4) 612

(SSC CHSL DEO & LDC Exam. 16.11.2014)

34. Salim had to sell vegetables worth ₹ 5,750 for ₹ 4,500 due to heavy rainfall. What is the loss percentage that he has incurred?
 (1) 21.74% (2) 23.47%
 (3) 20% (4) 23.45%
 (SSC CHSL DEO Exam. 02.11.2014 (1st Sitting))

35. A shopkeeper purchases an article for Rs. 3,550 and spends Rs. 50 on it for its repair. If he then sold the article for Rs. 3,816, the percent of profit is
 (1) 6% (2) 6.08%
 (3) 7.38% (4) 7.49%

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, 1st Sitting TF No. 333 LO 2)

36. A shopkeeper buys two cameras at the same price. He sells one camera at a profit of 18% and the other at a price 10% less than the selling price of the first. His total profit or loss per cent is
 (1) 12.1% profit (2) 12.1% loss
 (3) 12.2% profit (4) 11.1% loss
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting TF No. 545 QP 6)

37. A shopkeeper sold his goods at half the list price and thus lost 20%. If he had sold on the listed price, his gain percentage would be
 (1) 60% (2) 20%
 (3) 72% (4) 35%
 (SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

38. By selling 20 metres of cloth a man gains the selling price of 4 metres of cloth. The gain percent is
 (1) 25 (2) 30
 (3) 35 (4) 20
 (SSC CGL Tier-II Exam. 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

39. Ten articles were bought for Rs. 8, and sold at ₹ 8 for Rs. 10. The gain percent is
 (1) 54.75% (2) 57.25%
 (3) 56.25% (4) 55%
 (SSC CGL Tier-II Exam. 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

40. If a shop-keeper purchases cashewnut at Rs. 250 per kg. and sells it at Rs. 10 per 50 grams, then he will have
 (1) 25% Loss (2) 25% Profit
 (3) 20% Profit (4) 20% Loss
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 21.06.2015 (1st Sitting) TF No. 8037731)

41. Cost price of 100 books is equal to the selling price of 60 books. The gain percentage/loss percentage is

- (1) $66\frac{3}{2}\%$ (2) 67%

- (3) 66% (4) $66\frac{2}{3}\%$

(SSC CGL Tier-I Exam. 09.08.2015 (IIInd Sitting) TF No. 4239378 and SSC CGL Tier-I Exam. 16.08.2015 (1st Sitting) TF No. 3196279)

42. If the cost price of 10 articles equals selling price of 9 articles, the gain or loss percent will be

- (1) $11\frac{1}{9}\%$ loss (2) $1\frac{1}{9}\%$ loss

- (3) $1\frac{1}{9}\%$ gain (4) $11\frac{1}{9}\%$ gain

(SSC CGL Tier-I Re-Exam, 30.08.2015)

43. Ritu purchased $2\frac{1}{2}$ dozen eggs

at the rate of Rs. 20 per dozen. She found that 6 eggs were rotten. She sold the remaining eggs at the rate of Rs. 22 per dozen. Then her profit or loss percent is :

- (1) 12% loss (2) 12% profit
 (3) 10% loss (4) 10% profit

(SSC Constable (GD) Exam. 04.10.2015, IInd Sitting)

44. Ram sold two horses at the same price. In one he gets a profit of 10% and in the other he gets a loss of 10%. Then Ram gets

- (1) 2% loss
 (2) No loss or profit
 (3) 1% loss
 (4) 1% profit

(SSC CGL Tier-II Exam. 25.10.2015, TF No. 1099685)

45. A man purchases some oranges at the rate of 3 for Rs. 40 and the same quantity at 5 for Rs. 60. If he sells all the oranges at the rate of 3 for Rs. 50, find his gain or loss percent (to the nearest integer).

- (1) 32% profit (2) 31% loss
 (3) 34% loss (4) 31% profit
 (SSC CGL Tier-II Exam. 25.10.2015, TF No. 1099685)

46. An article is sold at a profit of 25%. If the selling price is doubled, the profit will be :

- (1) 200% (2) 50%
 (3) 100% (4) 150%
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 15.11.2015 (1st Sitting) TF No. 6636838)

PROFIT AND LOSS

47. A man purchased an article for Rs. 1500 and sold it at 25% above the cost price. If he has to pay Rs. 75 as tax on it, his net profit percentage will be :

- (1) 20% (2) 25%
 - (3) 30% (4) 15%
- (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IInd Sitting) TF No. 7203752)

48. If a man were to sell his handcart for Rs. 720, he would lose 25%. At what price must he sell it to gain 25%?

- (1) Rs. 1200 (2) Rs. 960
 - (3) Rs. 1152 (4) Rs. 768
- (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IInd Sitting) TF No. 7203752)

49. If the Cost Price of 25 chairs is equal to the selling price of 30 chairs, then the loss % is :

- (1) 25% (2) 20%
 - (3) 5% (4) $16\frac{2}{3}\%$
- (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)

50. A fruit seller buys oranges at the rate of Rs. 10 per dozen and sells at the rate of Rs. 12 per dozen. His gain percent is :

- (1) 20% (2) 15%
 - (3) 12% (4) $8\frac{1}{3}\%$
- (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IInd Sitting) TF No. 3441135)

51. If the cost price of 25 pens is equal to the selling price of 20 pens, then the profit per cent is

- (1) 20% (2) 25%
 - (3) 15% (4) 5%
- (SSC CGL Tier-I (CBE) Exam. 11.09.2016) (Ist Sitting)

52. A shopkeeper sells rice at 10% profit and uses weight 30% less than the actual measure. His gain per cent is

- (1) $57\frac{2}{3}\%$ (2) $57\frac{1}{7}\%$
 - (3) $57\frac{2}{5}\%$ (4) $57\frac{3}{7}\%$
- (SSC CGL Tier-II Online Exam. 01.12.2016)

53. A man bought 4 dozen eggs at Rs. 24 per dozen and 2 dozen eggs at Rs. 32 per dozen. To gain 20% on the whole, he should sell the eggs at

- (1) Rs. 16 per dozen
 - (2) Rs. 21 per dozen
 - (3) Rs. 32 per dozen
 - (4) Rs. 35 per dozen
- (SSC CGL Tier-I (CBE) Exam. 28.08.2016 (IST Sitting))

54. If 10% loss is made on selling price, then the percentage of loss on the cost price will be

- (1) $11\frac{1}{9}\%$ (2) $9\frac{1}{11}\%$
 - (3) 10% (4) 11%
- (SSC CGL Tier-I (CBE) Exam. 10.09.2016 (IInd Sitting))

55. Sapna purchased a cycle for Rs. 1,000 and sold it for Rs. 1,200. Her gain in percentage is :

- (1) 20% (2) 10%
 - (3) 12% (4) 40%
- (SSC CGL Tier-I (CBE) Exam. 27.10.2016 (Ist Sitting))

56. A dishonest shopkeeper professes to sell goods at his cost price but uses a false weight of 950 gms, for each kilogram. His gain per cent is :

- (1) $6\frac{1}{4}\%$ (2) $5\frac{5}{19}\%$
 - (3) $5\frac{3}{17}\%$ (4) $6\frac{2}{7}\%$
- (SSC CGL Tier-I (CBE) Exam. 08.09.2016 (IIId Sitting))

57. A dishonest dealer defrauds to the extent of $x\%$ in buying as well as selling his goods by using faulty weight. What will be the gain per cent on his outlay?

- (1) $2x\%$ (2) $\left(\frac{10}{x} + x^2\right)\%$
 - (3) None of these (4) $\left(x + \frac{x^2}{100}\right)\%$
- (SSC CGL Tier-II (CBE) Exam. 12.01.2017)

TYPE-III

1. Oranges are bought at rate of 7 for ₹ 3. At what rate per hundred must they be sold to gain 33%?

- (1) ₹ 56 (2) ₹ 60
 - (3) ₹ 58 (4) ₹ 57
- (SSC CGL Prelim Exam. 04.07.1999 (First Sitting))

2. A man buys 12 articles for ₹ 12 and sells them at the rate of ₹ 1.25 per article. His gain percentage is :

- (1) 20% (2) 25%
 - (3) 15% (4) 18%
- (SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))

3. 12 copies of a book were sold for ₹ 1800/- thereby gaining cost-price of 3 copies. The cost price of a copy is :

- (1) ₹ 120/- (2) ₹ 150/-
 - (3) ₹ 1200/- (4) ₹ 1500/-
- (SSC CGL Prelim Exam. 27.02.2000 (First Sitting))

4. If I would have purchased 11 articles for ₹ 10 and sold all the articles at the rate of 10 for ₹ 11, the profit per cent would have been :

- (1) 10% (2) 11%
 - (3) 21% (4) 100%
- (SSC CGL Prelim Exam. 24.02.2002 (First Sitting))

5. A person buys some pencils at 5 for a rupee and sells them at 3 for a rupee. His gain per cent will be :

- (1) $66\frac{2}{3}\%$ (2) $76\frac{2}{3}\%$
 - (3) $56\frac{2}{3}\%$ (4) $46\frac{2}{3}\%$
- (SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))

6. 100 oranges are bought for ₹ 350 and sold at the rate of ₹ 48 per dozen. The percentage of profit or loss is :

- (1) 15% loss (2) 15% gain
 - (3) $14\frac{2}{7}\%$ loss (4) $14\frac{2}{7}\%$ profit
- (SSC CGL Prelim Exam. 11.05.2003 (First Sitting))

7. Oranges are bought at the rate of 10 for ₹ 25 and sold at the rate of 9 for ₹ 25. The profit percent is

- (1) $9\frac{1}{11}\%$ (2) 10%
 - (3) $11\frac{1}{9}\%$ (4) $12\frac{1}{2}\%$
- (SSC CGL Prelim Exam. 11.05.2003 (Second Sitting))

8. The cost price of two dozen bananas is ₹ 32. After selling 18 bananas at the rate of ₹ 12 per dozen, the shopkeeper reduced the rate to ₹ 4 per dozen. The per cent loss is

- (1) 25.2% (2) 32.4%
 - (3) 36.5% (4) 37.5%
- (SSC Section Officer (Commercial Audit) Exam. 16.11.2003)

PROFIT AND LOSS

- 9.** Some articles were bought at 6 for ₹ 5, and sold at 5 for ₹ 6. Gain per cent is :
 (1) 5% (2) 6%
 (3) 30% (4) 44%
 (SSC CGL Prelim Exam. 08.02.2004 & 04.02.2007 (Ist & IIInd Sitting))
- 10.** Ramesh bought 10 cycles for ₹500 each. He spent ₹2,000 on the repair of all cycles. He sold five of them for ₹750 each and the remaining for ₹ 550 each. Then the total gain or loss % is
 (1) Gain of $8\frac{1}{3}\%$
 (2) Loss of $8\frac{1}{3}\%$
 (3) Gain of $7\frac{2}{3}\%$
 (4) Loss of $7\frac{1}{7}\%$
 (SSC Graduate Level Tier-I Exam. 11.11.2012 (Ist Sitting))
- 11.** On selling 17 balls at ₹ 720, there is a loss equal to the cost price of 5 balls. The cost price of a ball is :
 (1) ₹ 45 (2) ₹ 50
 (3) ₹ 60 (4) ₹ 55
 (SSC CGL Prelim Exam. 08.02.2004 (Second Sitting))
- 12.** I purchased 120 exercise books at the rate of ₹ 3 each and sold $\frac{1}{3}$ of them at the rate of ₹ 4 each, $\frac{1}{2}$ of them at the rate of ₹ 5 each and the rest at the cost price. My profit per cent was
 (1) 44% (2) $44\frac{4}{9}\%$
 (3) $44\frac{2}{3}\%$ (4) 45%
 (SSC CPO S.I. Exam. 05.09.2004)
- 13.** A person bought some articles at the rate of 5 per rupee and the same number at the rate of 4 per rupee. He mixed both the types and sold at the rate of 9 for 2 rupees. In this business he suffered a loss of ₹ 3. The total number of articles bought by him was
 (1) 1090 (2) 1080
 (3) 540 (4) 545
 (SSC CPO S.I. Exam. 05.09.2004)
- 14.** A man bought pencils at the rate of 6 for ₹ 4 and sold them at the rate of 4 for ₹ 6. His gain% in the transaction is :
 (1) 75% (2) 80%
 (3) 125% (4) 100%
 (SSC CGL Prelim Exam. 13.11.2005 (First Sitting))
- 15.** Ravi buys some toffees at 2 for a rupee and sells them at 5 for a rupee. His loss percent is
 (1) 120% (2) 90%
 (3) 30% (4) 60%
 (SSC CGL Prelim Exam. 13.11.2005 (Second Sitting))
- 16.** A fruit seller buys lemons at 2 for a rupee and sells them at 5 for three rupees. His profit per cent is
 (1) 10% (2) 15%
 (3) 20% (4) 25%
 (SSC CGL Prelim Exam. 04.02.2007 (First Sitting))
- 17.** By selling a tape-recorder ₹ for 950, I lose 5%. What per cent shall I gain by selling it for ₹ 1040?
 (1) 5 (2) 4
 (3) 4.5 (4) 9
 (SSC CGL Prelim Exam. 11.05.2003 (Second Sitting))
- 18.** A person buys 100 cups at ₹ 10 each. On the way 10 cups are broken. He sells the remaining cups at ₹ 11 each. His loss per cent is
 (1) $\frac{1}{2}\%$ (2) 1%
 (3) $1\frac{1}{2}\%$ (4) 2%
 (SSC CGL Prelim Exam. 04.02.2007 (Second Sitting))
- 19.** Mohan bought 25 books for ₹ 2,000 and sold them at a profit equal to the selling price of 5 books. The selling price of 1 book is
 (1) ₹ 100 (2) ₹ 120
 (3) ₹ 150 (4) ₹ 200
 (SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (Second Sitting))
- 20.** A shopman bought pens at the rate of 7 for ₹ 10 and sold them at a profit of 40%. How many pens would a customer get for ₹ 10 ?
 (1) 6 (2) 4
 (3) 5 (4) 3
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone)))
- 21.** By selling 12 oranges for ₹ 60, a man loses 25%. The number of oranges he has to sell for ₹ 100, so as to gain 25% is
 (1) 10 (2) 11
 (3) 12 (4) 15
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting (North Zone)))
- 22.** A man buys a certain number of oranges at 20 for ₹ 60 and an equal number at 30 for ₹ 60. He mixes them and sells them at 25 for ₹ 60. What is gain or loss per cent ?
 (1) Gain of 4%
 (2) Loss of 4%
 (3) Neither gain nor loss
 (4) Loss of 5%
 (SSC CPO S.I. Exam. 09.11.2008)
- 23.** A fruit vendor bought bananas at the rate of 5 for a rupee and sold them 4 for a rupee. The percent gain or loss is
 (1) $12\frac{1}{2}\%$ gain (2) 25% loss
 (3) 25% gain (4) $12\frac{1}{2}\%$ loss
 (SSC CPO S.I. Exam. 06.09.2009)
- 24.** A man sold 20 apples for ₹ 100 and gained 20%. How many apples did he buy for ₹ 100?
 (1) 20 (2) 22
 (3) 24 (4) 25
 (SSC CGL Tier-1 Exam 19.06.2011 (First Sitting))
- 25.** A man purchased some eggs at 3 for ₹ 5 and sold them at 5 for ₹ 12. Thus he gained ₹ 143 in all. The number of eggs he bought is
 (1) 210 (2) 200
 (3) 195 (4) 190
 (SSC CGL Tier-1 Exam 19.06.2011 (Second Sitting))
- 26.** A man bought oranges at the rate of 8 for ₹ 34 and sold them at the rate of 12 for ₹ 57. How many oranges should be sold to earn a net profit of ₹ 45 ?
 (1) 90 (2) 100
 (3) 135 (4) 150
 (SSC CGL Tier-1 Exam 26.06.2011 (Second Sitting))

PROFIT AND LOSS

27. A person bought 50 pens for ₹ 50 each. He sold 40 of them at a loss of 5%. He wants to gain 10% on the whole. Then his gain percent on the remaining pens should be

- (1) 15% (2) 40%
 (3) 50% (4) 70%

(SSC CPO (SI, ASI & Intelligence Officer)
 Exam. 28.08.2011 (Paper-I)

28. If toys are bought at ₹ 5 each and sold at ₹ 4.50 each, then the loss percent is :

- (1) 10% (2) 11%
 (3) 12% (4) 13%

FCI Assistant Grade-III
 Exam. 05.02.2012 (Paper-I)
 East Zone (IInd Sitting)

29. By selling 14 watches of equal cost price at the rate of ₹ 450 each, there is a profit equal to the cost price of 4 watches. The cost price of a watch is

- (1) ₹ 350 (2) ₹ 360
 (3) ₹ 375 (4) ₹ 400

(SSC Data Entry Operator
 Exam. 31.08.2008)

30. A man buys some articles at ₹ P per dozen and sells them at ₹ $\frac{P}{8}$

per piece. His profit per cent is

- (1) 30% (2) 40%
 (3) 50% (4) 60%

(SSC Data Entry Operator
 Exam. 02.08.2009)

31. A vendor sells lemons at the rate of 5 for ₹ 14, gaining thereby 40%. For how much did he buy a dozen lemons ?

- (1) ₹ 20 (2) ₹ 21
 (3) ₹ 24 (4) ₹ 28

(SSC CHSL DEO & LDC Exam.
 28.11.2010 (Ist Sitting))

32. If I purchased 11 books for ₹ 100 and sold 10 books for ₹ 110, the percentage of profit per book sold is

- (1) 10% (2) 11.5%
 (3) 17.3% (4) 21%

(SSC Multi-Tasking (Non-Technical)
 Staff Exam. 20.02.2011)

33. A shop-keeper sold a sewing machine for ₹ 1,080 at a loss of 10%. At what price should he has to sold it so as to gain 10% on it ? (in ₹)

- (1) 1,069 (2) 1,200
 (3) 1,230 (4) 1,320

(SSC CGL Tier-I Re-Exam. (2013)
 20.07.2014 (Ist Sitting))

34. A fruit-seller buys some oranges and by selling 40% of them he realises the cost price of all the oranges. As the oranges being to grow over-ripe, he reduces the price and sells 80% of the remaining oranges at half the previous rate of profit. The rest of the oranges being rotten are thrown away. The overall percentage of profit is

- (1) 80 (2) 84
 (3) 94 (4) 96

(SSC CGL Tier-I Exam. 19.10.2014)

35. An item costing ₹ 200 is being sold at 10% loss. If the price is further reduced by 5%, the selling price will be

- (1) ₹ 170 (2) ₹ 171
 (3) ₹ 175 (4) ₹ 179

(SSC CGL Tier-II Exam. 21.09.2014)

36. By selling an article for ₹ 102, there is a loss of 15%, when the article is sold for ₹ 134.40, the net result in the transaction is

- (1) 12% gain (2) 12% loss
 (3) 10% loss (4) 15% gain

(SSC CGL Tier-II Exam. 21.09.2014)

37. Two toys are sold at ₹ 504 each. One toy brings the dealer a gain of 12% and the other a loss of 4%. The gain or loss per cent by selling both the toys is

(1) $3\frac{5}{13}\%$ Profit

(2) $4\frac{5}{13}\%$ Profit

(3) $5\frac{1}{13}\%$ Profit

(4) $2\frac{3}{13}\%$ loss

(SSC CGL Tier-II Exam. 21.09.2014)

38. A sold a horse to B for ₹ 4800 by losing 20%. B sells it to C at a price which would have given A a profit of 15%. B's gain is

- (1) ₹ 1800 (2) ₹ 1900
 (3) ₹ 2000 (4) ₹ 2100

(SSC CGL Tier-II Exam. 21.09.2014)

39. A fruit vendor buys apples at the rate of 10 for ₹ 100. How many should he sell for ₹ 100, so that he makes a profit of 25% ?

- (1) 5 (2) 6
 (3) 7 (4) 8

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

40. A table is sold at a profit of 13%.

- If it is sold for ₹ 25 more, profit is 18%. Cost price of table is
 (1) ₹ 100 (2) ₹ 500
 (3) ₹ 200 (4) ₹ 1,000

(SSC CHSL DEO & LDC Exam. 02.11.2014 (IInd Sitting))

41. A man sold his watch at a loss of 5%. Had he sold it for ₹ 56.25 more, he would have gained 10%. What is the cost price of the watch (in ₹) ?

- (1) 370 (2) 365
 (3) 375 (4) 390

(SSC CHSL DEO & LDC Exam. 9.11.2014)

42. Kamala bought a bicycle for ₹ 1,650. She had to sell it at a loss of 8%. She sold it for

- (1) ₹ 1,581 (2) ₹ 1,518
 (3) ₹ 1,510 (4) ₹ 1,508

(SSC CHSL DEO & LDC Exam. 16.11.2014)

43. A table is sold at Rs. 1,800 at a loss of 10%. At what price should it be sold to earn a profit of 15%?

- (1) ₹ 2,070 (2) ₹ 1,890
 (3) ₹ 2,000 (4) ₹ 2,300

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, Ist Sitting TF No. 333 LO 2)

44. A manufacturer sells an item to a wholesale dealer at a profit of 18%. The wholesaler sells the same to a retailer at a profit of 20%. The retailer in turn sells it to a customer for ₹ 15045 thereby earning a profit of 25%. The cost price of the manufacturer is

- (1) ₹ 8000 (2) ₹ 8500
 (3) ₹ 9000 (4) ₹ 10000

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IInd Sitting TF No. 545 QP 6)

45. A man sold an article at a gain of 5%. Had he sold it for Rs. 40 more, he would have gained 8%. The cost price of the article is

- (1) Rs. 6,000 (2) Rs. 10,000
 (3) Rs. 12,000 (4) Rs. 8,000

(SSC CGL Tier-II Exam. 2014 12.04.2015 (Kolkata Region))

TF No. 789 TH 7)

46. A radio is sold at a profit of 20%. Had it been sold for Rs. 60 more the profit would have been 30%. The cost price of the radio is

- (1) Rs. 500 (2) Rs. 600
 (3) Rs. 550 (4) Rs. 620

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 21.06.2015)

IInd Sitting)

PROFIT AND LOSS

47. A dealer sold a bicycle at a profit of 10%. Had he bought the bicycle at 10% less price and sold it at a price Rs. 60 more, he would have gained 25%. The cost price of the bicycle was

- (1) Rs. 2400 (2) Rs. 2600
 (3) Rs. 2000 (4) Rs. 2200
 (SSC CGL Tier-I Exam. 16.08.2015
 (IInd Sitting) TF No. 2176783)

48. If 3 articles are sold for the cost of 5 articles, then the profit percentage is :

- (1) 50 (2) 60
 (3) $66\frac{2}{3}$ (4) 65
 (SSC CPO Exam. 06.06.2016
 (Ist Sitting))

49. A sold a watch at a gain of 5% to B and B sold it to C at a gain of 4%. If C paid Rs. 91 for it, the price paid by A is :

- (1) Rs. 83.33 (2) Rs. 84.33
 (3) Rs. 83 (4) Rs. 82.81
 (SSC CAPFs (CPO) SI & ASI,
 Delhi Police Exam. 20.03.2016
 (IIInd Sitting))

50. Arun buys one kilogram of apples for Rs. 120 and sells it to Swati gaining 25%. Swati sells it to Divya who again sells it for Rs. 198, making a profit of 10%. What is the profit percentage made by Swati?

- (1) 25% (2) 20%
 (3) 16.67% (4) 15%
 (SSC CAPFs (CPO) SI & ASI,
 Delhi Police Exam. 05.06.2016
 (Ist Sitting))

51. A dealer sold an article at 6% loss. Had he sold it for Rs. 64 more, he would have made a profit of 10%. Then the cost of the article is

- (1) Rs. 400 (2) Rs. 200
 (3) Rs. 164 (4) Rs. 464
 (SSC CGL Tier-I (CBE)
 Exam. 27.08.2016) (Ist Sitting)

52. If percentage of profit made, when an article is sold for Rs. 78, is twice as when it is sold for Rs. 69, the cost price of the article is

- (1) Rs. 49 (2) Rs. 51
 (3) Rs. 57 (4) Rs. 60
 (SSC CGL Tier-I (CBE)
 Exam. 01.09.2016) (Ist Sitting)

53. A shopkeeper buys 80 articles for Rs. 2400 and sells them for a profit of 16%. Find the selling price of one article.

- (1) Rs. 36.40 (2) Rs. 34.80
 (3) Rs. 35.60 (4) Rs. 33.80
 (SSC CGL Tier-I (CBE)
 Exam. 02.09.2016) (IIInd Sitting)

54. Ramesh sold a book at a loss of 30%. If he had sold it for Rs. 140 more, he would have made a profit of 40%. The cost price of the book is

- (1) Rs. 280 (2) Rs. 200
 (3) Rs. 260 (4) Rs. 300
 (SSC CGL Tier-II (CBE)
 Exam. 30.11.2016)

55. By selling cloth at Rs. 9 per metre, a shopkeeper loses 10%. Find the rate at which it should be sold so as to earn profit of 15%.

- (1) Rs. 11.20 (2) Rs. 11.30
 (3) Rs. 11.40 (4) Rs. 11.50
 (SSC CGL Tier-I (CBE)
 Exam. 06.09.2016 (IIInd Sitting))

56. A man bought 30 defective machines for Rs. 1000. He repaired and sold them at the rate of Rs. 300 per machine. He got profit of Rs. 150 per machine. How much did he spend on repairs ? (in Rupees)

- (1) 5500 (2) 4500
 (3) 3500 (4) 2500
 (SSC CGL Tier-I (CBE)
 Exam. 06.09.2016 (IIIInd Sitting))

57. Kamal has some apples. He sold 40% more than he ate. If he sold 70 apples, how many did he eat ?

- (1) 18 (2) 42
 (3) 50 (4) 90
 (SSC CGL Tier-I (CBE)
 Exam. 07.09.2016 (IIInd Sitting))

58. A man bought 25 crates of oranges for Rs. 10,000. He lost 5 crates. In order to earn a total profit of 25% of the total cost, he would have to sell each of the remaining crates at

- (1) Rs. 650 (2) Rs. 625
 (3) Rs. 600 (4) Rs. 575
 (SSC CGL Tier-I (CBE)
 Exam. 08.09.2016 (IIInd Sitting))

59. A man sells an article at 15% profit. If he had sold it for Rs. 6 more, he would have gained 18%. The man bought the article for

- (1) Rs. 100 (2) Rs. 150
 (3) Rs. 200 (4) Rs. 250
 (SSC CGL Tier-I (CBE)
 Exam. 08.09.2016 (IIIInd Sitting))

TYPE-IV

1. The ratio of cost price and selling price is 5 : 4, the loss per cent is :

- (1) 20% (2) 25%
 (3) 40% (4) 50%

(SSC CGL Prelim Exam. 24.02.2002
 (First Sitting))

2. The ratio of the C.P. and S.P. of an article is 20 : 21. What is the gain per cent ?

- (1) 5% (2) 5.5%
 (3) 6% (4) 6.25%

(SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone) & (SSC CPO SI
 Exam. 03.09.2006 & SSC CISF ASI
 Exam. 29.08.2010))

3. The cash difference between selling prices of an article at a profit of 4% and 6% is ₹ 3. The ratio of the two selling prices is

- (1) 51 : 52 (2) 52 : 53
 (3) 51 : 53 (4) 52 : 55

(SSC CPO S.I. Exam. 12.01.2003)

4. A milkman makes 20% profit by selling milk mixed with water at ₹ 9 per litre. If the cost price of 1 litre pure milk is ₹ 10, then the ratio of milk and water in the said mixture is

- (1) 3 : 1 (2) 4 : 1
 (3) 3 : 2 (4) 4 : 3

(SSC CHSL DEO & LDC Exam.
 28.10.2012, Ist Sitting))

5. The prices of a refrigerator and a television set are in the ratio 5 : 3. If the refrigerator costs ₹ 5500 more than the television set, then the price of the refrigerator is:

- (1) ₹ 27500 (2) ₹ 8250
 (3) ₹ 13750 (4) ₹ 16500
 (SSC CHSL DEO & LDC Exam.
 21.10.2012, IIInd Sitting))

6. Nita blends two varieties of tea—one costing ₹ 180 per kg and another costing ₹ 200 per kg in the ratio 5 : 3. If she sells the blended variety at ₹ 210 per kg, then her gain percent is

- (1) 10% (2) 11%
 (3) 12% (4) 13%

(SSC Section Officer (Commercial Audit)
 Exam. 26.11.2006 (Second Sitting))

PROFIT AND LOSS

7. Partha earns 15 per cent on an investment but loses 10 per cent on another investment. If the ratio of two investments is 3 : 5, then the combined loss percent is

- (1) $\frac{5}{4}\%$ (2) $\frac{4}{5}\%$
 (3) $\frac{8}{5}\%$ (4) $-\frac{5}{8}\%$

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006 (Second Sitting))

8. The ratio of cost price and selling price of an article is 8 : 9. The profit per cent is
 (1) 20% (2) 15%
 (3) 12.5% (4) 10%
 (SSC CGL Prelim Exam. 04.02.2007 (Second Sitting))

9. A shopkeeper earns a profit of 12% on selling a book at 10% discount on the printed price. The ratio of the cost price and the printed price of the book is
 (1) 99 : 125 (2) 25 : 37
 (3) 50 : 61 (4) 45 : 56

(SSC CGL Prelim Exam. 27.07.2008 (Ist Sitting) & (SSC CGL Exam. 19.05.2013))

10. If an article is sold at 200% profit, then the ratio of its cost price to its selling price will be
 (1) 1 : 2 (2) 2 : 1
 (3) 1 : 3 (4) 3 : 1
 (SSC CGL Tier-I Exam. 16.05.2010 (Second Sitting))

11. An article is sold at 5% profit. The ratio of selling price and cost price will be
 (1) 1 : 5 (2) 20 : 21
 (3) 21 : 20 (4) 5 : 1
 (SSC (South Zone) Investigator Exam 12.09.2010)

12. If the ratio of cost price and the selling price is 5 : 6, the gain per cent is
 (1) 20% (2) $33\frac{1}{3}\%$
 (3) 25% (4) 30%
 (SSC CGL Prelim Exam. 11.05.2003 (IInd Sitting) & (SSC CPO S.I. Exam. 07.09.2003) & (SSC CPO S.I. Exam. 12.12.2010))

13. If the cost price and selling price of an article are in the ratio 10 : 11, then the percentage of profit is :

- (1) 10% (2) 9%
 (3) 3% (4) 1%

(SSC CGL Tier-I Exam. 16.05.2010) & (SSC CHSL DEO & LDC Exam. 27.11.2010)

14. The cost price : selling price of an article is $a : b$. If b is 200% of a then the percentage of profit on cost price is
 (1) 75% (2) 125%
 (3) 100% (4) 200%

(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (Delhi Zone)))

15. A invests ₹ 64,000 in a business. After few months B joined him with ₹ 48,000. At the end of year, the total profit was divided between them in the ratio 2 : 1. After how many months did B join?
 (1) 8 (2) 4
 (3) 6 (4) 7

(SSC CHSL DEO & LDC Exam. 20.10.2013)

16. The ratio, in which tea costing ₹ 192 per kg is to be mixed with tea costing ₹ 150 per kg so that the mixed tea, when sold for ₹ 194.40 per kg, gives a profit of 20%, is
 (1) 2 : 5 (2) 3 : 5
 (3) 5 : 3 (4) 5 : 2

(SSC CGL Prelim Exam. 27.07.2008 (First Sitting))

17. In what ratio Darjeeling Tea costing ₹ 320 per kg be mixed with Assam Tea costing ₹ 250 per kg so that there is a gain of 20% by selling the mixture at ₹ 324 per kg ?
 (1) 1 : 2 (2) 2 : 3
 (3) 3 : 2 (4) 2 : 5
 (SSC SAS Exam 26.06.2010 (Paper - 1))

18. The ratio of the quantities of sugar, in which sugar costing ₹ 20 per kg. and ₹ 15 per kg. should be mixed so that there will be neither loss nor gain on selling the mixed sugar at the rate of ₹ 16 per kg, is
 (1) 2 : 1 (2) 1 : 2
 (3) 4 : 1 (4) 1 : 4

(SSC Data Entry Operator Exam. 31.08.2008)

19. The ratio in which the Darjeeling tea at ₹ 32 per kg is mixed with the Assam tea at ₹ 25 per kg so as to gain 20% by selling the mixture at ₹ 32.40 per kg is
 (1) 4 : 3 (2) 3 : 4
 (3) 5 : 2 (4) 2 : 5

(SSC Multi-Tasking Staff Exam. 24.03.2013, Ist Sitting))

20. In what ratio must a grocer mix tea at ₹ 60 a kg, and ₹ 65 a kg, so that by selling the mixture at ₹ 68.20 a kg, he may gain 10%?
 (1) 3 : 2 (2) 3 : 4
 (3) 3 : 5 (4) 4 : 5

(SSC CGL Prelim Exam. 08.02.2004 (First Sitting))

21. 7 kg of tea costing ₹ 280 per kg is mixed with 9 kg of tea costing ₹ 240 per kg. The average price per kg of the mixed tea is
 (1) ₹ 255.80 (2) ₹ 257.50
 (3) ₹ 267.20 (4) ₹ 267.50

(SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (Second Sitting))

22. A shopkeeper bought 15kg of rice at the rate of ₹ 29 per kg and 25kg of rice at the rate of ₹ 20 per kg. He sold the mixture of both types of rice at the rate of ₹ 27 per kg. His profit in this transaction is
 (1) ₹ 125 (2) ₹ 150
 (3) ₹ 140 (4) ₹ 145

(SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting))

23. A, B and C are partners of a company. During a particular year A received one-third of the profit, B received one-fourth of the profit and C received the remaining ₹ 5,000. How much did A receive?
 (1) ₹ 5,000 (2) ₹ 4,000
 (3) ₹ 3,000 (4) ₹ 1,000
 (SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))

24. A, B and C entered into a partnership. A invested ₹ 2,560 and B ₹ 2,000. At the end of the year, they gained ₹ 1,105, out of which A got ₹ 320. C's capital was
 (1) ₹ 4,280 (2) ₹ 2,840
 (3) ₹ 4,820 (4) ₹ 4,028

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006 (Second Sitting))

PROFIT AND LOSS

- 25.** A, B and C entered into partnership in a business. A got $\frac{3}{5}$ of the profit and B and C distributed the remaining profit equally. If C got ₹ 400 less than A, the total profit was
 (1) ₹ 1600 (2) ₹ 1200
 (3) ₹ 1000 (4) ₹ 800
 (SSC CPO S.I. Exam. 09.11.2008)
- 26.** ₹ 864 is divided among A, B and C such that 8 times A's share is equal to 12 times B's share and also equal to 6 times C's share. How much did B get?
 (1) ₹ 399 (2) ₹ 192
 (3) ₹ 288 (4) ₹ 72
 (SSC Graduate Level Tier-II Exam. 16.09.2012)
- 27.** At the beginning of a partnership business, the capital of B was $\frac{3}{2}$ times that of A. After 8 months B withdrew $\frac{1}{2}$ of his capital and after 10 months A withdrew $\frac{1}{4}$ th of his capital. At the end of the year, if the profit incurred is ₹ 53,000, find the amount received by A.
 (1) ₹ 30,800 (2) ₹ 32,000
 (3) ₹ 30,000 (4) ₹ 23,000
 (SSC CHSL DEO & LDC Exam. 10.11.2013, IInd Sitting)
- 28.** A, B and C rent a pasture. A puts in 10 oxen for 7 months, B 12 oxen for 5 months and C 15 oxen for 3 months for grazing. If the rent of the pasture is ₹ 175/-, how much must C pay as his share of rent?
 (1) ₹ 45/- (2) ₹ 50/-
 (3) ₹ 55/- (4) ₹ 60/-
 (SSC CGL Prelim Exam. 27.02.2000 (First Sitting))
- 29.** A, B, C enter into a partnership. A contributes ₹ 3,20,000 for 4 months, B contributes ₹ 5,10,000 for 3 months and C contributes ₹ 2,70,000 for 5 months. If the total profit be ₹ 1,24,800, then A's share in the profit is
 (1) ₹ 38,400 (2) ₹ 45,900
 (3) ₹ 40,500 (4) ₹ 41,500
 (SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (Second Sitting))
- 30.** A started a business with a capital of ₹ 1,00,000. One year later, B joined him with a capital of ₹ 2,00,000. At the end of 3 years from the start of the business, the profit earned was ₹ 84,000. The share of B in the profit exceeded the share of A by
 (1) ₹ 10,000 (2) ₹ 12,000
 (3) ₹ 14,000 (4) ₹ 15,000
 (SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))
- 31.** A, B and C started a business by investing ₹ 40,500, ₹ 45,000 and ₹ 60,000 respectively. After 6 months C withdrew ₹ 15,000 while A invested ₹ 4,500 more. In annual profit of ₹ 56,100, the share of C will exceed that of A by
 (1) ₹ 900 (2) ₹ 1100
 (3) ₹ 3000 (4) ₹ 3900
 (SSC CGL Prelim Exam. 27.07.2008 (First Sitting))
- 32.** In a business partnership among A, B, C and D, the profit is shared as follows:

$$\frac{\text{A's share}}{\text{B's share}} = \frac{\text{B's share}}{\text{C's share}}$$

$$= \frac{\text{C's share}}{\text{D's share}} = \frac{1}{3}$$
 If the total profit is ₹ 4,00,000, then, the share of C is
 (1) ₹ 1,12,500 (2) ₹ 1,37,500
 (3) ₹ 90,000 (4) ₹ 2,70,000
 (SSC CGL Tier-I Exam 26.06.2011 (First Sitting))
- 33.** A starts business with ₹ 3,500/- and after 5 months, B joins with A as his partner. After a year, the profit is divided in the ratio 2 : 3. What is B's contribution in the capital?
 (1) ₹ 8,000/- (2) ₹ 8,500/-
 (3) ₹ 9,000/- (4) ₹ 7,500/-
 (SSC CGL Prelim Exam. 27.02.2000 (First Sitting))
- 34.** A began business with ₹ 45,000 and was joined afterwards by B with ₹ 54,000. After how many months did B join if the profits at the end of the year were divided in the ratio 2 : 1 ?
 (1) 4 (2) 5
 (3) 6 (4) 7
 (SSC CGL Prelim Exam. 13.11.2005 (First Sitting))
- 35.** A, B and C entered into a business and their investments ratio was 5 : 4 : 3. After 4 months B invested ₹ 1,000 more and after 8 months C invested ₹ 2,000 more. At the end of one year the profit ratio was 15 : 14 : 11, then the investment of C at the beginning was
 (1) ₹ 3,000 (2) ₹ 6,000
 (3) ₹ 4,500 (4) ₹ 7,500
 (SSC CHSL DEO Exam. 27.10.2013 IInd Sitting)
- 36.** A, B and C started a business with their investments in the ratio 1 : 2 : 4. After 6 months A increased his capital by 50% and B invested twice the amount as before, while C withdrew $\frac{1}{4}$ of his own investment. The ratio of their profits at the end of the year was
 (1) 10 : 5 : 9 (2) 5 : 12 : 14
 (3) 6 : 9 : 17 (4) 5 : 14 : 16
 (SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)
- 37.** A total profit of ₹ 3,600 is to be distributed amongst A, B and C such that A : B = 5 : 4 and B : C = 8 : 9. The share of C in the profit is
 (1) ₹ 1,200 (2) ₹ 1,500
 (3) ₹ 1,650 (4) ₹ 1,700
 (SSC CHSL DEO & LDC Exam. 9.11.2014)
- 38.** Two types of tea costing ₹ 180 per kg and ₹ 280 per kg should be mixed in the ratio so that the mixture obtained, sold at ₹ 320 per kg to earn a profit of 20% is
 (1) 3:13 (2) 1:13
 (3) 4:13 (4) 2:13
 (SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)
- 39.** A profit of 12% is made when a mobile phone is sold at ₹ P and there is 4% loss when the phone is sold at ₹ Q. Then Q : P is
 (1) 1 : 1 (2) 4 : 5
 (3) 6 : 7 (4) 3 : 1
 (SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)
- 40.** If the ratio of cost price to selling price is 10 : 11, then the rate of per cent of profit is
 (1) 1.1% (2) 0.1%
 (3) 10% (4) 1%
 (SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

PROFIT AND LOSS

41. If a sum of Rs. 1,170 was distributed among A, B and C in the ratio 2 : 3 : 4, by mistake, in place

of $\frac{1}{2} : \frac{1}{3} : \frac{1}{4}$, who was benefited most and by how much?

- (1) B, Rs. 220 (2) C, Rs. 250
 (3) B, Rs. 270 (4) A, Rs. 280

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region)
 TF No. 789 TH 7)

42. Costs of two watches were in the ratio of 16 : 23. The cost of first watch increases by 10% and that of second by Rs. 477. Now the costs of two watches are in a ratio of 11 : 20. The price of the second watch (in Rs.) in the beginning was

- (1) 932 (2) 1219
 (3) 1696 (4) 848

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region)
 TF No. 789 TH 7)

43. The liquids, X and Y are mixed in the ratio of 3 : 2 and the mixture is sold at Rs. 11 per litre at a profit of 10%. If the liquid X costs Rs. 2 more per litre than Y, the cost of X per litre is (in Rs.) :

- (1) 10.80 (2) 11.75
 (3) 9.50 (4) 11

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (1st Sitting) TF No. 1375232)

44. In what proportion must water be added with milk to gain 20% by selling the mixture at cost price?

- (1) 1 : 5 (2) 4 : 1
 (3) 5 : 1 (4) 1 : 1

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (1st Sitting) TF No. 1375232)

45. A and B invest in a business in the ratio 3 : 2. If 5% of the total profit goes to charity and A's share in profit is Rs. 8,550, then total profit is

- (1) Rs. 15,760 (2) Rs. 15,735
 (3) Rs. 14,250 (4) Rs. 15,000

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015 (1st Sitting) TF No. 9692918)

46. If the ratio of cost price and selling price of an article be 10:11, the profit percentage is

- (1) 1% (2) 10%
 (3) 5% (4) 8%

(SSC CGL Tier-I (CBE) Exam. 10.09.2016)

47. A and B jointly made a profit of Rs. 1650 and they decided to

share it such that $\frac{1}{3}$ of A's profit

is equal to $\frac{2}{5}$ of B's profit. Then

- profit of B is
 (1) Rs. 700 (2) Rs. 750
 (3) Rs. 850 (4) Rs. 800

(SSC CGL Tier-II Online Exam. 01.12.2016)

48. 4% of the selling price of an article is equal to 5% of its cost price. Again 20% of the selling price is Rs. 120 more than 22% of its cost price. The ratio of cost price and selling price is

- (1) 2 : 3 (2) 3 : 2
 (3) 4 : 5 (4) 5 : 4

(SSC CGL Tier-II Online Exam. 01.12.2016)

49. Anil started a business with an investment of Rs. 25,000. After 3 months, Vishal joined his business with a capital of Rs. 30,000. At the end of the year, they have made a profit of Rs. 19,000. What will be Anil's share in the profit?

- (1) Rs. 10,000 (2) Rs. 12,500
 (3) Rs. 10,250 (4) Rs. 14,000

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016)
 (1st Sitting)

50. Instead of dividing 391 cookies among 3 children A, B, C in the

ratio $\frac{1}{5} : \frac{1}{4} : \frac{1}{8}$, it was divided in

to the ratio 5 : 4 : 8. Who gains the most and how many?

- (1) A, 21 cookies
 (2) B, 78 cookies
 (3) C, 99 cookies
 (4) C, 78 cookies

(SSC CPO SI & ASI, Online Exam. 06.06.2016) (1Ind Sitting)

51. If the ratio between the profit and selling price of an article is 1 : 5, then the ratio between the selling price and the cost price of that article is :

- (1) 3 : 2 (2) 4 : 3
 (3) 5 : 4 (4) 6 : 5

(SSC CGL Tier-I (CBE) Exam. 03.09.2016) (1Ind Sitting)

52. If the loss per cent on an article is 15%, then the ratio of the cost price and the selling price will be :

- (1) 17 : 20 (2) 20 : 17
 (3) 23 : 15 (4) 15 : 23

(SSC CGL Tier-I (CBE) Exam. 30.08.2016 (IIInd Sitting))

53. A, B and C enter into a partnership, investing Rs. 6000. A invests Rs. 1000 and B and C invests in the ratio of 2 : 3. Find the profit of C, when the annual profit is Rs. 2400.

- (1) Rs. 600 (2) Rs. 1200
 (3) Rs. 1800 (4) Rs. 1950

(SSC CGL Tier-I (CBE))

Exam. 31.08.2016 (IIInd Sitting)

54. If the ratio of the cost price and the selling price of an article be 4 : 5, then the percentage of profit is :

- (1) $27\frac{1}{2}$ (2) 25
 (3) 15 (4) 10

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (IIInd Sitting)

55. A and B invest Rs. 3000 and Rs. 2400 respectively in a business. If after one year there is a loss of Rs. 720, how much loss will B bear? (Loss or profit is in proportion to their investments)

- (1) Rs. 72 (2) Rs. 320
 (3) Rs. 400 (4) Rs. 360

(SSC CGL Tier-I (CBE))

Exam. 09.09.2016 (IIInd Sitting)

56. The ratio of cost price and selling price of an article is 20 : 21. Then gain per cent on it is

- (1) 7 (2) 5
 (3) 6 (4) 4

(SSC CGL Tier-II (CBE))

Exam. 12.01.2017)

57. The ratio of cost price and selling price of an article is 25 : 26. The per cent of profit will be

- (1) 26% (2) 25%
 (3) 1% (4) 4%

(SSC CGL Tier-II (CBE))

Exam. 12.01.2017)

TYPE-V

1. Find the selling price of an article if a shopkeeper allows two successive discounts of 5% each on the marked price of ₹ 80.

- (1) ₹ 70.20 (2) ₹ 70.10
 (3) ₹ 72.00 (4) ₹ 72.20

(SSC CPO S.I. Exam. 12.01.2003)

2. An item costing ₹ 840 was sold by a shopkeeper at a gain of 10% and it was again sold by the new buyer at a loss of 5%. Final selling price of the item is :

- (1) ₹ 877.80 (2) ₹ 798
 (3) ₹ 924 (4) ₹ 37.80

(SSC CGL Prelim Exam. 11.05.2003)

(First Sitting)

PROFIT AND LOSS

- 3.** A shopkeeper gains 20% while buying the goods and 30% while selling them. Find his total gain per cent.
 (1) 50% (2) 36%
 (3) 56% (4) 40%
 (SSC CPO S.I. Exam. 26.05.2005)
- 4.** Salary of a person is increased by 20%, then it is decreased by 20%. Change in his salary is :
 (1) 4% decreased
 (2) 4% increased
 (3) 8% decreased
 (4) neither decrease nor increase
 (SSC CGL Prelim Exam. 13.11.2005)
 (First Sitting)
- 5.** A grocery dealer cheats to the extent of 10% while buying as well as selling by using false weight. What is his increase in the profit % ?
 (1) 20% (2) 21%
 (3) 22% (4) None of these
 (SSC CHSL DEO & LDC Exam. 21.10.2012 (IIInd Sitting))
- 6.** A balance of a trader weighs 20% less than it should be. Still the trader mark-up his goods to get the overall profit of 35%. What is mark-up on the cost price ?
 (1) 7% (2) 8%
 (3) 9% (4) 8.5%
 (SSC CPO SI & ASI, Online Exam. 06.06.2016) (IIInd Sitting)
- TYPE-VI**
- 1.** By selling an article for ₹ 240, a man incurs a loss of 10%. At what price should he sell it, so that he makes a profit of 20% ?
 (1) ₹ 264 (2) ₹ 288
 (3) ₹ 300 (4) ₹ 320
 (SSC CGL Prelim Exam. 04.07.1999 (IIInd Sitting) & SSC S.O. Exam. 16.11.2003)
- 2.** By selling an article for ₹ 480 a person lost 20%. For what should he sell it to make a profit of 20%?
 (1) ₹ 800 (2) ₹ 760
 (3) ₹ 720 (4) ₹ 680
 (SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))
- 3.** By selling an article for ₹ 72, there is a loss of 10%. In order to gain 5%, its selling price should be :
 (1) ₹ 87 (2) ₹ 85
 (3) ₹ 80 (4) ₹ 84
 (SSC CGL Prelim Exam. 24.02.2002 (First Sitting))
- 4.** If an article is sold for ₹ 178 at a loss of 11%, what should be its selling price in order to earn a profit of 11%?
 (1) ₹ 222.50 (2) ₹ 267
 (3) ₹ 435 (4) ₹ 222
 (SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))
- 5.** On selling an article for ₹ 105 a trader loses 9%. To gain 30% he should sell the article at
 (1) ₹ 126 (2) ₹ 144
 (3) ₹ 150 (4) ₹ 139
 (SSC CGL Prelim Exam. 24.02.2002 (Middle Zone))
- 6.** A shopkeeper bought 80kg of sugar at the rate of ₹ 13.50 per kg. He mixed it with 120kg of sugar costing ₹ 16 per kg. In order to make a profit of 20%, he must sell the mixture at
 (1) ₹ 18 per kg
 (2) ₹ 17 per kg
 (3) ₹ 16.40 per kg
 (4) ₹ 15 per kg
 (SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))
- 7.** To gain 10% on selling sample milk at the cost price of pure milk, the quantity of water to be mixed with 50 kg. of pure milk is
 (1) 2.5 Kg. (2) 5 Kg.
 (3) 7.5 Kg. (4) 10 Kg.
 (SSC CPO S.I. Exam. 09.11.2008)
- 8.** By selling an article for ₹ 69, there is a loss of 8%, when the article is sold for ₹ 78, the gain or loss per cent is :
 (1) neither loss nor gain
 (2) 4% gain
 (3) 4% loss
 (4) 40% gain
 (SSC CGL Prelim Exam. 08.02.2004 (Second Sitting))
- 9.** A loss of 20% is incurred when 6 articles are sold for a rupee. To gain 20% how many articles should be sold for a rupee ?
 (1) 1 (2) 2
 (3) 3 (4) 4
 (SSC Section Officer (Commercial Audit) Exam. 25.09.2005)
- 10.** By selling a plot of land for ₹ 45,000 a person loses 10%. At what price should he sell it to gain 15%?
 (1) ₹ 50,000 (2) ₹ 55,000
 (3) ₹ 57,500 (4) ₹ 60,000
 (SSC CGL Prelim Exam. 13.11.2005 (First Sitting))
- 11.** A radio is sold for ₹ 990 at a profit of 10%. What would have been the actual profit or loss on it, had it been sold for Rs. 890 ?
 (1) ₹ 10 loss (2) ₹ 10 profit
 (3) ₹ 90 loss (4) ₹ 90 profit
 (SSC CGL Prelim Exam. 13.11.2005 (Second Sitting))
- 12.** By selling a table for ₹ 1140, a man loses 5%. in order to gain 5%, the table must be sold for
 (1) ₹ 1260 (2) ₹ 1320
 (3) ₹ 1180 (4) ₹ 1250
 (SSC Multi-Tasking Staff Exam. 17.03.2013, Ist Sitting)
- 13.** A radio dealer sold a radio at a loss of 2.5%. Had he sold it for ₹100 more, he would have gained $7\frac{1}{2}\%$. In order to gain $12\frac{1}{2}\%$, he should sell it for
 (1) ₹ 1080 (2) ₹ 1125
 (3) ₹ 850 (4) ₹ 925
 (SSC Multi-Tasking Staff Exam. 17.03.2013, Ist Sitting)
- 14.** By selling a fan for ₹ 600, a man loses 10%. To make a gain of 20%, the selling price of the fan should be
 (1) ₹ 900 (2) ₹ 1000
 (3) ₹ 700 (4) ₹ 800
 (SSC Multi-Tasking Staff Exam. 17.03.2013, IIInd Sitting))
- 15.** A man sells a car to his friend at 10% loss. If the friend sells it for ₹ 54,000 and gains 20%, the original cost price of the car was
 (1) ₹ 25,000 (2) ₹ 35,000
 (3) ₹ 45,000 (4) ₹ 50,000
 (SSC Multi-Tasking Staff Exam. 24.03.2013, Ist Sitting)
- 16.** On selling an article for ₹ 170, a shopkeeper loses 15%. In order to gain 20%, he must sell that article at :
 (1) ₹ 215.50 (2) ₹ 212.50
 (3) ₹ 240 (4) ₹ 210
 (SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting))
- 17.** If a man were to sell his chair for ₹ 720, he would lose 25%. To gain 25% he should sell it for
 (1) ₹ 1,200 (2) ₹ 1,000
 (3) ₹ 960 (4) ₹ 900
 (SSC CGL Prelim Exam. 04.02.2007 (First Sitting))
- 18.** By selling a basket for ₹ 19.50, a shopkeeper gains 30%. For how much should he sell it to gain 40% ?
 (1) ₹ 21 (2) ₹ 21.50
 (3) ₹ 24 (4) ₹ 23
 (SSC CPO S.I. Exam. 06.09.2009)

PROFIT AND LOSS

- 19.** A man bought 20 dozen eggs for ₹ 720. What should be the selling price of each egg if he wants to make a profit of 20% ?
 (1) ₹ 3.25 (2) ₹ 3.30
 (3) ₹ 3.50 (4) ₹ 3.60
 (SSC CISF ASI Exam. 29.08.2010
 (Paper-1)
- 20.** By selling an article for ₹ 665, there is a loss of 5%. In order to make a profit of 12%, the selling price of the article must be
 (1) ₹ 812 (2) ₹ 800
 (3) ₹ 790 (4) ₹ 784
 (SSC Data Entry Operator Exam. 31.08.2008)
- 21.** By selling an article for ₹ 700 a man lost 30%. At what price should he have sold it to gain 30% ?
 (1) ₹ 910 (2) ₹ 1200
 (3) ₹ 1232 (4) ₹ 1300
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (IIInd Sitting))
- 22.** If a man were to sell his wrist-watch for ₹720, he would lose 25%. What price must he sell at for to gain 25% ?
 (1) ₹960 (2) ₹900
 (3) ₹1000 (4) ₹1200
 (SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting) & 04.11.2012)
- 23.** An article was sold at a profit of 12%. If the cost price would be 10% less and selling price would be ₹ 5.75 more, there would be profit of 30%. Then at what price it should be sold to make a profit of 20% ?
 (1) ₹ 115 (2) ₹ 120
 (3) ₹ 138 (4) ₹ 215
 (SSC CHSL DEO & LDC Exam. 27.10.2013 IIInd Sitting)
- 24.** By selling 80 ball pens for ₹ 140 a retailer loses 30%. How many ball pens should he sell for ₹104 so as to make a profit of 30%?
 (1) 32 (2) 52
 (3) 48 (4) 42
 (SSC FCI Assistant Grade-III Main Exam. 07.04.2013)
- 25.** By selling 90 ball pens for ₹ 160 a person loses 20%. The number of ball pens, which should be sold for ₹ 96 so as to have a profit of 20% is
 (1) 36 (2) 37
 (3) 46 (4) 47
 (SSC Constable (GD) Exam. 12.05.2013)
- 26.** Sourav purchased 30 kg of rice at the rate of ₹ 10 per kg and 35 kg at the rate of ₹ 11 per kg. He mixed the two. At what price per kg (in ₹) should he sell the mixture to make a 30% profit in the transaction ?
 (1) 12.5 (2) 13
 (3) 13.7 (4) 14.25
 (SSC Graduate Level Tier-II Exam. 29.09.2013)
- 27.** Mr. Y purchased a flat for ₹ 9,25,000 and spent ₹ 35,000 for its renovation. If he sold the flat for ₹ 10,80,000 then his profit percent is
 (1) 15.0 (2) 17.5
 (3) 20.0 (4) 12.5
 (SSC CHSL DEO & LDC Exam. 02.11.2014 (IIInd Sitting))
- 28.** The selling price of an article is $\frac{8}{5}$ th of its cost price. Then the gain percentage is
 (1) 20% (2) 28%
 (3) 60% (4) 68%
 (SSC CGL Tier-I (CBE) Exam. 01.09.2016 (IIInd Sitting))
- 29.** 12 copies of a book were sold for Rs. 1800 thereby gaining cost price of 3 copies. The cost price of a copy of the book is :
 (1) Rs. 120 (2) Rs. 150
 (3) Rs. 1200 (4) Rs. 1500
 (SSC CGL Tier-I (CBE) Exam. 04.09.2016 (IIInd Sitting))
- 30.** After selling 5% of a quantity of sugar, 5 kg. of sugar remains. Find the total quantity of sugar.
 (1) 19 kg. (2) $5\frac{5}{19}$ kg.
 (3) 100 kg. (4) 95 kg.
 (SSC CGL Tier-I (CBE) Exam. 06.09.2016 (IIInd Sitting))
- 2.** By selling an article at $\frac{2}{3}$ of the marked price, there is a loss of 10%. The profit percent, when the article is sold at the marked price, is
 (1) 20% (2) 30%
 (3) 35% (4) 40%
 (SSC CPO S.I. Exam. 07.09.2003)
- 3.** A tradesman allows a discount of 15% on the marked price. How much above the cost price must he mark his goods as to gain 19%?
 (1) 34% (2) 40%
 (3) 25% (4) 30%
 (SSC CPO S.I. Exam. 09.11.2008)
- 4.** Rita bought a television set with 20% discount on the labelled price. She made a profit of ₹ 800 by selling it for ₹ 16,800. The labelled price of the set was
 (1) ₹ 18,000 (2) ₹ 20,000
 (3) ₹ 20,800 (4) ₹ 24,000
 (SSC CPO S.I. Exam. 09.11.2008)
- 5.** The cost price of an article is ₹ 800. After allowing a discount of 10%, a gain of 12.5% was made. Then the marked price of the article is
 (1) ₹ 1,000 (2) ₹ 1,100
 (3) ₹ 1,200 (4) ₹ 1,300
 (SSC CGL Tier-1 Exam 19.06.2011 (First Sitting))
- 6.** A shopkeeper allows 23% commission on his advertised price and still makes a profit of 10%. If he gains ₹ 56 on one item, his advertised price of the item, (in ₹) is
 (1) 820 (2) 780
 (3) 790 (4) 800
 (SSC CGL Tier-1 Exam 26.06.2011 (Second Sitting))
- 7.** At what per cent above the cost price, must a shop-keeper marks his goods so that he gains 20% even after giving a discount of 10% on the marked price ?
 (1) 25% (2) 30%
 (3) $33\frac{1}{3}\%$ (4) $37\frac{1}{2}\%$
 (SSC CGL Prelim Exam. 08.02.2004 (Second Sitting))

TYPE-VII

- 1.** If the sales tax be reduced from $3\frac{1}{2}\%$ to $3\frac{1}{3}\%$, what difference does it make to a person who purchases an article whose marked price is ₹ 8,400 ?
 (1) ₹ 20 (2) ₹ 15
 (3) ₹ 14 (4) ₹ 10
 (SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))

PROFIT AND LOSS

- 8.** The marked price of an article is 10% higher than cost price. A discount of 10% is given on marked price. In this kind of sale, the seller bears :
 (1) no loss, no gain
 (2) a loss of 5%
 (3) a gain of 1%
 (4) a loss of 1%
 (SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting)
- 9.** The marked price of an article is 50% above cost price. When marked price is increased by 20% and selling price is increased by 20%, the profit doubles. If original marked price is ₹ 300, then original selling price is
 (1) ₹ 200 (2) ₹ 250
 (3) ₹ 240 (4) ₹ 275
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (IInd Sitting (East Zone))
- 10.** The cost of manufacture of a tape recorder is ₹ 1,500. The manufacturer fixes the marked price 20% above the cost of manufacture and allows a discount in such a way as to get a profit of 8%. The rate of discount is
 (1) 12% (2) 8%
 (3) 20% (4) 10%
 (SSC CGL Tier-I Exam. 11.11.2012
 (Ist Sitting) & (SSC MTS
 Exam. 17.03.2013 (Kolkata))
- 11.** How much percent above the cost price should a shopkeeper mark his goods so as to earn a profit of 32% after allowing a discount of 12% on the marked price ?
 (1) 50% (2) 40%
 (3) 60% (4) 45%
 (SSC Graduate Level Tier-I
 Exam. 11.11.2012 (Ist Sitting))
- 12.** A dealer purchased a washing machine for ₹ 7,660. After allowing a discount of 12% on its marked price, he still gains 10%. Find the marked price of the washing machine.
 (1) ₹ 9,575 (2) ₹ 8,426
 (3) ₹ 8,246 (4) ₹ 9,755
 (SSC Assistant Grade-III
 Exam. 11.11.2012 (IInd Sitting))
- 13.** A publisher printed 2000 copies of a book at a cost of ₹ 70,000. He distributes 400 copies free as specimen copies. He gave 30% discount on printed price and the printed price of each book is ₹ 75. What is his gain or loss percentage ?
 (1) 20% gain (2) 20% loss
 (3) 10% loss (4) 10% gain
 (SSC CHSL DEO & LDC Exam.
 04.11.2012, IIInd Sitting)
- 14.** Richa purchased an article at $\frac{4}{5}$ of its list price and sold it at 20% more than the list price. Richa's profit percent was
 (1) 50% (2) 40%
 (3) 30% (4) 25%
 (SSC CHSL DEO & LDC Exam.
 28.11.2010 (IIInd Sitting))
- 15.** To gain 8% after allowing a discount of 10%, by what per cent cost price should be hiked in the list price ?
 (1) 9% (2) 11%
 (3) 18% (4) 20%
 (SSC CHSL DEO & LDC Exam.
 28.10.2012 (Ist Sitting))
- 16.** A shopkeeper sold sarees at ₹ 266 each after giving 5% discount on labelled price. Had he not given the discount, he would have earned a profit of 12% on the cost price. What was the cost price of each saree?
 (1) ₹ 280 (2) ₹ 260
 (3) ₹ 240 (4) ₹ 250
 (SSC Multi-Tasking Staff
 Exam. 17.03.2013, Kolkata Region)
- 17.** Arvind purchased a wrist watch with 30% discount on the labelled price. He sold it with 40% profit on the price he bought. What was his percent loss on the labelled price?
 (1) 2% (2) 6%
 (3) 4% (4) 8%
 (SSC Graduate Level Tier-I
 Exam. 21.04.2013)
- 18.** The profit percent of a book seller if he sells book at marked price after enjoying a commission of 25% on marked price will be :
 (1) 30% (2) 25%
 (3) 20% (4) $33\frac{1}{3}\%$
 (SSC CHSL DEO& LDC Exam.
 04.11.2012, Ist Sitting))
- 19.** A shopkeeper offers a discount of 10% on his articles. The marked price of the article is ₹ 450. The selling price should be
 (1) ₹ 395 (2) ₹ 410
 (3) ₹ 405 (4) ₹ 400
 (SSC Graduate Level Tier-I
 Exam. 19.05.2013 Ist Sitting)
- 20.** A shopkeeper marked the selling price of his goods in such a way that after giving a discount of 10% he gains 17%. How much per cent above the cost price is the marked price?
 (1) 36% (2) 27%
 (3) 30% (4) 40%
 (SSC Constable (GD)
 Exam. 12.05.2013 & (SSC CAPFs
 SI & CISF ASI Exam. 23.06.2013))
- 21.** A tradesman marks his goods 30% more than the cost price. If he allows a discount of $6\frac{1}{4}\%$, then his gain percent is
 (1) $23\frac{3}{4}\%$ (2) 22%
 (3) $21\frac{7}{8}\%$ (4) 30%
 (SSC Graduate Level Tier-II
 Exam. 29.09.2013)
- 22.** A trader marked the price of a commodity so as to include a profit of 25%, but allowed a discount of 16% on the marked price. His actual profit will be
 (1) 16% (2) 25%
 (3) 5% (4) 9%
 (SSC Multi-Tasking Staff
 Exam. 17.03.2013, Ist Sitting))
- 23.** A got 30% concession on the label price of an article sold for ₹ 8,750 with 25% profit on the price he bought. The label price was
 (1) ₹ 13,000 (2) ₹ 16,000
 (3) ₹ 12,000 (4) ₹ 10,000
 (SSC CHSL DEO & LDC
 Exam. 20.10.2013))
- 24.** A shopkeeper allows a rebate of 12% on the marked price of an article such that the selling price is ₹ 440. Then the marked price of the article is
 (1) ₹ 490 (2) ₹ 500
 (3) ₹ 600 (4) ₹ 550
 (SSC CHSL DEO & LDC Exam.
 02.11.2014 (IIInd Sitting))

PROFIT AND LOSS

25. Pratap buys a watch at $\frac{4}{5}$ th of

its marked price and sells it for 17% more than its marked price. His profit based on its cost is

- (1) Rs. 20 (2) Rs. 25
 (3) Rs. 37 (4) Rs. 17

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region)
 TF No. 789 TH 7)

26. Mohan purchased a bag with 20 percent discount on the labelled price. He sold it at 40 percent profit on the price he bought. The percentage of profit on the labelled price is :

- (1) 20% (2) 12%
 (3) 18% (4) 24%

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (1st Sitting) TF No. 1375232)

27. The marked price of an article is Rs. 5000. But due to a special festive offer a certain per cent of discount is declared. Mr. X availed this opportunity and bought the article at reduced price. He then sold it at Rs. 5000

and thereby made a profit of $11\frac{1}{9}$ % . The percentage of discount allowed was

- (1) 10 (2) $3\frac{1}{3}$
 (3) $7\frac{1}{2}$ (4) $11\frac{1}{9}$

(SSC CGL Tier-II (CBE) Exam. 30.11.2016)

TYPE-VIII

1. Profit after selling a commodity for ₹ 524 is the same as loss after selling it for ₹ 452. The cost price of the commodity is

- (1) ₹ 480 (2) ₹ 500
 (3) ₹ 488 (4) ₹ 485

(SSC CGL Prelim Exam. 11.05.2003 (Second Sitting))

2. A clock was sold for ₹ 144. If the percentage of profit was numerically equal to the cost price, the cost of the clock was

- (1) ₹ 72 (2) ₹ 80
 (3) ₹ 90 (4) ₹ 100

(SSC CGL Prelim Exam. 13.11.2005 (1st Sitting) & (SSC CPO SI. Exam.

16.09.2009) & (SSC CGL Tier-I Exam. 26.06.2011 (IIInd Sitting))

3. By selling 144 hens Mahesh suffered a loss equal to the selling price of 6 hens. His loss per cent is

- (1) 4% (2) 3%

- (3) 9% (4) $4\frac{1}{2}\%$

(SSC CGL Prelim Exam. 04.02.2007 (Second Sitting))

4. If the profit per cent got on selling an article is numerically equal to its cost price in rupees and the selling price is ₹ 39, then cost price (in ₹) will be

- (1) 20 (2) 22
 (3) 28 (4) 30

(SSC CPO S.I. Exam. 09.11.2008)

5. By selling 1 dozen ball pens, a shopkeeper earned the profit equal to the selling price of 4 ball pens. His profit per cent is

- (1) 50% (2) 40%

- (3) $33\frac{1}{3}\%$ (4) $31\frac{1}{4}\%$

(SSC Data Entry Operator Exam. 02.08.2009)

6. A merchant sold an article for ₹ 75 at a profit percent equal to its cost price. The cost price of the article was :

- (1) ₹ 45 (2) ₹ 50
 (3) ₹ 54 (4) ₹ 60

(SSC CHSL DEO & LDC Exam. 27.11.2010)

7. If the profit on selling an article for ₹ 425 is the same as the loss on selling it for ₹ 355, then the cost price of the article is

- (1) ₹ 370 (2) ₹ 380
 (3) ₹ 390 (4) ₹ 400

(SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (1st Sitting))

8. The loss incurred on selling 21 articles equals the selling price of 3 articles. Then the loss per cent is

- (1) $9\frac{1}{11}\%$ (2) 10%

- (3) $12\frac{1}{2}\%$ (4) $11\frac{1}{9}\%$

(SSC Multi-Tasking Staff Exam. 10.03.2013, Ist Sitting : Patna)

9. A man sold 250 chairs and had a gain equal to selling price of 50 chairs. His profit per cent is :

- (1) 20% (2) 25%
 (3) 50% (4) 15%

(SSC CAPFs SI & CISF ASI Exam. 23.06.2013)

10. On selling 17 balls at ₹ 720, there is a loss equal to the cost price of 5 balls. The cost price (in ₹) of a ball is

- (1) 45 (2) 50
 (3) 55 (4) 60

(SSC Graduate Level Tier-II Exam. 29.09.2013)

11. A vendor loses the selling price of 4 oranges on selling 36 oranges. His loss per cent is

- (1) $12\frac{1}{2}\%$ (2) 9%

- (3) 10% (4) $11\frac{1}{2}\%$

(SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting)

12. Last year Mr. A bought two paintings. This year he sold them for Rs. 20,000 each. On one, he made a 25% profit and on the other he had a 25% loss. Then his net profit or loss is

- (1) He lost more than Rs. 2000
 (2) He lost less than Rs. 2000
 (3) He earned more than Rs. 2000
 (4) He earned less than Rs. 2000

(SSC CGL Tier-II Online Exam.01.12.2016)

13. If the cost price of 28 articles is equal to the sale price of 21 articles, then the percentage of profit is :

- (1) 12% (2) $33\frac{1}{3}\%$

- (3) 20% (4) 22%

(SSC CGL Tier-I (CBE) Exam. 10.09.2016 (IIIrd Sitting))

14. If by selling an article for Rs. 390 a shopkeeper gains 20%, then the cost price is

- (1) Rs. 370 (2) Rs. 325
 (3) Rs. 350 (4) Rs. 300

(SSC CGL Tier-I (CBE) Exam. 11.09.2016 (IIInd Sitting))

PROFIT AND LOSS

- 15.** Loss of 20% on selling price is equal to $x\%$ loss on cost price. What is the value of x ?

(1) 20 (2) 20

(3) $16\frac{2}{3}$ (4) 16

(SSC CGL Tier-I (CBE)

Exam. 11.09.2016 (IIInd Sitting)

- 16.** An article is sold at a certain price. If it is sold at half of the previous selling price, then there is a loss

of $25\frac{1}{2}\%$. The profit after selling the article at the previous selling price is:

(1) 51% (2) 49%

(3) $12\frac{3}{4}\%$ (4) $24\frac{1}{2}\%$

(SSC CGL Tier-I (CBE)

Exam. 27.10.2016 (Ist Sitting)

TYPE-IX

- 1.** An article is sold at a loss of 10%. Had it been sold for ₹ 9 more, there would have been a gain of

$12\frac{1}{2}\%$ on it. The cost price of the article is :

(1) ₹ 40 (2) ₹ 45
(3) ₹ 50 (4) ₹ 35

(SSC CGL Prelim Exam. 24.02.2002
(First Sitting)

- 2.** A man sold an article at a loss of 20%. If he has sold that article for ₹ 12 more he would have gained 10%. Find the cost price of that article :

(1) ₹ 60 (2) ₹ 40
(3) ₹ 30 (4) ₹ 22

(SSC Section Officer (Commercial Audit)
Exam. 25.09.2005)

- 3.** If an article is sold for ₹ 178 at a loss of 11%, what should be its selling price in order to earn a profit of 11%?

(1) ₹ 222.50 (2) ₹ 267
(3) ₹ 222 (4) ₹ 220

(SSC CGL Prelim Exam. 13.11.2005
(First Sitting)

- 4.** A man sells an article at 10% loss. If he had sold it at ₹ 10 more, he would have gained 10%. The cost price of the article is

(1) ₹ 50 (2) ₹ 55
(3) ₹ 100 (4) ₹ 110

(SSC CPO S.I. Exam. 03.09.2006)

- 5.** A book seller sells a book at a profit of 10%. If he had bought it at 4% less and sold it for ₹ 6 more, he would have gained

$\frac{3}{4}\%$. The cost price of the book is

(1) ₹ 130 (2) ₹ 140
(3) ₹ 150 (4) ₹ 160

(SSC CGL Prelim Exam. 04.02.2007
(First Sitting)

- 6.** A man sells his typewriter at 5% loss. If he sells it for ₹ 80 more, he will gain 5%. The cost price of the typewriter is

(1) ₹ 1,600 (2) ₹ 1,200
(3) ₹ 1,000 (4) ₹ 800

(SSC CGL Prelim Exam. 04.02.2007
(First Sitting)

- 7.** A businessman sells a commodity at 10% profit. If he had bought it at 10% less and sold it for ₹ 2 less, then he would have gained

$16\frac{2}{3}\%$. The cost price of the commodity is

(1) ₹ 32 (2) ₹ 36
(3) ₹ 40 (4) ₹ 48

(SSC CGL Prelim Exam. 27.07.2008
(First Sitting)

- 8.** A cooker is sold at a gain of 16%. If it has been sold for ₹ 20 more, 20% would have been gained. The cost price of the cooker is

(1) ₹ 350 (2) ₹ 400
(3) ₹ 500 (4) ₹ 600

(SSC CPO S.I. Exam. 06.09.2009)

- 9.** On selling an almirah for ₹ 2576, a person got a profit of 12%. Had it been bought for ₹ 100 less, the profit per cent would have been

(1) $11\frac{1}{9}\%$ (2) $13\frac{1}{3}\%$

(3) $17\frac{1}{11}\%$ (4) $17\frac{9}{11}\%$

(SSC SAS Exam 26.06.2010
(Paper-1))

- 10.** A man sold an article at a loss of 20%. If he had sold it for ₹ 50 more, he would have gained 5%. The cost price of the article was

(1) ₹ 250 (2) ₹ 300
(3) ₹ 180 (4) ₹ 200

(SSC Data Entry Operator
Exam. 31.08.2008)

- 11.** When an article is sold at a gain of 20%, it yields ₹ 60 more than when it is sold at a loss of 20%. The cost price of the article is

(1) ₹ 200 (2) ₹ 150
(3) ₹ 140 (4) ₹ 120

(SSC Data Entry Operator
Exam. 02.08.2009)

- 12.** Aniruddha sold a bicycle at a gain of 8%. Had it been sold for ₹ 75 more, the gain would have been 14%. The cost price of the bicycle was

(1) ₹ 1200 (2) ₹ 1250
(3) ₹ 1350 (4) ₹ 1500

(SSC CHSL DEO & LDC Exam.
28.11.2010 (IIInd Sitting)

- 13.** A book vendor sold a book at a loss of 20%. Had he sold it for ₹ 108 more, he would have earned a profit of 30%. Find the cost price of the book ?

(1) ₹ 216 (2) ₹ 648
(3) ₹ 240 (4) ₹ 432

(SSC CHSL DEO & LDC Exam.
21.10.2012 (IIInd Sitting))

- 14.** If an article is sold at 5% gain instead of 5% loss, the man gains ₹ 5 more. Find the cost price of that article

(1) ₹ 100 (2) ₹ 105
(3) ₹ 50 (4) ₹ 110

(SSC CGL Prelim Exam. 24.02.2002
(Middle Zone))

- 15.** An article is sold at a gain of 15%. Had it been sold for ₹ 27 more, the profit would have been 20%. The cost price of the article is

(1) ₹ 500 (2) ₹ 700
(3) ₹ 540 (4) ₹ 545

(SSC Graduate Level Tier-II
Exam. 29.09.2013)

- 16.** A man sells an article at a gain of 15%. If he had bought it at 10% less and sold it for ₹ 4 less, he would have gained 25%. The cost price of the article is

(1) ₹ 140 (2) ₹ 150
(3) ₹ 160 (4) ₹ 185

(SSC Multi-Tasking Staff Exam.
10.03.2013, Ist Sitting : Patna)

- 17.** An article is sold at a loss of 10%. Had it been sold for ₹ 90 more, there would have been a gain of 5%. The original sale price of the article (in ₹) is :

(1) 540 (2) 600
(3) 628 (4) 650

(SSC Multi-Tasking Staff
Exam. 10.03.2013)

PROFIT AND LOSS

- 18.** A man sold an article at a loss of 20%. If he could sell it for ₹ 200 more, he would make a profit of 5%. The cost price of the article is
 (1) ₹ 700 (2) ₹ 800
 (3) ₹ 850 (4) ₹ 900
 (SSC Multi-Tasking Staff Exam. 17.03.2013, Kolkata Region)
- 19.** A businessman bought an article and sold it at a loss of 5%. If he had bought it for 10% less and sold it for ₹ 33 more, he would have had a profit of 30%. The cost price of the article is
 (1) ₹ 330 (2) ₹ 155
 (3) ₹ 150 (4) ₹ 300
 (SSC Multi-Tasking Staff Exam. 24.03.2013, 1st Sitting)
- 20.** An article was sold at 16% gain. Had it been sold for ₹ 200 more, the gain would have been 20%. Then the cost price of the article is:
 (1) ₹ 5000 (2) ₹ 4800
 (3) ₹ 4500 (4) ₹ 5200
 (SSC CAPFs SI & CISF ASI Exam. 23.06.2013)
- 21.** A man purchased 150 pens at the rate of ₹ 12 per pen. He sold 50 pens at a gain of 10%. The percentage gain at which he must sell the remaining pens so as to gain 15% on the whole outlay is
 (1) $21\frac{1}{2}\%$ (2) 20%
 (3) 17% (4) $17\frac{1}{2}\%$
 (SSC Graduate Level Tier-II Exam. 16.09.2012)
- 22.** By selling 4 articles for 1 rupee, a man loses 4%. Had he sold three articles per rupee, the profit would have been :
 (1) 30% (2) 28%
 (3) 16% (4) 12%
 (SSC Multi-Tasking Staff Exam. 10.03.2013)
- 23.** A shopkeeper sells an article at a loss of $12\frac{1}{2}\%$. Had he sold it for ₹ 51.80 more, he would have earned a profit of 6%. The cost price of the article is
 (1) ₹ 280 (2) ₹ 300
 (3) ₹ 380 (4) ₹ 400
 (SSC Section Officer (Commercial Audit) Exam. 16.11.2003)
- 24.** Mohan sold his watch at 10% loss. If he had sold it for ₹ 45 more, he would have made 5% profit. The selling price (in ₹) of the watch was
- (1) 300 (2) 900
 (3) 110 (4) 270
 (SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting)
- 25.** Yogita sold a plasma TV at 20% gain to Shyamla. Shyamla sold it to Deepa at 10% profit. If Deepa had to pay ₹ 33,000 for the plasma TV, find the cost price of the plasma TV for Yogita.
 (1) ₹ 30,000 (2) ₹ 25,000
 (3) ₹ 35,000 (4) ₹ 40,000
 (SSC CHSL DEO Exam. 16.11.2014)
 (Ist Sitting)
- 26.** A sells a cycle to B at a profit of 20% and B sells it to C at a loss of 25%. If C bought the cycle for ₹ P, then the cost price of it for A was
 (1) ₹ $\frac{1}{20}P$ (2) ₹ $\frac{9}{10}P$
 (3) ₹ $\frac{9}{20}P$ (4) ₹ $\frac{10}{9}P$
 (SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)
- 27.** The profit obtained by selling an article for Rs. 625 is same as the loss incurred if it is sold for Rs. 545. The price at which it is to be sold to realize a profit of Rs. 65 on the cost price is
 (1) Rs. 640 (2) Rs. 630
 (3) Rs. 650 (4) Rs. 660
 (SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)
- 28.** There would be a 10% loss, if rice is sold at Rs. 54 per kg. To earn a profit of 20%, the price of rice per kg will be
 (1) Rs. 65 (2) Rs. 70
 (3) Rs. 63 (4) Rs. 72
 (SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)
- 29.** A merchant has 1000 kg sugar, part of which sells at 8% profit and the rest at 18% profit. He gain 14% on the whole. The quantity sold at 8% profit is :
 (1) 560 kg. (2) 600 kg.
 (3) 640 kg. (4) 400 kg.
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IIInd Sitting) TF No. 7203752)
- 30.** By selling 12 kg of potatoes for Rs. 63, a shopkeeper gains 5%. What does he gain or lose percent by selling 50 kg of the same potatoes for Rs. 247.50?
 (1) 1% loss
- (2) No profit, no loss
 (3) 2.5% loss
 (4) 1% profit
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015 (Ist Sitting) TF No. 9692918)
- 31.** A shopkeeper sold an article at a loss of 20%. But if he could sell it at Rs. 200 more, he could earn a profit of 5%. The cost price of the article is
 (1) Rs. 800 (2) Rs. 1,000
 (3) Rs. 1,200 (4) Rs. 600
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015 (Ist Sitting) TF No. 9692918)
- 32.** A shopkeeper purchases two items for Rs. 520. One of them is sold gaining 16% and the other at a loss of 10%, thus making no profit or loss. What is the selling price of the item sold at loss?
 (1) Rs. 288 (2) Rs. 232
 (3) Rs. 320 (4) Rs. 200
 (SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016)
 (Ist Sitting)
- 33.** Sandeep sells an article at a loss of 10%. Had he bought it at 20% less and sold it for Rs. 55 more, he could have gained 40%. What is the cost price of the article ?
 (1) Rs. 200 (2) Rs. 225
 (3) Rs. 250 (4) Rs. 275
 (SSC CPO SI & ASI, Online Exam. 06.06.2016) (IIInd Sitting)
- 34.** A T.V was sold at a profit of 5%. If it had been sold at a profit of 10%, the profit would have been Rs. 1000 more. What is its cost price ?
 (1) Rs. 20000 (2) Rs. 5000
 (3) Rs. 10000 (4) Rs. 15000
 (SSC CGL Tier-I (CBE) Exam. 29.08.2016) (IIInd Sitting)
- 35.** 5% more is gained by selling a watch for Rs. 350 than by selling it for Rs. 340. The cost price of the watch is
 (1) Rs. 110 (2) Rs. 140
 (3) Rs. 200 (4) Rs. 250
 (SSC CGL Tier-I (CBE) Exam. 02.09.2016) (Ist Sitting)
- 36.** The profit earned by a shopkeeper by selling a bucket at a gain of 8% is Rs. 28 more than when he sells it at a loss of 8%. The cost price (in Rupees) of the bucket is
 (1) 170 (2) 190
 (3) 175 (4) 165
 (SSC CGL Tier-II (CBE) Exam. 12.01.2017)

PROFIT AND LOSS

TYPE-X

- 1.** A sells a bicycle to B at a profit of 20%. B sells it to C at a profit of 25%. If C pays ₹ 225/- for it, the cost price of the bicycle for A is :

(1) ₹ 110 (2) ₹ 125
 (3) ₹ 120 (4) ₹ 150

(SSC CGL Prelim Exam. 27.02.2000
 (First Sitting)

- 2.** A saleable article passes successively in the hands of three traders. Each trader sold it further at a gain of 25% of the cost price. If the last trader sold it for Rs. 250 then what was the cost price for the first trader ?

(1) ₹ 128 (2) ₹ 150
 (3) ₹ 192 (4) ₹ 200

(SSC Section Officer (Commercial Audit) Exam. 25.09.2005)

- 3.** A car worth ₹ 1,50,000 was sold by X to Y at 5% profit. Y sold the car back to X at 2% loss. In the entire transaction

(1) X gained ₹ 4,350
 (2) Y lost ₹ 4,350
 (3) X gained ₹ 3,150
 (4) X lost ₹ 3,150

(SSC CPO S.I. Exam. 16.12.2007)

- 4.** A manufacturer sells an article to a wholesale dealer at a profit of 10%. The wholesale dealer sells it to a shopkeeper at 20% profit. The shopkeeper sells it to a customer for ₹ 56,100 at a loss of 15%. Then the cost price of the article to the manufacturer is

(1) ₹ 25,000 (2) ₹ 10,000
 (3) ₹ 50,000 (4) ₹ 55,000

(SSC Graduate Level Tier-II Exam. 16.09.2012)

- 5.** A sells an article to B making a profit of $\frac{1}{5}$ of his outlay. B sells it to C, gaining 20%. If C sells it

for ₹ 600 and incurs a loss of $\frac{1}{6}$

of his outlay, the cost price of article for A is

(1) ₹ 600 (2) ₹ 500
 (3) ₹ 720 (4) ₹ 800

(SSC Graduate Level Tier-II Exam. 16.09.2012)

- 6.** A sells a cycle to B at a profit of 5% and B sells it to C at a profit of 10%. If C pays ₹ 2310 for it, the cost price of A is

(1) ₹ 2000 (2) ₹ 2100
 (3) ₹ 1900 (4) ₹ 2010

(SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting))

- 7.** A sells a cycle to B at a profit of 10%, B sells to C at a profit of 20%. If C pays ₹ 264 for it, how much did A pay for it?

(1) ₹ 200 (2) ₹ 220
 (3) ₹ 225 (4) ₹ 234

(SSC CHSL DEO & LDC Exam. 04.11.2012 (IIInd Sitting))

- 8.** A man purchased an article and sold it to B at a profit of 25% and B sold it to C at a loss of 10% and C paid ₹ 675 for it. For how much did A purchase it (in ₹) ?

(1) 625 (2) 575
 (3) 600 (4) 550

(SSC Assistant Grade-III Exam. 11.11.2012 (IIInd Sitting))

- 9.** A sold a tape-recorder to B for ₹ 4,860 at a loss of 19%. Again B sold it to C at a price that would give A a profit of 17%. The gain% of B is

(1) $22\frac{2}{9}\%$ (2) $33\frac{1}{3}\%$
 (3) $44\frac{4}{9}\%$ (4) $66\frac{2}{3}\%$

(SSC Assistant Grade-III Exam. 11.11.2012 (IIInd Sitting))

- 10.** A piece of land came to a person through three middleman each gaining 20%. If the person purchased the land for ₹ 3,45,600 the original cost of the land was

(1) ₹ 1,00,000 (2) ₹ 1,50,000
 (3) ₹ 1,75,800 (4) ₹ 2,00,000

(SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))

- 11.** A sells an article to B at a gain of 10%, B sells it to C at a gain of 5%. If C pays ₹ 462 for it, what did it cost to A ?

(1) ₹ 500 (2) ₹ 450
 (3) ₹ 600 (4) ₹ 400

(SSC CHSL DEO & LDC Exam. 04.11.2012, Ist Sitting))

- 12.** A sells an article to B at a gain of 10%. B sells it to C at a gain of

$7\frac{1}{2}\%$. C disposes of it at a loss

of 25%. If the prime cost to the manufacturer A was ₹ 3200 then the price obtained by C is

(1) ₹ 2800 (2) ₹ 2580
 (3) ₹ 2670 (4) ₹ 2838

(SSC Multi-Tasking Staff Exam. 17.03.2013, Kolkata Region)

- 13.** A sells an article to B at a gain of 20% and B sells it to C at a gain of 10% and C sells it to D at a

gain of $12\frac{1}{2}\%$. If D pays ₹ 29.70, A purchased the article for

(1) ₹ 40 (2) ₹ 10
 (3) ₹ 20 (4) ₹ 30

(SSC FCI Assistant Grade-III Main Exam. 07.04.2013)

- 14.** A sells a suitcase to B at 10% profit. B sells it to C at 30% profit. If C pays ₹ 2,860 for it, then the price at which A bought it is

(1) ₹ 1,000 (2) ₹ 1,600
 (3) ₹ 2,000 (4) ₹ 2,500

(SSC Graduate Level Tier-II Exam. 29.09.2013)

TYPE-XI

- 1.** A house and a shop were sold for ₹ 1 lakh each. In this transaction, the house sale resulted into 20% loss whereas the shop sale into 20% profit. The entire transaction resulted in :

(1) no loss no gain

(2) gain of ₹ $\frac{1}{24}$ lakh

(3) loss of ₹ $\frac{1}{12}$ lakh

(4) loss of ₹ $\frac{1}{18}$ lakh

(SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))

- 2.** A shopkeeper sells two T.V. sets at the same price. There is a gain of 20% on one TV and a loss of 20% on the other. State which of the following statement is correct :

(1) The shopkeeper makes no net gain or profit
 (2) The shopkeeper loses by 2%
 (3) The shopkeeper gains by 4%
 (4) The shopkeeper loses by 4%

(SSC CGL Prelim Exam. 24.02.2002 (First Sitting))

PROFIT AND LOSS

- 3.** A man sells two articles at ₹ 99 each. On one he gains 10% and on the other he loses 10%. What is his gain or loss per cent on the whole transaction ?
 (1) Loss, 1% (2) Loss, 1.5%
 (3) Profit, 1% (4) Profit, 1.5%
 (SSC CGL Prelim Exam. 24.02.2002
 (Second Sitting)
- 4.** A man sells two pipes at ₹ 12 each. He gains 20% on one and loses 20% on the other. In the whole transaction, there is
 (1) neither loss nor gain
 (2) profit of ₹ 1
 (3) loss of ₹ 1
 (4) Profit of ₹ 2
 (SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone) & (SSC CGL Prelim Exam. 13.11.2005 (IInd Sitting)
- 5.** Kewal sells two tape recorders at the same price. On one, he gains 10% and on the other he loses 10%. The total gain or loss in the transaction is
 (1) 1% gain
 (2) 1% loss
 (3) No loss or gain
 (4) 2% loss
 (SSC CPO S.I. Exam. 12.01.2003)
- 6.** A person sells two machines at ₹ 396 each. On one he gains 10% and on the other he loses 10%. His profit or loss in the whole transaction is :
 (1) no gain no loss
 (2) 1% loss
 (3) 1% profit
 (4) 8% profit
 (SSC CGL Prelim Exam. 04.07.1999
 (First Sitting)
- 7.** A dealer sold two types of goods for ₹ 10,000 each. On one of them, he lost 20% and on the other he gained 20%. His gain or loss per cent in the entire transaction was
 (1) 2% loss (2) 2% gain
 (3) 4% gain (4) 4% loss
 (SSC Graduate Level Tier-II Exam. 16.09.2012)
- 8.** A television and a refrigerator were sold for ₹ 12,000 each. If the television was sold at a loss of 20% of the cost and the refrigerator at a gain of 20% of the cost, the entire transaction resulted in
 (1) No loss or gain
 (2) Loss of ₹ 1,000
 (3) Gain of ₹ 1,000
 (4) Loss of ₹ 1,200
 (SSC CPO S.I. Exam. 07.09.2003)
- 9.** A man had 100 kgs of sugar, part of which he sold at 7% profit and rest at 17% profit. He gained 10% on the whole. How much did he sell at 7% profit ?
 (1) 65 kg (2) 35 kg
 (3) 30 kg (4) 70 kg
 (SSC CGL Prelim Exam. 08.02.2004
 (First Sitting)
- 10.** A man bought two goats for ₹ 1008. He sold one at a loss of 20% and other at a profit of 44%. If each goat was sold for the same price, the cost price of the goat which was sold at loss, was :
 (1) ₹ 648 (2) ₹ 360
 (3) ₹ 568 (4) ₹ 440
 (SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting)
- 11.** Two bicycles were sold for ₹ 3990 each, gaining 5% on one and losing 5% on other. The gain or loss per cent on the whole transaction is :
 (1) neither gain nor loss
 (2) 2.5% gain
 (3) 2.5% loss
 (4) 0.25% loss
 (SSC CPO S.I. Exam. 26.05.2005)
- 12.** A man sold two watches for ₹ 240 each. On one he gains 20% and incurs a loss of 20% on another. What is his gain or loss per cent in this transaction ?
 (1) 1% profit (2) 2% loss
 (3) 4% profit (4) 4% loss
 (SSC Section Officer (Commercial Audit) Exam. 25.09.2005)
- 13.** When the price of cloth was reduced by 25%, the quantity of cloth sold increased by 20%. What was the effect on gross receipt of the shop?
 (1) 5% increase (2) 5% decrease
 (3) 10% increase (4) 10% decrease
 (SSC Multi-Tasking (Non-Technical) Staff Exam. 22.02.2011)
- 14.** A cloth merchant sold half of his cloth at 20% profit, half of the remaining cloth at 20% loss and the rest was sold at his cost price. In the total transaction, his gain or loss will be
 (1) 5% profit
 (2) Neither loss nor gain
 (3) 5% loss
 (4) 10% profit
 (SSC SAS Exam 26.06.2010
 (Paper-1))
- 15.** The total cost price of two watches is ₹ 840. One is sold at a profit of 16 per cent and the other at a loss of 12 per cent. There is no loss or gain in the whole transaction. The cost price of the watch on which the shopkeeper gains, is
 (1) ₹ 360 (2) ₹ 370
 (3) ₹ 380 (4) ₹ 390
 (SSC Section Officer (Commercial Audit) Exam. 26.11.2006
 (Second Sitting))
- 16.** A car and a jeep were sold for ₹ 121000 each. The car was sold at a loss of 20% while the jeep at a gain of 20%. The entire transaction resulted in
 (1) neither loss nor gain
 (2) gain of ₹ 1000
 (3) loss of ₹ 10000
 (4) gain of ₹ 500
 (SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting))
- 17.** Two-third of a consignment was sold at a profit of 5% and the remainder at a loss of 2%. If the total profit was ₹ 400, then the value of the consignment was
 (1) ₹ 15,000 (2) ₹ 15,500
 (3) ₹ 16,000 (4) ₹ 16,500
 (SSC Section Officer (Commercial Audit) Exam. 30.09.2007
 (Second Sitting))
- 18.** A man buys a field of agricultural land for ₹ 3,60,000. He sells one-third at a loss of 20% and two-fifths at a gain of 25%. At what price must he sell the remaining field so as to make an overall profit of 10 % ?
 (1) ₹ 1,00,000 (2) ₹ 1,15,000
 (3) ₹ 1,20,000 (4) ₹ 1,25,000
 (SSC CPO S.I. Exam. 16.12.2007)
- 19.** A trader bought two horses for ₹ 19,500. He sold one at a loss of 20% and the other at a profit of 15%. If the selling price of each horse is the same, then their cost price are respectively.
 (1) ₹ 10,000 and ₹ 9,500
 (2) ₹ 11,500 and ₹ 8,000
 (3) ₹ 12,000 and ₹ 7,500
 (4) ₹ 10,500 and ₹ 9,000
 (SSC CGL Tier-1 Exam 26.06.2011
 (First Sitting))

PROFIT AND LOSS

- 20.** A person bought two articles A and B for ₹ 5,000. He sold A at 20% profit and B at 10% loss. He thus gained 2% on his outlay. The cost price of A was
 (1) ₹ 3,000 (2) ₹ 2,500
 (3) ₹ 2,000 (4) ₹ 3,500
 (SSC Data Entry Operator Exam. 31.08.2008)
- 21.** A man sold two articles at ₹ 375 each. On one, he gains 25% and on the other, he loses 25%. The gain or loss% on the whole transaction is
 (1) 6% (2) $4\frac{1}{6}\%$
 (3) 5% (4) $6\frac{1}{4}\%$
 (SSC CHSL DEO & LDC Exam. 04.11.2012, 1st Sitting)
- 22.** A man bought a horse and a carriage for ₹ 40,000. He sold the horse at a gain of 10 % and the carriage at a loss of 5%. He gained 1% on his whole transaction. The cost price of the horse was :
 (1) ₹ 15000 (2) ₹ 16000
 (3) ₹ 18000 (4) ₹ 20000
 (SSC Multi-Tasking Staff Exam. 10.03.2013)
- 23.** A person bought two bicycles for ₹ 1600 and sold the first at 10% profit and the second at 20% profit. If he sold the first at 20% profit and the second at 10% profit, he would get ₹ 5 more. The difference of the cost price of the two bicycles was :
 (1) ₹ 50 (2) ₹ 40
 (3) ₹ 25 (4) ₹ 75
 (SSC Graduate Level Tier-I Exam. 21.04.2013)
- 24.** A shopkeeper sells an article at 15% gain. Had he sold it for ₹ 18 more, he would have gained 18%. The cost price (in ₹) of the article is
 (1) 540 (2) 318
 (3) 600 (4) 350
 (SSC CHSL DEO & LDC Exam. 10.11.2013, 1st Sitting)
- 25.** Two items A and B are sold at a profit of 10% and 15% respectively. If the amount of profit received is the same, then the cost price of A and B may be
 (1) ₹ 1,000, ₹ 1,500
 (2) ₹ 5,000 ₹ 2,000
 (3) ₹ 3,000, ₹ 2,000
 (4) ₹ 3,000, ₹ 5,000
 (SSC Graduate Level Tier-II Exam. 29.09.2013)
- 26.** A cloth merchant sold half of his cloth at 40% profit, half of remaining at 40% loss and the rest was sold at the cost price. In the total transaction his gain or loss will be
 (1) 20% gain (2) 25% loss
 (3) 10% gain (4) 15% loss
 (SSC Multi-Tasking (Non-Technical) Staff Exam. 22.02.2011)
- 27.** A man sells two chairs at ₹ 120 each and by doing so gains 25% on one chair and loses 25% on the other. His loss on the whole in ₹ is
 (1) 20 (2) 16
 (3) 25 (4) 30
 (SSC CHSL DEO & LDC Exam. 28.10.2012, 1st Sitting)
- 28.** A man purchases two fans for ₹ 2,160. By selling one fan at a profit of 15% and the other at a loss of 9% he neither gains nor loses in the whole transaction. Find the cost price of each fan in ₹.
 (1) 710,1450 (2) 1530,630
 (3) 810, 1350 (4) 1340,820
 (SSC CHSL DEO & LDC Exam. 04.11.2012 (1Ind Sitting))
- 29.** A shopkeeper purchased a TV for ₹ 2,000 and a radio for ₹ 750. He sells the TV at a profit of 20% and the radio at a loss of 5%. The total loss or gain is
 (1) Gain ₹ 352.50
 (2) Gain ₹ 362.50
 (3) Loss ₹ 332
 (4) Loss ₹ 300
 (SSC Constable (GD) Exam. 12.05.2013 1st Sitting)
- 30.** Some toffees were bought at the rate of 11 for ₹ 10 and the same number at the rate of 9 for ₹ 10. If the whole lot was sold at one rupee per toffee, then the gain or loss in the whole transaction was
 (1) loss of 1%
 (2) gain of 1%
 (3) neither gain nor loss
 (4) gain of 1.5%
 (SSC CGL Prelim Exam. 27.07.2008 (Ind Sitting) & SSC CHSL DEO & LDC Exam. 04.12.2011(1st Sitting))
- 31.** A fruit seller buys some oranges at the rate of 4 for ₹ 10 and an equal number more at 5 for ₹ 10. He sells the whole lot at 9 for ₹ 20. What is his loss or gain percent ?
- (1) Loss per cent $1\frac{19}{81}\%$
 (2) Gain percent $1\frac{19}{81}\%$
 (3) No loss or no profit
 (4) Loss per cent 2%
 (SSC Graduate Level Tier-I Exam. 21.04.2013)
- 32.** A shopkeeper blends two varieties of tea costing ₹ 18 and ₹ 13 per 100 gm in the ratio 7 : 3. He sells the blended variety at the rate of ₹ 18.15 per 100 gm. His percentage gain in the transaction is
 (1) 10% (2) 12%
 (3) 14% (4) 8%
 (SSC CHSL DEO & LDC Exam. 20.10.2013)
- 33.** Nikita bought 30 kg of wheat at the rate of ₹ 9.50 per kg and 40 kg of wheat at the rate of ₹ 8.50 per kg and mixed them. She sold the mixture at the rate of ₹ 8.90 per kg. Her total profit or loss in the transaction was :
 (1) ₹ 2 loss (2) ₹ 2 profit
 (3) ₹ 7 loss (4) ₹ 7 profit
 (SSC CGL Prelim Exam. 13.11.2005 (First Sitting))
- 34.** Krishna purchased a number of articles at ₹10 for each and the same number for ₹ 14 each. He mixed them together and sold them for ₹ 13 each. Then his gain or loss percent is
 (1) Loss $8\frac{1}{3}\%$ (2) Gain $8\frac{2}{3}\%$
 (3) Loss $8\frac{2}{3}\%$ (4) Gain $8\frac{1}{3}\%$
 (SSC CGL Tier-1 Exam 26.06.2011 (First Sitting))
- 35.** A shopkeeper bought 15kg of rice at the rate of ₹29 per kg and 25kg of rice at the rate of ₹20 per kg. He sold the mixture of both types of rice at the rate of ₹27 per kg. His profit in this transaction is
 (1) ₹125 (2) ₹150
 (3) ₹ 140 (4) ₹145
 (SSC CHSL DEO & LDC Exam. 28.10.2012, 1st Sitting)

PROFIT AND LOSS

- 36.** A dealer sold $\frac{3}{4}$ th of his articles

at a gain of 24% and the remaining at the cost price. Percentage of gain in the whole transaction is

- (1) 15% (2) 18%
 (3) 24% (4) 32%

(SSC Multi-Tasking (Non-Technical) Staff Exam. 27.02.2011)
 & SSC MTS Exam. 10.03.2013,

Patna (Ist Sitting)

- 37.** A man buys a toy for ₹ 25 and sells it for ₹ 30. His gain per cent is

- (1) 20% (2) 5%
 (3) 10% (4) 2.5%

(SSC CGL Tier-II Exam. 12.04.2015
 TF No. 567 TL 9)

- 38.** A man buys a table and a chair for Rs. 500. He sells the table at a loss of 10% and the chair at a gain of 10%. He still gains Rs. 10 on the whole. The cost price of chair in rupees is :

- (1) Rs. 200 (2) Rs. 250
 (3) Rs. 300 (4) Rs. 350

(SSC CGL Tier-I (CBE) Exam. 07.09.2016 (IIInd Sitting))

- 39.** Mr. Kapur purchased two toy cycles for Rs 750 each. He sold these cycles, gaining 6% on one and losing 4% on the other. The gain or loss per cent in the whole transaction is

- (1) 1% loss (2) 1% gain
 (3) 1.5% loss (4) 1.5% gain

(SSC CGL Tier-II (CBE) Exam. 12.01.2017)

- 40.** A man bought 500 metres of electronic wire at 50 paise per metre. He sold 50% of it at a profit of 5%. At what per cent should he sell the remainder so as to gain 10% on the whole transaction?

- (1) 13% (2) 12.5%
 (3) 15% (4) 20%

(SSC CGL Tier-II (CBE) Exam. 12.01.2017)

- 41.** A shopkeeper sold one-third of his goods at a loss of 15%. To get a profit of 10% on the whole transaction, he should sell the remaining articles at a profit of

- (1) $22\frac{1}{2}\%$ (2) $16\frac{2}{3}\%$
 (3) 15% (4) 25%

(SSC Multi-Tasking Staff Exam. 30.04.2017)

TYPE-XII

- 1.** The difference between the selling prices of an article at a profit of 15% and at a profit of 10% is ₹ 10. The cost price of the article is

- (1) ₹ 100 (2) ₹ 120
 (3) ₹ 150 (4) ₹ 200

(SSC CISF ASI Exam. 29.08.2010
 (Paper-1))

- 2.** The difference between the selling price and cost price of an article is ₹ 210. If the profit percent is 25, then the selling price of the article is

- (1) ₹ 950 (2) ₹ 1,050
 (3) ₹ 1,150 (4) ₹ 1,250

(SSC CPO S.I.

Exam 12.12.2010 (Paper-I))

- 3.** If the difference between the selling prices of an article at profit of 6% and 4% is ₹ 3, then the cost price of the article should be :

- (1) ₹ 100 (2) ₹ 150
 (3) ₹ 175 (4) ₹ 200

(SSC CHSL DEO & LDC Exam. 27.11.2010)

- 4.** The difference between the selling prices of an article sold at 4% and 3% profits is Rs. 3. The cost price of the article is :

- (1) Rs. 400 (2) Rs. 350
 (3) Rs. 300 (4) Rs. 100

(SSC CGL Tier-I (CBE))

Exam. 03.09.2016 (IIIrd Sitting))

- 5.** Rahul buys a book for ₹ 400 and sells it for ₹ 500. The difference between his profit as a percentage of the buying price and then as a percentage of the selling price is

- (1) 25% (2) 5%
 (3) 0% (4) 20%

(SSC Multi-Tasking Staff Exam. 30.04.2017)

TYPE-XIII

- 1.** A trader bought 10 kg of apples for ₹ 405 out of which 1 kg of apples were found to be rotten. If he wishes to make a profit of 10%, at what rate should he sell the remaining apples per kg?

- (1) ₹ 45 (2) ₹ 49.50
 (3) ₹ 50 (4) ₹ 51

(SSC CGL Prelim Exam. 04.07.1999
 (First Sitting))

- 2.** A reduction of 20% in the price of salt enabled a purchaser to obtain 4 kg. more for ₹ 100. The reduced price of salt per kg is :

- (1) ₹ 4 (2) ₹ 5
 (3) ₹ 6.25 (4) ₹ 6.50

(SSC CGL Prelim Exam. 11.05.2003)

- 3.** If the cost of pins reduces by ₹ 4 per dozen, 12 more pins can be purchased for ₹ 48. The cost of pins per dozen after reduction is:

- (1) ₹ 8 (2) ₹ 12
 (3) ₹ 16 (4) ₹ 20

(SSC CPO S.I. Exam. 16.12.2007
 (First Sitting))

- 4.** A tradesman sold an article at a loss of 20%. If the selling price had been increased by ₹ 100, there would have been a gain of 5%. The cost price of the article was :

- (1) ₹ 200 (2) ₹ 25
 (3) ₹ 400 (4) ₹ 250

(SSC CGL Prelim Exam. 08.02.2004 (First Sitting))

- 5.** If the price of eraser is reduced by 25% a person can buy 2 more erasers for a rupee. How many erasers are available for a rupee ?

- (1) 8 (2) 6
 (3) 4 (4) 2

(SSC Section Officer (Commercial Audit) Exam. 25.09.2005)

- 6.** A reduction of 15% in the price of apples would enable a purchaser to get 2 kg more apples for ₹ 240. The new price (per kg) of apples is

- (1) ₹ 15 (2) ₹ 18
 (3) ₹ 20 (4) ₹ 36

(SSC CPO S.I. Exam. 03.09.2006)

- 7.** An increase of 20% in the price of mangoes enables a person to purchase 4 mangoes less for ₹ 40. The price of 15 mangoes before increase was

- (1) ₹ 10 (2) ₹ 15
 (3) ₹ 20 (4) ₹ 25

(SSC CPO S.I. Exam. 09.11.2008)

- 8.** The reduction of ₹ 12 in the selling price of an article will change

5% gain into $2\frac{1}{2}\%$ loss. The cost price of the article is

- (1) ₹ 140 (2) ₹ 160
 (3) ₹ 80 (4) ₹ 100

(SSC Multi-Tasking Staff Exam. 17.03.2013 (Ist Sitting))

PROFIT AND LOSS

- 9.** A tradesman marks his goods at 25 p.c. above the cost price. If he reduces the marked price by $12\frac{1}{2}$ p.c., then his profit will be
- (1) $9\frac{3}{8}$ p.c. (2) $7\frac{3}{5}$ p.c.
 (3) $6\frac{3}{8}$ p.c. (4) $5\frac{1}{3}$ p.c.
- (SSC CHSL DEO & LDC Exam. 02.11.2014 (IIInd Sitting))
- 10.** If a man reduces the selling price of a fan from Rs. 1,250 to Rs. 1,000, his loss increases by 20%. The cost price of the fan is
- (1) Rs. 2,400 (2) Rs. 2,450
 (3) Rs. 2,500 (4) Rs. 2,350
- (SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region))
 TF No. 789 TH 7)
- 11.** A manufacturer fixes his selling price at 33% over the cost of production. If cost of production goes up by 12% and manufacturer raises his selling price by 10%, his percentage profit is
- (1) $28\frac{3}{8}\%$ (2) $30\frac{5}{8}\%$
 (3) $36\frac{5}{9}\%$ (4) 35%
- (SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)
- 12.** A reduction of 20% in the price of rice enables a buyer to buy 5 kg more for rupees 1200. The reduced price per kg of rice will be:
- (1) 36 (2) 45
 (3) 48 (4) 60
- (SSC CGL Tier-I (CBE) Exam. 02.09.2016) (IIInd Sitting)
- TYPE-XIV**
- 1.** A man wanted to sell an article with 20% profit; but he actually sold at 20% loss for ₹ 480. At what price he wanted to sell it to earn the profit?
- (1) ₹ 720 (2) ₹ 840
 (3) ₹ 600 (4) ₹ 750
- (SSC CGL Prelim Exam. 04.07.1999 (First Sitting))
- 2.** If a man estimates his loss as 20% of the selling price, then his loss per cent is :
- (1) 20% (2) 25%
 (3) $\frac{40}{3}\%$ (4) $\frac{50}{3}\%$
- (SSC CGL Prelim Exam. 04.07.1999 (IIInd Sitting) & (SSC CGL Exam. 19.06.2011))
- 3.** If 3 toys are sold at the cost price of 4 toys of the same kind, the profit will be :
- (1) 25% (2) $33\frac{1}{3}\%$
 (3) $66\frac{2}{3}\%$ (4) 50%
- (SSC CGL Prelim Exam. 27.02.2000 (First Sitting))
- 4.** A house worth ₹ 1,50,000 is sold by X at a 5% profit to Y, Y sells the house back to X at a 2% loss. Then in the entire transaction?
- (1) X gains ₹ 4,350
 (2) X loses ₹ 4,350
 (3) X gains ₹ 3,150
 (4) X loses ₹ 3,150
- (SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))
- 5.** A book-seller bought 200 textbooks for ₹ 12,000. He wanted to sell them at a profit so that he got 20 books free. At what profit percent should he sell them?
- (1) 10% (2) 11%
 (3) 11.5% (4) 12%
- (SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))
- 6.** By selling a table for ₹ 350 instead of ₹ 400, loss per cent increases by 5%. The cost price of table is :
- (1) ₹ 1,050 (2) ₹ 417.50
 (3) ₹ 435 (4) ₹ 1,000
- (SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))
- 7.** If selling price of an article is $\frac{8}{5}$ times its cost price, the profit per cent on it is :
- (1) 120% (2) 160%
 (3) 40% (4) 60%
- (SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))
- 8.** The price of a jewel, passing through three hands, rises on the whole by 65%. If the first and the second sellers earned 20% and 25% profit respectively, the profit earned by the third seller is
- (1) 20% (2) 15%
 (3) 10% (4) 5%
- (SSC CPO S.I. Exam. 12.01.2003)
- 9.** A merchant fixes the sale price of his goods at 15% above the cost price. He sells his goods at 12% less than the fixed price. His percentage of profit is :
- (1) $2\frac{1}{2}\%$ (2) $1\frac{1}{5}\%$
 (3) $1\frac{1}{2}\%$ (4) 2%
- (SSC CGL Prelim Exam. 11.05.2003 (First Sitting))
- 10.** A person sells a table at a profit of 10%. If he had bought the table at 5% less cost and sold for ₹ 80 more, he would have gained 20%. The cost price of the table is
- (1) ₹ 3,200 (2) ₹ 2,500
 (3) ₹ 2,000 (4) ₹ 200
- (SSC CPO S.I. Exam. 07.09.2003)
- 11.** Joseph's salary is reduced by 10%. In order to have his salary back to his original amount, it must be raised by
- (1) 12.5% (2) $11\frac{1}{9}\%$
 (3) 10% (4) 11%
- (SSC CPO S.I. Exam. 07.09.2003 & (SSC S.O. (Commercial Audit) Exam. 16.11.2003))
- 12.** A man bought a certain quantity of rice at the rate of ₹ 650 per quintal. 20% of the rice was spoiled. At what rate should he sell the remaining rice to gain 20% on the outlay?
- (1) ₹ 775 (2) ₹ 850
 (3) ₹ 890 (4) ₹ 975
- (SSC Delhi Police S.I. (SI) Exam. 19.08.2012)
- 13.** A person sells an article for ₹ 75 and gains as much per cent as the cost price of the article in rupees. The cost price of the article is
- (1) ₹ 37.50 (2) ₹ 40
 (3) ₹ 50 (4) ₹ 150
- (SSC Section Officer (Commercial Audit) Exam. 16.11.2003)

PROFIT AND LOSS

- 14.** An article is sold at a profit of 20%. If it had been sold at a profit of 25%, it would have fetched ₹ 35 more. The cost price of the article is :
 (1) ₹ 650 (2) ₹ 700
 (3) ₹ 750 (4) ₹ 800
 (SSC CGL Prelim Exam. 08.02.2004
 (First Sitting)
- 15.** A man gains 20% by selling an article for a certain price. If he sells it at double the price, the percentage of profit will be :
 (1) 40% (2) 140%
 (3) 100% (4) 120%
 (SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting)
- 16.** A dealer makes a profit of 20% even after giving a 10% discount on the advertised price of a scooter. If he makes a profit of ₹ 7500 on the sale of the scooter, the advertised price was
 (1) ₹ 45000 (2) ₹ 47500
 (3) ₹ 50000 (4) ₹ 52500
 (SSC CPO S.I. Exam. 05.09.2004)
- 17.** A man gets ₹ 13 more by selling an article at a profit of $12\frac{1}{2}\%$ and than selling it at a loss of $12\frac{1}{2}\%$. The cost price of the article is :
 (1) ₹ 25.50 (2) ₹ 38
 (3) ₹ 52 (4) ₹ 65
 (SSC CPO S.I. Exam. 26.05.2005)
- 18.** By selling a table for ₹ 350 instead of ₹ 400, loss per cent increases by 5%. The cost price of the table is :
 (1) ₹ 1050 (2) ₹ 417.50
 (3) ₹ 435 (4) ₹ 1000
 (SSC CGL Prelim Exam. 13.11.2005
 (First Sitting)
- 19.** The percentage of loss when an article is sold at ₹ 50 is the same as that of the profit when it is sold at ₹ 70. The above-mentioned percentage of profit or loss on the article is
 (1) 10% (2) $16\frac{2}{3}\%$
 (3) 20% (4) $22\frac{2}{3}\%$
 (SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting)
- 20.** If an article is sold at a gain of 5% instead of being sold at a loss of 5%, one gets ₹ 5 more. What is the cost price of the article ?
 (1) ₹ 100 (2) ₹ 105
 (3) ₹ 50 (4) ₹ 110
 (SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting)
- 21.** Raghavan purchased a scooter at $\frac{13}{15}$ of its selling price and sold it at 12% more than its selling price. His gain is.
 (1) 20% (2) 30%
 (3) $38\frac{1}{13}\%$ (4) $29\frac{3}{13}\%$
 (SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting)
- 22.** An article passing through two hands is sold at a profit of 38% at the original cost price. If the first dealer makes a profit of 20%, then the profit per cent made by the second is
 (1) 15% (2) 12%
 (3) 10% (4) 5%
 (SSC CPO S.I. Exam. 03.09.2006)
- 23.** If a manufacturer gains 10 per cent, wholesaler 15 per cent and retailer 25 per cent, then the production cost of an article, whose retail price is ₹ 1,265, is
 (1) ₹ 700 (2) ₹ 750
 (3) ₹ 800 (4) ₹ 900
 (SSC Section Officer (Commercial Audit) Exam. 26.11.2006
 (Second Sitting)
- 24.** A tradesman, by means of a false balance defrauds 10 per cent in buying goods and also defrauds 10 per cent in selling. His gain percent is
 (1) 10% (2) 11%
 (3) 21% (4) 100%
 (SSC Section Officer (Commercial Audit) Exam. 26.11.2006
 (Second Sitting)
- 25.** By selling 100 pencils, a shopkeeper gains the selling price of 20 pencils. His gain per cent is
 (1) 25% (2) 20%
 (3) 15% (4) 12%
 (SSC CGL Prelim Exam. 04.02.2007
 (First Sitting)
- 26.** A dealer sold $\frac{3}{4}$ of his articles at a gain of 20% and the remaining at cost price. The gain per cent earned by him in the whole transaction is
 (1) 13% (2) 14%
 (3) 15% (4) 16%
 (SSC Section Officer (Commercial Audit) Exam. 30.09.2007
 (Second Sitting)
- 27.** An increase of ₹ 3 in the selling price of an article turns a loss of $7\frac{1}{2}\%$ into a gain of $7\frac{1}{2}\%$. The cost price (in ₹) of the article is:
 (1) 25 (2) 20
 (3) 15 (4) 10
 (SSC CPO S.I. Exam. 16.12.2007)
- 28.** One trader calculates the percentage of profit on the buying price and another calculates on the selling price. When their selling prices are the same, then the difference of their actual profits is ₹ 85 and both claim to have made 20% profit. What is the selling price of each ?
 (1) ₹ 1700 (2) ₹ 2100
 (3) ₹ 2550 (4) ₹ 2750
 (SSC CGL Prelim Exam. 27.07.2008
 (First Sitting)
- 29.** A sells a article to B at a profit of 10% B sells the article back to A at a loss of 10%. In this transaction
 (1) A neither loses nor gains
 (2) A makes a profit of 11%
 (3) A makes a profit of 20%
 (4) B loses 20%
 (SSC CGL Prelim Exam. 27.07.2008
 (First Sitting)
- 30.** If the selling price of an article is doubled, then its loss per cent is converted into equal profit per cent. The loss per cent on the article is
 (1) $26\frac{2}{3}\%$ (2) 33%
 (3) $33\frac{1}{3}\%$ (4) 34%
 (SSC CGL Prelim Exam. 27.07.2008
 (First Sitting))

PROFIT AND LOSS

- 31.** A man sold some articles at a gain of 10%. He spent his total sale proceeds to purchase such articles again. This time, while selling them, he incurred a loss of 10%. His loss or gain in the transaction was
 (1) 1% loss
 (2) 1% gain
 (3) no profit no loss
 (4) 2% loss
 (SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))
- 32.** A merchant finds his profit as 20% of the selling price. His actual profit percent is
 (1) 20% (2) 22%
 (3) 25% (4) 30%
 (SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))
- 33.** A person sold a TV for ₹ 9,400 and he lost a particular amount. When he sold another TV of the same type at ₹ 10,600, his gain was double the former loss. What was the cost price of each TV ?
 (1) ₹ 9,800 (2) ₹ 10,000
 (3) ₹ 10,200 (4) ₹ 10,400
 (SSC CPO S.I. Exam. 06.09.2009)
- 34.** By selling a bicycle for ₹ 2,850, a shopkeeper gains 14%. If the profit is reduced to 8%, then the selling price will be
 (1) ₹ 2,600 (2) ₹ 2,700
 (3) ₹ 2,800 (4) ₹ 3,000
 (SSC CGL Tier-I Exam. 16.05.2010 (First Sitting))
- 35.** If the percentage of profit calculated on selling price of an article is 20%, percentage of profit calculated on cost price will be
 (1) 16% (2) 24%
 (3) 25% (4) 28%
 (SSC (South Zone) Investigator Exam 12.09.2010)
- 36.** If selling price of an article is reduced by 60%, then there is a loss of 10% on cost price. The initial profit percent was
 (1) 70% (2) 80%
 (3) 100% (4) 125%
 (SSC CPO S.I. Exam 12.12.2010 (Paper-I))
- 37.** X sells two articles for ₹ 4,000 each with no loss and no gain in the transaction. If one was sold at a gain of 25% the other is sold at a loss of
- (1) 25% (2) $18\frac{2}{9}\%$
 (3) 20% (4) $16\frac{2}{3}\%$
 (SSC CGL Tier-1 Exam 19.06.2011 (Second Sitting))
- 38.** A dishonest shopkeeper, using a faulty balance makes a profit of 5% while buying as well as while selling his goods. His actual gain percent in the whole process amounts to
 (1) 11% (2) 10%
 (3) 10.25% (4) 10.5%
 (SSC Delhi Police S.I. (SI) Exam. 19.08.2012)
- 39.** A man sells two articles for ₹ 5000 each neither losing nor gaining in the deal. If he sold one of them at a gain of 25%, the other article is sold at a loss of
 (1) $15\frac{2}{3}\%$ (2) $16\frac{2}{3}\%$
 (3) $17\frac{1}{3}\%$ (4) $18\frac{1}{3}\%$
 (SSC CGL Tier-1 Exam 26.06.2011 (Second Sitting))
- 40.** By selling 60 articles a vendor gains the selling price of 15 articles. Find his gain percentage.
 (1) 25% (2) $33\frac{1}{3}\%$
 (3) 20% (4) $28\frac{4}{7}\%$
 (SSC CPO (SI, ASI & Intelligence Officer) Exam 28.08.2011 (Paper-I))
- 41.** If the total cost of 73 articles having equal cost is ₹ 5,110 and the total selling price of 89 such articles is ₹ 5,607, then in the transaction, there will be
 (1) a loss of 15%
 (2) a gain of 10%
 (3) a loss of 10%
 (4) a gain of 15%
 (SSC Data Entry Operator Exam. 31.08.2008)
- 42.** The percentage of profit, when an article is sold for ₹ 78, is twice than when it is sold for ₹ 69. The cost price of the article is :
 (1) ₹ 49 (2) ₹ 51
 (3) ₹ 57 (4) ₹ 60
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (1st Sitting))
- 43.** A cloth merchant sold half of his cloth at 40% profit, half of remaining at 40% loss and the rest was sold at the cost price. In the total transaction his gain or loss will be
 (1) 20% gain (2) 25% loss
 (3) 10% gain (4) 15% loss
 (SSC Multi-Tasking (Non-Technical) Staff Exam. 20.02.2011)
- 44.** A person sold an article at 20% profit on the selling price. Afterwards, when the cost price reduced by 10%, then he also reduced the selling price by 10%. His percentage of profit on cost price will be
 (1) 30% (2) 25%
 (3) 22.5% (4) 12.5%
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting (Delhi Zone)))
- 45.** A fruit seller makes a profit of 20% by selling mangoes at a certain price. If he charges ₹ 1 more for each mango, he can make a profit of 40%. Find the selling price of a mango in the first case.
 (1) ₹ 6 (2) ₹ 5
 (3) ₹ 5.50 (4) ₹ 7
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting (East Zone)))
- 46.** Dinesh bought two radios for ₹ 1,920. He sold one at a profit of 20% and the other at a loss of $6\frac{2}{3}\%$. If the selling price of both radios are same, the cost prices of the two radios are
 (1) ₹ 800 and ₹ 1,120
 (2) ₹ 840 and ₹ 1,080
 (3) ₹ 860 and ₹ 1,060
 (4) ₹ 900 and ₹ 1,020
 (SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (IIInd Sitting))
- 47.** Peter buys a table for ₹ 450 and spends ₹ 30 on its transportation. If he sells the table for ₹ 600 his gain percent will be
 (1) 30% (2) 25%
 (3) 28% (4) 24%
 (SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (IIInd Sitting))
- 48.** A loss of 19% gets converted into a profit of 17% when the selling price is increased by ₹ 162. The cost price of the article is
 (1) ₹ 450 (2) ₹ 600
 (3) ₹ 360 (4) ₹ 540
 (SSC Graduate Level Tier-II Exam. 16.09.2012) & (SSC MTS Exam. 17.03.2013 (Kolkata))

PROFIT AND LOSS

- 49.** A trader purchases a watch and a wall clock for ₹ 390. He sells them making a profit of 10% on the watch and 15% on the wall clock. He earns a profit of ₹ 51.50. The difference between the original prices of the wall clock and the watch is equal to
 (1) ₹ 80 (2) ₹ 120
 (3) ₹ 110 (4) ₹ 100

(SSC CHSL DEO & LDC Exam.
21.10.2012 (Ist Sitting)

- 50.** A merchant fixed the selling price of his articles at ₹ 700 after adding 40% profit to the cost price. As the sale was very low at this price level, he decided to fix the selling price at 10% profit. Find the new selling price.
 (1) ₹ 500 (2) ₹ 550
 (3) ₹ 450 (4) ₹ 490

(SSC CHSL DEO & LDC Exam.
21.10.2012 (Ist Sitting)

- 51.** From 2008 to 2009, the sales of a book decreased by 80%. If the sales in 2010 were the same as in 2008, by what percent did it increase from 2009 to 2010?
 (1) 120% (2) 400%
 (3) 80% (4) 100%

(SSC CHSL DEO & LDC Exam.
21.10.2012 (Ist Sitting)

- 52.** A dishonest fruit vendor sells his goods at cost price but he uses a weight of 900 gm for a kg. weight. His gain per cent is:

- (1) 12% (2) $11\frac{1}{9}\%$
 (3) $10\frac{1}{9}\%$ (4) 10%

(SSC CHSL DEO & LDC Exam.
21.10.2012 (IIInd Sitting)

- 53.** A shopkeeper bought 200 articles, each costing the same. He sold 30% of the articles at 20% profit and remaining at 10% profit. If the total profit made by him is ₹ 2600, find the cost price of one article.
 (1) ₹ 200 (2) ₹ 1300
 (3) ₹ 2600 (4) ₹ 100

(SSC CHSL DEO & LDC Exam.
21.10.2012 (IIInd Sitting)

- 54.** A bought an article, paying 5% less than the original price. A sold it with 20% profit on the price he had paid. What percent of profit did A earn on the original price?

- (1) 10% (2) 13%
 (3) 14% (4) $\frac{17}{2}\%$

(SSC CHSL DEO & LDC Exam.
04.11.2012, Ist Sitting)

- 55.** A dishonest grocer sells rice at a profit of 10% and also uses weights which are 20% less than the marked weight. The total gain earned by him will be
 (1) 37.5% (2) 40%
 (3) 30.5% (4) 35%

(SSC Multi-Tasking Staff Exam. 17.03.2013, IIInd Sitting)

- 56.** A trader sells two bullocks for ₹ 8,400 each, neither losing nor gaining in total. If he sold one of the bullocks at a gain of 20%, the other is sold at a loss of

- (1) 20% (2) $18\frac{2}{9}\%$
 (3) $14\frac{2}{7}\%$ (4) 21%

(SSC Multi-Tasking Staff Exam. 24.03.2013, Ist Sitting)

- 57.** Arun marks up the computer he is selling by 20% profit and sells them at a discount of 15%. Arun's net gain percent is
 (1) 4% (2) 2%
 (3) 3.5% (4) 2.5%

(SSC FCI Assistant Grade-III Main Exam. 07.04.2013)

- 58.** A man buys 3 cows and 8 goats in ₹ 47,200. Instead if he would have bought 8 cows and 3 goats, he had to pay ₹ 53,000 more. Cost of one cow is:

- (1) ₹ 11,000 (2) ₹ 12,000
 (3) ₹ 13,000 (4) ₹ 10,000

(SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting)

- 59.** A retailer purchased radiosets at the rate of ₹ 400 each from a wholesaler. He raised the price by 30% and then allowed a discount of 8% on each set. His profit will be
 (1) 19% (2) 78.4%
 (3) 22% (4) 19.6%

(SSC Graduate Level Tier-I Exam. 21.04.2013)

- 60.** A dishonest dealer professes to sell his goods at the cost price but uses a false weight of 850 g instead of 1 kg. His gain percent is

- (1) $17\frac{12}{17}\%$ (2) $17\frac{11}{17}\%$

- (3) $71\frac{11}{17}\%$ (4) $11\frac{11}{17}\%$

(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

- 61.** A tradesman sold an article at a loss of 20%. If the selling price had been increased by ₹ 100, there would have been a gain of 5%. The cost price of the article (in ₹) was

- (1) 100 (2) 200
 (3) 400 (4) 500

(SSC Graduate Level Tier-I Exam. 19.05.2013)

- 62.** By selling 25 metres of cloth a trader gains the selling price of 5 metres of cloth. The gain percent of the trader in % is

- (1) 25% (2) 20%
 (3) 28% (4) 29%

(SSC Graduate Level Tier-II Exam. 29.09.2013)

- 63.** Gita buys a plot of land for ₹ 96,000. She sells $\frac{2}{5}$ of it at a loss of 6%. She wants to make a profit of 10% on the whole transaction by selling the remaining land. The gain % on the remaining land is

- (1) 20% (2) $20\frac{2}{3}\%$

- (3) 14% (4) 7%

(SSC Graduate Level Tier-II Exam. 29.09.2013)

- 64.** The cost of a house was ₹ X lakhs in 2005. After 3 years, the owner of the house sold it for 25% more than she paid it. But she has to pay a tax of 50% of the gain. The tax amount she has to pay is.

- (1) $\frac{X}{2}$ (2) $\frac{X}{8}$

- (3) $\frac{X}{4}$ (4) $\frac{X}{24}$

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

PROFIT AND LOSS

65. A milkman mixes water with milk and sells the mixture at the cost price of pure milk. The volume of water in litres to be mixed with each litre of milk to get a 25% profit is

- (1) $\frac{1}{4}$ (2) $\frac{1}{5}$

(3) $1\frac{1}{4}$

- (4) cannot be calculated without knowing the cost price of milk
(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

66. A merchant bought 200 eggs, out of which 38 eggs were broken. He sold the remaining eggs at the rate of Rs. 4.80 per dozen and thus gained 8%. His total investment is

- (1) Rs. 80 (2) Rs. 60
(3) Rs. 45 (4) Rs. 120

(SSC CGL Tier-II Exam, 2014 12.04.2015
(Kolkata Region)
TF No. 789 TH 7)

67. A trader marks his goods 20% above cost price but allows his customers a discount of 10%, the cost price of a blackboard, which is sold for Rs. 216, is

- (1) Rs. 196 (2) Rs. 180
(3) Rs. 200 (4) Rs. 108

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
(1st Sitting) TF No. 8037731)

68. A fruit seller buys 240 apples for Rs. 600. Some of these apples are bad and are thrown away. He sells the remaining apples at Rs. 3.50 each and makes a profit of Rs.198. The per cent of apples thrown away are

- (1) 6% (2) 8%
(3) 5% (4) 7%

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
(1st Sitting) TF No. 8037731)

69. Rohit sold his car at 10% below the cost price to Amit. Amit got the car repaired and spent Rs. 5,000. He then sold the car to Rajesh at 20% above the total cost, which is equal to Rs. 1,00,000. Find the original price of the car (nearest to hundred).

- (1) Rs. 93,000 (2) Rs. 83,000
(3) Rs. 87,000 (4) Rs. 97,000
(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
IIInd Sitting)

70. If the cost price of an item is $\frac{5}{9}$ of its marked price and the profit is 20%, then the percentage of discount is

- (1) $70\frac{1}{3}\%$ (2) $63\frac{1}{3}\%$
(3) $33\frac{1}{3}\%$ (4) $66\frac{1}{3}\%$

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
IIInd Sitting)

71. A shopkeeper bought 30 kg of rice at the rate of Rs. 70 per kg and 20 kg of rice at the rate of Rs. 70.75 per kg. If he mixed the two brands of rice and sold the mixture at Rs. 80.50 per kg, his gain is

- (1) Rs. 450 (2) Rs. 510
(3) Rs. 525 (4) Rs. 485
(SSC CGL Tier-I Exam, 09.08.2015
(1st Sitting) TF No. 1443088)

72. The printed price of an article is 40% higher than its cost price. Then the rate of discount such that he gains 12% profit is

- (1) 21% (2) 15%
(3) 20% (4) 18%
(SSC CGL Tier-I Exam, 09.08.2015
(IIInd Sitting) TF No. 4239378)

73. An article which is marked at Rs. 975 is sold for Rs. 897. The discount per cent is

- (1) 10% (2) 12%
(3) 6% (4) 8%
(SSC CGL Tier-I Exam, 16.08.2015
(1st Sitting) TF No. 3196279)

74. A dealer marks his goods 20% above cost price and allows a discount of 10% to his customers. His gain percentage is

- (1) 6% (2) 9%
(3) 7% (4) 8%
(SSC Constable (GD)
Exam, 04.10.2015, 1st Sitting)

75. A house worth Rs. 1,50,000 is sold by X to Y at 5% profit. Y sells the house back to X at 2% loss. Then in the entire transaction :

- (1) X gains Rs. 3150
(2) X loses Rs. 4350
(3) X loses Rs. 1350
(4) X gains Rs. 4350
(SSC Constable (GD)
Exam, 04.10.2015, IIInd Sitting)

76. A man sells an article at 5% above its cost price. If he had bought it at 5% less than what he had paid for it and sold it at Rs. 2 less, he would have gained 10%. The cost price of the article is

- (1) Rs. 200 (2) Rs. 400
(3) Rs. 300 (4) Rs. 100

(SSC CGL Tier-II Exam,
25.10.2015, TF No. 1099685)

77. Simon purchased a bicycle for Rs. 6810. He had paid a VAT of 13.5%. The list price of the bicycle was

- (1) Rs. 6000 (2) Rs. 6140
(3) Rs. 6696.50 (4) Rs. 5970.50

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IIInd Sitting)

78. A shopkeeper has 11 books of same cost price. He sells the first book at a certain price, then he sells second book at a price which is Rs. 1 less than the selling price of first book and then he sells third book at a price which is Rs. 1 less than the selling price of second book. Following this pattern, he sold all 11 books. If he sells sixth book at its cost price. Find the overall percent profit or loss on selling all 11 books.

- (1) 20% (2) 10%
(3) $9\frac{1}{11}$

(4) No profit No loss
(SSC CPO SI, ASI Online Exam.05.06.2016) (IIInd Sitting)

79. If a commission at the rate of 10% is given to a bookseller on the marked price of a book by the publisher, the publisher gains 20%. If the commission is increased to 15%, then the gain percent would be:

- (1) $16\frac{2}{3}\%$ (2) $13\frac{1}{3}\%$
(3) $15\frac{5}{6}\%$ (4) $12\frac{1}{2}\%$

(SSC CPO SI, ASI Online Exam.05.06.2016) (IIInd Sitting)

PROFIT AND LOSS

- 80.** By selling an umbrella for Rs. 30, a shop-keeper gains 20%. During a clearance sale, the shop-keeper allows a discount of 10%. Find his gain percent during the sale season.

(1) 8 (2) 7

(3) 9 (4) $7\frac{1}{2}$

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 20.03.2016)
(IIInd Sitting)

- 81.** A vegetable seller sells his vegetables at 20% profit. At the same time he uses false weights, which is 10% less than the actual weight. What will be his total gain percentage?

(1) 25% (2) 30%

(3) 33.33% (4) $18\frac{7}{9}\%$

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 05.06.2016)
(Ist Sitting)

- 82.** Rama mixes 20% of kerosene to his petrol and then he sells the whole mixture at the price of petrol. If the cost price of the kerosene is 40% of the CP of petrol. What is the net profit%?

(1) 11.11% (2) 11.5%
(3) 12.5% (4) 9.5%

(SSC CPO SI & ASI, Online
Exam. 06.06.2016) (IIInd Sitting)

- 83.** Gopi goes from place A to B to buy an article costing 15% less at B, although he spends Rs. 150 on travelling, still he gains Rs. 150 compared to buying it at A. His profit percent is :

(1) 4.5 (2) 6
(3) 7.5 (4) 8

(SSC CGL Tier-I (CBE)

Exam. 30.08.2016) (Ist Sitting)

- 84.** A dishonest dealer professes to sell his goods at cost price but uses a weight of 875 gms for the kilogram weight. His gain in percentage is a

(1) 17% (2) $14\frac{5}{7}\%$

(3) $14\frac{2}{7}\%$ (4) 14%

(SSC CGL Tier-I (CBE)

Exam. 07.09.2016) (Ist Sitting)

- 85.** A shopkeeper purchased 510 eggs at the rate of Rs. 20 per dozen. 30 eggs were broken on the way. In order to make a gain of 20%, he must sell the remaining eggs at the rate of

(1) Rs. 22.50 per dozen
(2) Rs. 25.50 per dozen
(3) Rs. 26 per dozen
(4) Rs. 26.50 per dozen

(SSC CGL Tier-II (CBE)

Exam. 30.11.2016)

- 86.** A sells a watch to B and makes a loss of 12%. B makes a profit of

$12\frac{1}{2}\%$ by selling the watch to

C. If A sells the watch to B at the cost of which C purchased it, then the percentage of loss or profit of A will be

(1) 1% loss (2) 1% profit
(3) 2% loss (4) 2% profit

(SSC CGL Tier-II (CBE)

Exam. 30.11.2016)

- 87.** A man buys 3 type-I cakes and 6 type-II cakes for Rs. 900. He sells type-I cakes at a profit of 15% and type-II cakes at a loss of 10%. If his overall profit is Rs.30, the cost price (in Rs.) of a type-I and of a type-II cakes is

(1) 100, 100 (2) 160, 70
(3) 180, 60 (4) 120, 90

(SSC CGL Tier-II (CBE)

Exam. 30.11.2016)

- 88.** A merchant buys 25 litres of milk daily at the rate of Rs. 12 per litre. He mixes 5 litres of water in it and sells at the rate Rs. 10.40 per litre. His gain is :

(1) 8% profit (2) 2% profit
(3) 4% profit (4) 6% profit

(SSC CGL Tier-I (CBE)

Exam. 09.09.2016 (IIIInd Sitting)

- 89.** A trader had 22 quintals of wheat. He sold a part of it at 23% profit and the rest at 33% profit, so that he made a total profit of 27%. How much wheat did he sell at 33% profit?

(1) 1320 kg. (2) 440 kg.
(3) 880 kg. (4) 1760 kg.

(SSC CHSL (10+2) Tier-I (CBE)

Exam. 15.01.2017) (IIInd Sitting)

- 90.** A shopkeeper buys a product of Rs. 150 per kg. 15% of product was damaged. At what price (per kg.) should he sell the remaining so as to earn a profit of 20%?

(1) Rs. $208\frac{15}{17}$ (2) Rs. $207\frac{13}{17}$

(3) Rs. $205\frac{5}{17}$ (4) Rs. $211\frac{13}{17}$

(SSC CGL Tier-II (CBE)

Exam. 12.01.2017)

SHORT ANSWERS

TYPE-I

1. (2)	2. (4)	3. (4)	4. (4)
5. (1)	6. (4)	7. (2)	8. (4)
9. (3)	10. (3)	11. (4)	12. (2)
13. (4)	14. (1)	15. (3)	16. (3)
17. (1)	18. (3)	19. (3)	20. (1)
21. (4)	22. (4)	23. (2)	24. (2)
25. (1)	26. (4)	27. (1)	28. (1)
29. (1)	30. (2)	31. (4)	32. (3)
33. (1)	34. (1)	35. (3)	36. (2)
37. (4)	38. (4)	39. (2)	40. (3)
41. (4)	42. (3)	43. (4)	44. (1)
45. (1)	46. (1)	47. (3)	48. (2)
49. (1)	50. (1)	51. (3)	

TYPE-II

1. (1)	2. (3)	3. (4)	4. (3)
5. (2)	6. (3)	7. (4)	8. (2)
9. (1)	10. (3)	11. (4)	12. (3)
13. (2)	14. (2)	15. (1)	16. (4)
17. (2)	18. (3)	19. (1)	20. (1)
21. (4)	22. (2)	23. (4)	24. (3)
25. (3)	26. (3)	27. (4)	28. (2)
29. (2)	30. (3)	31. (3)	32. (2)
33. (2)	34. (1)	35. (1)	36. (3)
37. (1)	38. (1)	39. (3)	40. (4)
41. (4)	42. (4)	43. (1)	44. (3)
45. (1)	46. (4)	47. (1)	48. (1)
49. (4)	50. (1)	51. (2)	52. (2)
53. (3)	54. (2)	55. (1)	56. (2)
57. (3)			

TYPE-III

1. (4)	2. (2)	3. (1)	4. (3)
5. (1)	6. (4)	7. (3)	8. (4)
9. (4)	10. (4)	11. (3)	12. (2)
13. (2)	14. (3)	15. (4)	16. (3)
17. (2)	18. (2)	19. (1)	20. (3)
21. (3)	22. (2)	23. (3)	24. (3)

9



DISCOUNT

Importance : 'Discount' questions are special type of Profit and Loss questions. But as question on this type are regularly asked, hence it is suitable to give it as a separate chapter.

Scope of questions : Questions include/discount, successive discount, equivalent discount, C.P./S.P. after discount. Also questions based on special type, like comparison between two discount or comparisons of 'discount' and no discount' conditions are also asked.

Way to success: Note that all calculations of % discount are done on '**Marked**' price and not on C.P./S.P. use formulae for speedy answers. It is important to expertise in identification on all type of questions.

RULE 1 : If Marked Price = (MP)

Selling Price = (SP)

Then, Discount = MP – SP and

$$\text{Discount\%} = \frac{\text{Discount}}{\text{MP}} \times 100$$

$$\text{Discount\%} = \frac{\text{Marked Price} - \text{Selling Price}}{\text{Marked Price}} \times 100$$

Note: Any kind of Discount is calculated only on marked price and not on selling price or cost price.

RULE 2 : If article is sold on D% discount, then

$$SP = \frac{MP(100 - D)}{100},$$

$$MP = \frac{SP \times 100}{100 - D}$$

RULE 3 : When successive Discounts D_1 , D_2 , D_3 , so on, are given then

$$SP = MP \left(\frac{100 - D_1}{100} \right) \left(\frac{100 - D_2}{100} \right) \left(\frac{100 - D_3}{100} \right)$$

RULE 4 : If D_1 , D_2 , D_3 are successive discounts, then equivalent discount/overall discount is (in percentage)

$$100 - \left[\left(\frac{100 - D_1}{100} \right) \left(\frac{100 - D_2}{100} \right) \left(\frac{100 - D_3}{100} \right) \times 100 \right]$$

RULE 5 : (Special Case) : When two successive discounts are given, then overall discount is

$$= \left(D_1 + D_2 - \frac{D_1 D_2}{100} \right) \%$$

RULE 6 : If r% of profit or loss occur after giving D%

discount on marked price, then $\frac{MP}{CP} = \frac{100 \pm r}{100 - D}$

(positive sign for profit and negative for loss)

RULE 7 : 'y' articles (quantity/number) are given free

on purchasing 'x' articles. Then, $\text{Discount\%} = \frac{y \times 100}{x + y}$

RULE 8 : A tradesman marks his goods r% above his cost price. If he allows his customers a discount of r_1 % on the marked price. Then is profit or loss per cent is

$$\frac{r \times (100 - r_1)}{100} - r_1$$

(Positive sign signifies profit and negative sign signifies loss).

RULE 9 : The marked price of an article is fixed in such a way that after allowing a discount of r% a profit of R% is obtained. Then the marked price of the article is

$$\left(\frac{r + R}{100 - r} \times 100 \right) \% \text{ more than its cost price.}$$

□□□

QUESTIONS ASKED IN PREVIOUS SSC EXAMS

TYPE-I

1. Applied to a bill for ₹ 1,00,000 the difference between a discount of 40% and two successive discounts of 36% and 4% is :
 (1) Nil (2) ₹1,440
 (3) ₹ 2,500 (4) ₹ 4,000
(SSC CGL Prelim Exam. 04.07.1999 (First Sitting & SSC Section officer (Audit) Exam : 16.11.2003))
2. Successive discounts of 10% and 30% are equivalent to a single discount of :
 (1) 40% (2) 35%
 (3) 38% (4) 37%
(SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))
3. The marked price of a watch was ₹ 720/- . A man bought the same for ₹ 550.80, after getting two successive discounts, the first at 10%. What was the second discount rate?
 (1) 12% (2) 14%
 (3) 15% (4) 18%
(SSC CGL Prelim Exam. 27.02.2000 (1st Sitting) & (SSC GL Tier-I Exam. 21.04.2013))
4. The marked price of a watch is ₹ 1000. A retailer buys it at ₹ 810 after getting two successive discounts of 10% and another rate which is illegible. What is the second discount rate?
 (1) 15% (2) 10%
 (3) 8% (4) 6.5%
(SSC CGL Prelim Exam. 24.02.2002 (First Sitting))
5. Successive discounts of 10% and 20% are equivalent to a single discount of :
 (1) 30% (2) 15%
 (3) 28% (4) 12%
(SSC CGL Prelim Exam. 24.02.2002 (Ist & IIInd Sitting) & (SSC CGL Exam. 08.02.2004 (Ist Sitting) & (SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting)))
6. The equivalent single discount for two successive discounts of 15% and 10% is
 (1) 25% (2) 20%
 (3) 23.5% (4) 20.5%
(SSC CGL Prelim Exam. 24.02.2002 (Middle Zone))

7. The marked price of an article is ₹ 500. It is sold at successive discounts of 20% and 10%. The selling price of the article (in rupees) is :
 (1) 350 (2) 375
 (3) 360 (4) 400
(SSC CGL Prelim Exam. 11.05.2003 (First Sitting))
8. An item is marked for ₹ 240 for sale. If two successive discounts of 10% and 5% are allowed on the sale price, the selling price of the article will be
 (1) ₹ 205.20 (2) ₹ 204
 (3) ₹ 34.80 (4) ₹ 36
(SSC CGL Prelim Exam. 11.05.2003 (Second Sitting))
9. The price of an article is raised by 30% and then two successive discounts of 10% each are allowed. Ultimately the price of the article is
 (1) increased by 10%
 (2) increased by 5.3%
 (3) decreased by 3%
 (4) decreased by 5.3%
(SSC CGL Prelim Exam. 11.05.2003 (Second Sitting))
10. A single discount equivalent to the successive discounts of 10%, 20% and 25% is
 (1) 55% (2) 45%
 (3) 46% (4) 60%
(SSC Section Officer (Commercial Audit) Exam. 16.11.2003) & (SSC DEO Exam. 02.08.2009) & (SSC CISF ASI Exam. 29.08.2010)
11. List price of an article at a show room is ₹ 2,000 and it is being sold at successive discounts of 20% and 10%. Its net selling price will be :
 (1) ₹ 1900 (2) ₹ 1700
 (3) ₹ 1440 (4) ₹ 1400
(SSC CGL Prelim Exam. 08.02.2004 (Second Sitting))
12. The difference between a single discount of 30% on ₹ 550 and two successive discounts of 20% and 10% on the same amount is
 (1) Nil (2) ₹ 11
 (3) ₹ 22 (4) ₹ 44
(SSC CPO S.I. Exam. 05.09.2004)
13. The marked price of a watch is ₹ 800. A shopkeeper gives two successive discounts and sells the watch at ₹ 612. If the first discount is 10%, the second discount is :
 (1) 10% (2) 12%
 (3) 15% (4) 20%
(SSC CPO S.I. Exam. 26.05.2005) & (SSC CGL Prelim Exam. 21.04.2013)
14. A person paid ₹ 17,000 for a motor-car after a single discount of 15%. If he is given successive discounts of 5% and 10% then how much he would pay ?
 (1) ₹ 17,000 (2) ₹ 17,010
 (3) ₹ 17,100 (4) ₹ 18,900
(SSC Section Officer (Commercial Audit) Exam. 25.09.2005)
15. The list price of a clock is ₹ 160. A customer buys it for ₹ 122.40 after two successive discounts. If first discount is 10%, the second is
 (1) 10% (2) 12%
 (3) 15% (4) 18%
(SSC CGL Exam. 24.02.2002 (Middle Zone) & (SSC CGL Prelim Exam. 13.11.2005 (IIInd Sitting) & (SSC GL Tier-I Exam. 19.05.2013))
16. A shopkeeper gives two successive discounts on an article marked ₹ 450. The first discount given is 10 per cent. If the customer pays ₹ 344.25 for the article, the second discount given is
 (1) 14 per cent (2) 10 per cent
 (3) 12 per cent (4) 15 per cent
(SSC Section Officer (Commercial Audit) Exam. 26.11.2006 (Second Sitting))
17. A company offers three types of successive discounts : (i) 25% and 15%, (ii) 30% and 10%, (iii) 35% and 5%. Which offer is the best for a customer?
 (1) First offer
 (2) Second offer
 (3) Third offer
 (4) Any one; all are equally good
(SSC CGL Prelim Exam. 04.02.2007 (First Sitting))
18. An article is listed at ₹ 900 and two successive discounts of 8% and 8% are given on it. How much would the seller gain or lose, if he gives a single discount of 16%, instead of two discounts ?
 (1) Gain of ₹ 4.76
 (2) Loss of ₹ 5.76
 (3) Gain of ₹ 5.76
 (4) Loss of ₹ 4.76
(SSC CGL Prelim Exam. 04.02.2007 (First Sitting))

DISCOUNT

- 19.** A dealer buys a car listed at ₹ 200000 at successive discounts of 5% and 10%. If he sells the car for 179550, then his profit is
 (1) 10% (2) 9%
 (3) 5% (4) 4%
 (SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting)
- 20.** An article listed at ₹ 800 is sold at successive discounts of 25% and 15%. The buyer desires to sell it off at a profit of 20% after allowing a 10% discount. What would be his list price ?
 (1) ₹ 620 (2) ₹ 600
 (3) ₹ 640 (4) ₹ 680
 (SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting)
- 21.** The difference between a discount of 40% on ₹ 500 and two successive discounts of 36% and 4% on the same amount is
 (1) zero (2) ₹ 1.93
 (3) ₹ 2.00 (4) ₹ 7.20
 (SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (IInd Sitting) & (SSC CGL Tier-I Exam. 19.06.2011 (IInd Sitting)
- 22.** An article is listed at ₹ 920. A customer pays ₹ 742.90 for it after getting two successive discounts. If the rate of first discount is 15%, the rate of 2nd discount is
 (1) 3% (2) 5%
 (3) 8% (4) 12%
 (SSC CGL Prelim Exam. 27.07.2008
 (First Sitting)
- 23.** The marked price of watch was ₹ 820. A man bought the watch for ₹ 570.72 after getting two successive discounts, of which the first was 20%. The second discount was
 (1) 18% (2) 15%
 (3) 13% (4) 11%
 (SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting)
- 24.** A bicycle, marked at ₹ 2,000, is sold with two successive discount of 20% and 10%. An additional discount of 5% is offered for cash payment. The selling price of the bicycle at cash payment is
 (1) ₹ 1,368 (2) ₹ 1,468
 (3) ₹ 1,568 (4) ₹ 1,668
 (SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting)
- 25.** The difference between a discount of 40% on ₹ 500 and two successive discounts of 30% and 10% on the same amount is
 (1) ₹ 15 (2) 0
 (3) ₹ 20 (4) ₹ 10
 (SSC CPO S.I. Exam. 09.11.2008)
- 26.** The marked price of a T.V. is ₹ 16,000. After two successive discounts it is sold for ₹ 11,400. If the first discount is 5%, then the rate of second discount is
 (1) 15% (2) 20%
 (3) 30% (4) 25%
 (SSC CPO S.I. Exam. 06.09.2009)
- 27.** The difference between a discount of 30% on ₹ 2,000 and two successive discounts of 25% and 5% on the same amount is
 (1) ₹ 30 (2) ₹ 35
 (3) ₹ 25 (4) ₹ 40
 (SSC CPO S.I. Exam. 06.09.2009)
- 28.** If on a marked price, the difference of selling prices with a discount of 30% and two successive discounts of 20% and 10% is ₹ 72, then the marked price (in rupees) is
 (1) 3,600 (2) 3,000
 (3) 2,500 (4) 2,400
 (SSC CGL Tier-I Exam. 16.05.2010
 (Second Sitting)
- 29.** Successive discounts of 10%, 20% and 30% is equivalent to a single discount of
 (1) 60% (2) 49.6%
 (3) 40.5% (4) 36%
 (SSC CPO SI Exam. 03.09.2006) &
 (SSC CGL Tier-I Exam. 16.05.2010 (IInd Sitting) & (SSC CAPF's SI & CISF ASI Exam. 23.06.2013)
- 30.** Two successive discounts of 20% and 20% is equivalent to a single discount of
 (1) 42% (2) 40%
 (3) 36% (4) 34%
 (SSC (South Zone) Investigator Exam 12.09.2010)
- 31.** Two successive discounts of 10% and 5% are equivalent to a single discount of
 (1) 14% (2) 14.25%
 (3) 14.50% (4) 15%
 (SSC CPO S.I. Exam 12.12.2010 (Paper-I))
- 32.** What single discount is equivalent to two successive discounts of 20% and 15%?
 (1) 35% (2) 32%
 (3) 34% (4) 30%
 (SSC CGL Tier-1 Exam 26.06.2011
 (First Sitting) & (SSC CHSL DEO Exam. 02.11.2014) (1st Sitting)
- 33.** The single discount equal to three consecutive discounts of 10%, 12% and 5% is
 (1) 26.27% (2) 24.76%
 (3) 9% (4) 11%
 (SSC CGL Tier-1 Exam 26.06.2011
 (Second Sitting))
- 34.** Two successive discounts of 5%, 10% are given for an article costing ₹ 850. Present cost of the article is (in ₹) :
 (1) 725 (2) 726.75
 (3) 700 (4) 650
 FCI Assistant Grade-III Exam. 05.02.2012 (Paper-I)
 East Zone (IInd Sitting)
- 35.** A shopkeeper purchased a chair marked at ₹ 800, at two successive discounts of 10% and 15% respectively. He spent ₹ 28 on transportation and sold the chair for ₹ 800. His gain percent is :
 (1) 40% (2) 30%
 (3) 25% (4) 14%
 (SSC CGL Prelim Exam. 27.02.2000
 (Second Sitting))
- 36.** The discount series 10%, 20%, 40% is equivalent to a single discount of
 (1) 50% (2) 56.8%
 (3) 60% (4) 62.28%
 (SSC CPO S.I. Exam. 07.09.2003)
 & (SSC DEO Exam. 31.08.2008) &
 (SSC CHSL DEO & LDC Exam. 04.12.2011) & (SSC GL Tier-II Exam. 16.09.2012)
- 37.** The single discount, which is equivalent to successive discounts of 25% and 10 %, is :
 (1) 35 % (2) 34.5%
 (3) 33 % (4) 32.5 %
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (1st Sitting))
- 38.** The single discount equivalent to two successive discounts of 20% and 5% is
 (1) 24% (2) 25%
 (3) 22% (4) 23%
 (SSC SAS Exam. 26.06.2010) &
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (IInd Sitting))

DISCOUNT

- 39.** The difference between a discount of 35% and two successive discounts of 20% on a certain bill was ₹ 22. The amount of the bill was
 (1) ₹ 200 (2) ₹ 220
 (3) ₹ 1,100 (4) ₹ 2,200

(SSC Multi-Tasking (Non-Technical) Staff Exam. 20.02.2011)

- 40.** The marked price of a watch is ₹ 1,600. The shopkeeper gives successive discounts of 10% and $x\%$ to the customer. If the customer pays ₹ 1,224 for the watch, the value of x is
 (1) 5% (2) 10%
 (3) 15% (4) 20%

(SSC Multi-Tasking (Non-Technical) Staff Exam. 27.02.2011) & (SSC GL Tier-I Exam. 21.04.2013 (Ist Sitting))

- 41.** A single discount equivalent to discount series 20%, 20% and 10% is
 (1) 50% (2) 48.4%
 (3) 42.4% (4) 40.4%

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting (North Zone)))

- 42.** The price of a certain television set is discounted by 10% and the reduced price is then discounted by 10%. This series of successive discounts is equivalent to a single discount of
 (1) 20% (2) 19%
 (3) 18% (4) 11%

(SSC CHSL DEO & LDC Exam. 04.12.2011 & 28.10.2012 (Ist Sitting (East Zone)))

- 43.** The single discount which is equivalent to successive discounts of 20%, 15% and 10% is
 (1) 32.7% (2) 34.2%
 (3) 36.9% (4) 38.8%

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting (East Zone)))

- 44.** The single discount equivalent to the discount series of 20%, 10% and 5% is :
 (1) 11.66% (2) 31.6%
 (3) 35.66% (4) 32%

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting (Delhi Zone)) & (SSC CHSL DEO & LDC Exam. 10.11.2013))

- 45.** Successive discounts of $p\%$ and $q\%$ on the catalogue price of an article is equivalent to a single discount of :

$$(1) \left(x - y - \frac{xy}{100} \right)\%$$

$$(2) \left(p - q - \frac{pq}{100} \right)\%$$

$$(3) \left(p + q - \frac{pq}{100} \right)\%$$

$$(4) \left(p + q + \frac{pq}{100} \right)\%$$

(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist & IIInd Sitting (East Zone)) & (SSC Graduate Level Tier-II Exam. 29.09.2013))

- 46.** A chair listed at ₹350 is available at successive discounts of 25% and 10%. The selling price of the chair is

$$(1) ₹ 236.25 (2) ₹ 230.25
 (3) ₹ 240.25 (4) ₹ 242.25$$

(SSC CHSL DEO & LDC Exam. 21.10.2012 (Ist Sitting))

- 47.** A trader allows two successive discounts of 30% and 15% on selling an article. If he gets ₹ 476 for that article, find its marked price.

$$(1) ₹ 700 (2) ₹ 400
 (3) ₹ 900 (4) ₹ 800$$

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IIInd Sitting)) &
 (SSC MTS Exam. 10.03.2013))

- 48.** In selling an article, the single discount equivalent to two successive discounts of 25% and 5% is

$$(1) 28.75\% (2) 30\%
 (3) 27.5\% (4) 26\%$$

(SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting))

- 49.** The marked price of a table is ₹800. A retailer bought it after two successive discounts of 10% and 15%. He spent ₹13 on transportation and sold it for ₹875. His profit was

$$(1) 40\% (2) 37\%
 (3) 28\% (4) 25\%$$

(SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting))

- 50.** Alex sold his goods after announcing two successive discounts of 30% each. The effective discount altogether is

$$(1) 52\% (2) 49\%
 (3) 50\% (4) 51\%$$

(SSC CHSL DEO & LDC Exam. 04.11.2012 (IIInd Sitting))

- 51.** A sofa-set listed at ₹ 800 is sold to a retailer at successive discounts of 25% and 15% by the wholesaler. Then the cost price of the sofa-set for retailer is
 (1) ₹ 500 (2) ₹ 510
 (3) ₹ 550 (4) ₹ 560

(SSC Delhi Police S.I. (SI) Exam. 19.08.2012))

- 52.** The printed price of a book is ₹ 320. A retailer pays ₹ 244.80 for it. He gets successive discounts of 10% and an another rate. His second rate is :

$$(1) 15\% (2) 16\%
 (3) 14\% (4) 12\%$$

(SSC CHSL DEO & LDC Exam. 04.11.2012 (Ist Sitting))

- 53.** A single discount of 50% on an article costing ₹10000 is better than two successive discounts of 40% and 10% by

$$(1) ₹ 400 (2) ₹ 1000
 (3) ₹ 500 (4) ₹ 600$$

(SSC Multi-Tasking Staff Exam. 10.03.2013, Ist Sitting : Patna))

- 54.** Two successive discounts of 70% and 30% are equivalent to a single discount of

$$(1) 75\% (2) 79\%
 (3) 100\% (4) 89\%$$

(SSC Multi-Tasking Staff Exam. 17.03.2013, IIInd Sitting))

- 55.** A purchased a dining table, marked at ₹ 3,000 at a successive discounts of 10% and 15% respectively. He gave ₹ 105 as transportation charge and sold it at ₹ 3,200. What is his gain percentage?

$$(1) 22\frac{1}{3}\% (2) 25\%$$

$$(3) 33\frac{1}{3}\% (4) 37\frac{17}{24}\%$$

(SSC Multi-Tasking Staff Exam. 24.03.2013, Ist Sitting))

- 56.** A dealer buys a table listed at ₹ 1,500 and gets successive discounts of 20% and 10%. He spends ₹ 20 on transportation and sells at a profit of 20%. Find the Selling Price of the table (in rupees).

$$(1) 1320 (2) 1080
 (3) 1200 (4) 1230$$

(SSC FCI Assistant Grade-III Main Exam. 07.04.2013))

DISCOUNT

- 57.** A shopkeeper marks the price of an article at ₹ 80. What will be the selling price, if he allows two successive discounts of 5% each?

(1) ₹ 72.2 (2) ₹ 72
 (3) ₹ 85 (4) ₹ 7.2

(SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting)

- 58.** Which of the following successive discounts is better to a customer?

(a) 20%, 15%, 10% or
 (b) 25%, 12%, 8%?
 (1) (a) is better
 (2) (b) is better
 (3) (a) or (b) (both are same)
 (4) None of these

(SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting)

- 59.** The cost price of an article is ₹ 100. A discount series of 5%, 10% successively reduces the price of a article by

(1) ₹ 4.5 (2) ₹ 14.5
 (3) ₹ 24.5
 (4) None of the above

(SSC Constable (GD) Exam. 12.05.2013 Ist Sitting)

- 60.** An article is marked at ₹ 5,000. The shopkeeper allows successive discounts of $x\%$, $y\%$, $z\%$ on it. The net selling price is

(1) ₹ $\frac{(100-x)(100+y)(100+z)}{200}$
 (2) ₹ $\frac{(100+x)(100+y)(100-z)}{200}$
 (3) ₹ $\frac{(100-x)(100-y)(100-z)}{200}$
 (4) ₹ $\frac{(100-x)(100+y)(100-z)}{200}$

(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

- 61.** A shopkeeper purchased a chair marked at ₹ 600 at two successive discounts of 15% and 20% respectively. He spent ₹ 28 on transportation and sold the chair for ₹ 545. His gain percent was

(1) 25% (2) 30%
 (3) 35% (4) 20%

(SSC Graduate Level Tier-II Exam. 29.09.2013)

- 62.** The marked price of a piano was ₹ 15,000. At the time of sale, there were successive discounts of 20%, 10% and 10% respectively on it. The sale price was
 (1) ₹ 9,720 (2) ₹ 9,750
 (3) ₹ 9,760 (4) ₹ 9,780

(SSC Graduate Level Tier-II Exam. 29.09.2013)

- 63.** Successive discounts of 30% and 20% is equivalent to a single discount of

(1) 50% (2) 40%
 (3) 44% (4) 10%

(SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting)

- 64.** Two successive discounts of 10% and 5%, in this order, are given on a bill of ₹ 110. Find the net amount of money payable to clear the bill.
 (answer to the nearest rupee)

(1) ₹ 94 (2) ₹ 95
 (3) ₹ 96 (4) ₹ 97

(SSC CGL Tier-I Re-Exam. (2013)

- 65.** A plate was sold for ₹ 6,300 after giving two successive discounts

of $12\frac{1}{2}\%$ and 10%. Find the marked price.

(1) ₹ 7,300 (2) ₹ 7,700
 (3) ₹ 8,000 (4) ₹ 7,250

(SSC CGL Tier-I Exam. 19.10.2014 (Ist Sitting))

- 66.** A double bed is marked at ₹ 7,500. The shopkeeper allows successive discounts of 8%, 5% and 2% on it. What is the net selling price?

(1) ₹ 6,500 (2) ₹ 6,000
 (3) ₹ 6,423.90 (4) ₹ 6,500.50

(SSC CHSL DEO & LDC Exam. 16.11.2014)

- 67.** Two successive discounts of 10% and 20%, equals a single discount of

(1) 30% (2) 25%
 (3) 28% (4) 29%

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014 , Ist Sitting TF No. 333 LO 2)

- 68.** The difference between a discount of 30% and two successive discounts of 20% and 10% on the marked price of an article is Rs. 144. The marked price of the article is

(1) Rs. 7,200 (2) Rs. 7,400
 (3) Rs. 7,500 (4) Rs. 7,000

(SSC CGL Tier-II Exam. 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

- 69.** 10% discount and then 20% discount in succession is equivalent to total discount of

(1) 28% (2) 15%
 (3) 30% (4) 24%
 (SSC CGL Tier-I Exam, 09.08.2015 (Ist Sitting) TF No. 1443088)

- 70.** Allowing 20% and 15% successive discounts, the selling price of an article becomes Rs. 3,060; then the marked price will be

(1) Rs. 4,000 (2) Rs. 4,400
 (3) Rs. 5,000 (4) Rs. 4,500
 (SSC CGL Tier-I Exam, 09.08.2015 (Ist Sitting) TF No. 1443088)

- 71.** Find a simple discount equivalent to a discount series of 10%, 20% and 25%.

(1) 55% (2) 45%
 (3) 52% (4) 46%
 (SSC CGL Tier-I Exam, 16.08.2015 (Ist Sitting) TF No. 3196279)

- 72.** The difference between successive discounts of 40% followed by 30% and 45% followed by 20% on the marked price of an article is Rs. 12. The marked price of the article is :

(1) ₹ 800 (2) ₹ 400
 (3) ₹ 200 (4) ₹ 600
 (SSC CGL Tier-I Exam, 16.08.2015 (Ist Sitting) TF No. 3196279)

- 73.** A dealer buys a table listed at Rs. 1,500 and gets successive discounts of 20% and 10%. He spends Rs. 20 on transportation and sells it at a profit of 20%. Find the selling price of the table.

(1) Rs. 1,420 (2) Rs. 1,300
 (3) Rs. 1,320 (4) Rs. 1,380
 (SSC CGL Tier-I Re-Exam, 30.08.2015)

- 74.** If the cost of an article is Rs. P after two successive reductions of 20% and 25%, the original price of the article was

(1) Rs. $\frac{5P}{3}$ (2) Rs. $\frac{4P}{5}$
 (3) Rs. $\frac{3P}{5}$ (4) Rs. $\frac{5P}{4}$
 (SSC Constable (GD) Exam, 04.10.2015, Ist Sitting)

- 75.** A scooter is sold at three successive discounts of 10%, 5% and 2%. If the marked price of the scooter is Rs. 18,000, find its net selling price.

(1) Rs. 15028.20
 (2) Rs. 15082.00
 (3) Rs. 15082.20
 (4) Rs. 15080.00
 (SSC Constable (GD) Exam, 04.10.2015, IInd Sitting)

DISCOUNT

76. A single discount equivalent to the series of discounts 20%, 10% and 5% is equal to :

- (1) 32% (2) 30%
 (3) 30.7% (4) 31.6%
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (Ist Sitting) TF No. 6636838)

77. Successive discounts of 20% and 10% are equivalent to a single discount of :

- (1) 15% (2) 28%
 (3) 25% (4) 30%
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IIInd Sitting) TF No. 7203752)

78. The list price of an electric fan is Rs. 300. If two successive discounts of 15% and 10% are allowed, its selling price would be
 (1) Rs. 227.50 (2) Rs. 225
 (3) Rs. 230 (4) Rs. 229.50
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015 (Ist Sitting) TF No. 9692918)

79. The successive discount of 15%, 20% and 25% on an article is equivalent to the single discount of

- (1) 60% (2) 47%
 (3) 49% (4) 40%
 (SSC CGL Tier-I (CBE) Exam. 10.09.2016)

80. If the successive discounts be 20%, 10% and 5%, then the single equivalent rate of discount is :
 (1) 31.6% (2) 31.5%
 (3) 31% (4) 31.4%
 (SSC CHSL (10+2) Tier-I (CBE) Exam. 08.09.2016) (Ist Sitting)

81. An item is offered for sale at Rs. 250, less by successive discounts of 20% and 15%. The sale price of the item is :

- (1) 82% of Rs. 250
 (2) 77% of Rs. 250
 (3) 68% of Rs. 250
 (4) 65% of Rs. 250
 (SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 20.03.2016) (IIInd Sitting)

82. A discount series of 15%, 20% and 25% is equal to the single discount of

- (1) 48% (2) 49%
 (3) 50% (4) 51%
 (SSC CGL Tier-I (CBE) Exam. 27.08.2016) (Ist Sitting)

83. The list price of an article is Rs. 900. It is available at two successive discounts of 20% and 10%. The selling price of the article is :

- (1) Rs. 640 (2) Rs. 648
 (3) Rs. 540 (4) Rs. 548
 (SSC CGL Tier-I (CBE) Exam. 28.08.2016) (IIInd Sitting)

84. A merchant changed his trade discount from 25% to 15%. This would increase selling price by

- (1) $\frac{1}{3}$ % (2) $\frac{1}{6}$ %
 (3) $13\frac{1}{3}\%$ (4) $16\frac{1}{3}\%$
 (SSC CGL Tier-I (CBE) Exam. 01.09.2016) (Ist Sitting)

85. Successive discounts of 20% and 10% are given on an item marked at Rs. 700. Find the selling price.
 (1) Rs. 504 (2) Rs. 196
 (3) Rs. 582 (4) Rs. 601
 (SSC CGL Tier-I (CBE) Exam. 02.09.2016) (IIInd Sitting)

86. Two successive discounts of 10% and 20% are equivalent to a single discount of

- (1) 28% (2) 27%
 (3) 25% (4) 30%
 (SSC CGL Tier-I (CBE) Exam. 06.09.2016) (Ist Sitting)

87. The price of a chair is Rs. 500. It has been sold at two successive discounts of 10% each. What is its selling price?
 (1) Rs. 400 (2) Rs. 405
 (3) Rs. 415 (4) Rs. 425
 (SSC CGL Tier-I (CBE) Exam. 01.09.2016) (IIIrd Sitting)

88. Two consecutive discounts $x\%$ and $y\%$ are equivalent to the single discount of

- (1) $\left(x - y + \frac{xy}{100} \right)\%$
 (2) $\left(x + y + \frac{xy}{100} \right)\%$
 (3) $\left(x - y - \frac{xy}{100} \right)\%$
 (4) $\left(x + y - \frac{xy}{100} \right)\%$
 (SSC CGL Tier-I (CBE) Exam. 03.09.2016) (IIInd Sitting)

89. Two shopkeepers announce the same price of Rs. 700 for a sewing machine. The first offers successive discounts of 30% and 6% while the second offers successive discounts of 20% and 16%. The difference in their selling price is :
 (1) Rs. 9.8 (2) Rs. 16.8
 (3) Rs. 22.4 (4) Rs. 36.4
 (SSC CGL Tier-I (CBE) Exam. 04.09.2016) (IIInd Sitting)

90. When a discount of 20% is given on a sweater, the profit is 28%. If the discount is 14%, then the profit is
 (1) 42 per cent
 (2) 46.4 per cent

- (3) 33.2 per cent
 (4) 37.6 per cent
 (SSC CHSL (10+2) Tier-I (CBE) Exam. 16.01.2017) (IIInd Sitting)

91. A shopkeeper offers 15% discount on all plastic toys. He offers a further discount of 4% on the reduced price to those customers who pay cash. What does a customer have to pay (in Rs.) in cash for a toy of Rs. 200?

- (1) 133.7 (2) 129.8
 (3) 163.2 (4) 153.3
 (SSC CGL Tier-II (CBE) Exam. 12.01.2017)

92. A dinner set is quoted for Rs. 1500. A customer pays Rs. 1173 for it. If the customer got a series of two discounts and the rate of first discount is 15% then the rate of second discount was

- (1) 15% (2) 7%
 (3) 9% (4) 8%
 (SSC CGL Tier-II (CBE) Exam. 12.01.2017)

93. A trader marks the sale price 25% more on cost price and gives a 10% discount at the time of selling. The gain per cent is

- (1) $12\frac{1}{2}\%$ (2) $12\frac{1}{3}\%$
 (3) $11\frac{1}{2}\%$ (4) 12%
 (SSC Multi-Tasking Staff Exam. 30.04.2017)

TYPE-II

1. A tradesman marks his goods 10% above his cost price. If he allows his customers 10% discount on the marked price, how much profit or loss does he make, if any?

- (1) 1% gain
 (2) 1% loss
 (3) 5% gain
 (4) No gain, no loss
 (SSC CGL Prelim Exam. 04.07.1999 (First Sitting))

2. A trademan marks his goods at 20% above the cost price. He allows his customers a discount of 8% on marked price. Find out his profit per cent.

- (1) 12% (2) 10.4%
 (3) 8.6% (4) 8.2%
 (SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))

3. A shopkeeper marks his goods 20% above cost price, but allows 30% discount for cash. His net loss is :

- (1) 8% (2) 10%
 (3) 16% (4) 20%
 (SSC CGL Prelim Exam. 27.02.2000 (First Sitting))

DISCOUNT

- 4.** A shopkeeper marks his sarees at 20% above the cost price and allows the purchaser a discount of 10% for cash buying. What profit percent does he make?
 (1) 18% (2) 12%
 (3) 10% (4) 8%
 (SSC CGL Prelim Exam. 27.02.2000) (IInd Sitting) & (SSC Section Officer Exam. 25.09.2005) & (SSC CPO SI. Exam. 03.09.2006) & (SSC CPO SI. Exam. 16.12.2007) & (SSC SAS Exam. 26.06.2010)
- 5.** A trader marked the selling price of an article at 10% above the cost price. At the time of selling, he allows certain discount and suffers a loss of 1%. He allowed the discount of :
 (1) 11% (2) 10%
 (3) 9% (4) 10.5%
 (SSC CGL Prelim Exam. 11.05.2003 (Ist Sitting) & (SSC CGL Prelim Exam. 04.02.2007) (IInd Sitting))
- 6.** A shopkeeper marks his goods at 30% above the cost price but allows a discount of 10% at the time of sale. His gain is
 (1) 21% (2) 20%
 (3) 18% (4) 17%
 (SSC CGL Exam. 11.05.2003 (IInd Sitting) & (SSC CGL Prelim Exam. 27.07.2008 (Ist Sitting))
- 7.** A shopkeeper marks the price of an item keeping 20% profit. If he offers a discount of $12\frac{1}{2}\%$ on the marked price, his gain percent will be
 (1) 4.5% (2) 5%
 (3) 7.5% (4) 8%
 (SSC (South Zone) Investigator Exam 12.09.2010)
- 8.** A seller marks his goods 30% above their cost price but allows 15% discount for cash payment. His percentage of profit when sold in cash is
 (1) 10.5% (2) 15%
 (3) 9% (4) 8.5%
 (SSC (South Zone) Investigator Exam. 12.09.2010)
- 9.** A tradesman marks his goods at 25% above its cost price and allows purchasers a discount of $12\frac{1}{2}\%$ for cash payment. The profit, he thus makes, is
 (1) $9\frac{3}{8}\%$ (2) $9\frac{1}{2}\%$
- (3) $8\frac{1}{2}\%$ (4) $8\frac{3}{8}\%$
 (SSC Data Entry Operator Exam. 31.08.2008) & (SSC CGL Prelim Exam. 27.07.2008 (IInd Sitting))
- 10.** What price should a shopkeeper mark on an article costing him ₹ 200 to gain 35% after allowing a discount of 25% ?
 (1) ₹ 270 (2) ₹ 300
 (3) ₹ 330 (4) ₹ 360
 (SSC CHSL DEO & LDC Exam. 27.11.2010)
- 11.** A trader marks his goods 40% above cost price and allows a discount of 25 %. The profit he makes, is :
 (1) 15% (2) 10 %
 (3) 5 % (4) 2 %
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (Ist Sitting))
- 12.** A dealer marks his goods 20% above their cost price. He then allows some discount on marked price so that he makes a profit of 10%. The rate of discount is
 (1) $10\frac{1}{3}\%$ (2) $9\frac{1}{3}\%$
 (3) $8\frac{2}{3}\%$ (4) $8\frac{1}{3}\%$
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (IInd Sitting))
- 13.** In a shop, shirts are usually sold at 40% above the cost price. During a sale, the shopkeeper offers a discount of 10% off the usual selling price. If he manages to sell 72 shirts for ₹ 13,608, then his cost price per shirt, (in ₹) is
 (1) 210 (2) 150
 (3) 149 (4) 125
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (North Zone)))
- 14.** If a shopkeeper marks the price of goods 50% more than their cost price and allows a discount of 40%, what is his gain or loss percent ?
 (1) Gain of 10% (2) Loss of 10%
 (3) Gain of 20% (4) Loss of 20%
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (IInd Sitting (North Zone)))
- 15.** A dealer marks his goods at 40% above the cost price and allows a discount of 20% on the marked price. The dealer has a
 (1) loss of 20% (2) gain of 25%
 (3) loss of 12% (4) gain of 12%
 (SSC CPO S.I. Exam. 26.05.2005) & (SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (Delhi Zone)))
- 16.** A trader marks his goods 45% above the cost price and gives a discount of 20% on the marked price. The gain % on goods he makes is :
 (1) 15% (2) 14%
 (3) 29% (4) 16%
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (Delhi Zone)))
- 17.** Maha Bazaar offers 20% discount on bags which have been marked 50% above the cost price. Amarnath pays ₹ 840 for a bag. Then the cost price of the bag is
 (1) ₹ 672 (2) ₹ 700
 (3) ₹ 790 (4) ₹ 810
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (East Zone)))
- 18.** A merchant marks his goods 40% above the cost price and sells them at a discount of 15%. Find his gain %.
 (1) 25% (2) 22%
 (3) 19% (4) 20%
 (SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (Ist Sitting))
- 19.** A trader marks his goods at 20% above the cost price. If he allows a discount of 5% for cash down payment, his profit percent for such a transaction is
 (1) 15% (2) 12%
 (3) 14% (4) 17%
 (SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (IInd Sitting) & (SSC CGL Prelim Exam. 11.05.2003 (Ist Sitting)))
- 20.** The marked price is 20% higher than cost price. A discount of 20% is given on the marked price. By this type of sale, there is
 (1) 4% loss
 (2) 2% loss
 (3) no loss no gain
 (4) 4% gain
 (SSC DEO Exam. 02.08.2009) & (SSC (10+2) Level Data Entry Operator & LDC Exam. 21.10.2012 (Ist Sitting))
- 21.** A dealer marks his goods at 25% above the cost price and allows a discount of 10% for cash payment. His profit % is :
 (1) 17.5% (2) 15%
 (3) 12.5% (4) 20%
 (SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting))

DISCOUNT

22. To gain 8% after allowing a discount of 10%, by what per cent cost price should be hiked in the list price ?

- (1) 9% (2) 11%

- (3) 18% (4) 20%

(SSC CPO SI. Exam. 26.05.2005)
& (SSC (Commercial Audit) Exam. 26.11.2006 (IInd Sitting) & (SSCCSHL DEO & LDC Exam.

28.10.2012 (Ist Sitting)

23. How much percent above the cost price should a shopkeeper mark his goods so as to earn a profit of 32% after allowing a discount of 12% on the marked price ?

- (1) 50% (2) 40%

- (3) 60% (4) 45%

(SSC Graduate Level Tier-I Exam.

11.11.2012 (Ist Sitting)

24. A merchant allows a discount of 10% on marked price for the cash payment. To make a profit of 17%, he must mark his goods higher than their cost price by

- (1) 33% (2) 40%

- (3) 27% (4) 30%

(SSC Multi-Tasking Staff

Exam. 17.03.2013, IInd Sitting)

25. A merchant purchases a wrist watch for ₹ 450 and fixes its list price in such a way that after allowing a discount of 10%, he earns a profit of 20%. Find the list price of the watch.

- (1) ₹ 480 (2) ₹ 450

- (3) ₹ 600 (4) ₹ 540

(SSC CGL Tier-I Exam. 26.06.2011)

& (SSC Multi-Tasking Staff Exam.

17.03.2013 (Kolkata Region)

26. Anand marks up the price of an article by 50% and then allows a discount of 20% and sells it to Balaji. Balaji sells it for ₹ 20 more than what he purchased for, this S.P is 30% more than the original C.P of the article. Then Balaji's profit % is

- (1) 7.5% (2) 6.66%

- (3) 8.33% (4) 9%

(SSC CGL Tier-I

Re-Exam. (2013) 27.04.2014)

27. Jasmine allows 4% discount on the marked price of her goods and still earns a profit of 20%. What is the cost price of a shirt if its marked price is ₹ 850?

- (1) ₹ 650 (2) ₹ 720

- (3) ₹ 700 (4) ₹ 680

(SSC CGL Tier-I

Re-Exam. (2013) 27.04.2014)

28. The marked price of an article is ₹ 500. A shopkeeper gives a discount of 5% and still makes a profit of 25%. The cost price of the article is.

- (1) ₹ 384 (2) ₹ 380

- (3) ₹ 300 (4) ₹ 376

(SSC CGL Tier-I

Re-Exam. (2013) 27.04.2014)

29. If the discount is equal to one fifth of the marked price and the loss is half the discount, then the percentage of loss is

- (1) $10\frac{1}{9}\%$ (2) $11\frac{1}{9}\%$

- (3) $12\frac{1}{9}\%$ (4) $13\frac{1}{9}\%$

(SSC CGL Tier-I Re-Exam. (2013)

20.07.2014 (Ist Sitting)

30. A shopkeeper allows a discount of 10% on the marked price of an item but charges a sales tax of 8% on the discounted price. If the customer pays ₹ 3,402 as the price including the sales tax, then the marked price is

- (1) ₹ 3,400 (2) ₹ 3,500

- (3) ₹ 3,600 (4) ₹ 3,800

(SSC CGL Tier-I Exam. 19.10.2014)

31. The cost price of a table is ₹ 3,200. A merchant wants to make 25 % profit by selling it. At the time of sale he declares a discount of 20 % on the marked price. The marked price (in ₹) is

- (1) 5,000 (2) 6,000

- (3) 4,000 (4) 4,500

(SSC CGL Tier-I Exam. 26.10.2014)

32. A shopkeeper allows a discount of 12.5 % on the marked price of a certain article and makes a profit of 20 %. If the article costs the shopkeeper ₹ 210, then the marked price of the article will be

- (1) ₹ 387 (2) ₹ 350

- (3) ₹ 386 (4) ₹ 288

(SSC CGL Tier-I Exam. 26.10.2014)

33. A businessman allows a discount of 10 % on the marked price. What percent above the cost price must he mark his goods to make a profit of 17 per cent ?

- (1) 27 % (2) 18 %

- (3) 30 % (4) 20 %

(SSC CGL Tier-I Exam. 26.10.2014)

34. Charging 30% above its production cost a radio maker puts a label of ₹ 286 on a radio as its price. But at the time of selling it, he allows 10% discount on the labelled price. What will his gain be ?

- (1) ₹ 257.40 (2) ₹ 254.40

- (3) ₹ 198 (4) ₹ 37.40

(SSC CGL Tier-I Exam. 26.10.2014)

35. A cycle dealer offers a discount of 10% and still makes a profit of 26%. What does he pay for a cycle whose marked price is ₹ 840 ?

- (1) ₹ 600 (2) ₹ 650

- (3) ₹ 700 (4) ₹ 750

(SSC CGL Tier-II Exam. 21.09.2014)

36. The marked price of an article is 10% higher than the cost price. A discount of 10% is given on the marked price. In this kind of sale, the seller bears.

- (1) no loss, no gain

- (2) a loss of 5%

- (3) a gain of 1%

- (4) a loss of 1%

(SSC CHSL DEO Exam. 02.11.2014)

(Ist Sitting)

37. A shopkeeper allows 10% discount on goods when he sells without credit. Cost price of his goods is 80% of his selling price. If he sells his goods by cash, then his profit is

- (1) 50% (2) 70%

- (3) 25% (4) 40%

(SSC CGL Tier-I Exam. 19.10.2014)

TF No. 022 MH 3)

38. A dealer of scientific instruments allows 20% discount on the marked price of the instruments and still makes a profit of 25%. If his gain over the sale of an instrument is ₹ 150, find the marked price of the instrument.

- (1) ₹ 938.50 (2) ₹ 940

- (3) ₹ 938 (4) ₹ 937.50

(SSC CGL Tier-I Exam. 19.10.2014)

TF No. 022 MH 3)

39. Ram bought a T.V. with 20% discount on the labelled price. Had he bought it with 30% discount he would have saved ₹ 800. The value of the T.V. set that he bought is

DISCOUNT

- (1) ₹ 5,000 (2) ₹ 8,000
 (3) ₹ 9,000 (4) ₹ 10,000
 (SSC CGL Tier-I Exam. 19.10.2014
 TF No. 022 MH 3)
- 40.** If a person marks a product 25% above the cost price but allows 10% discount, then the percentage of profit is
 (1) 35 % (2) 15 %
 (3) 17.5 % (4) 12.5 %
 (SSC CGL Tier-II Exam. 12.04.2015
 TF No. 567 TL 9)
- 41.** A tradesman marks his goods at 20% above the cost price. He allows his customers a discount of 8% on the marked price. Then his profit per cent is
 (1) 10.4% (2) 11%
 (3) 12.2% (4) 9.7%
 (SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region)
 TF No. 789 TH 7)
- 42.** A shopkeeper gains 17% after allowing a discount of 10% on the marked price of an article. Find his profit percent if the articles are sold at marked price allowing no discount.
 (1) 30% (2) 23%
 (3) 27% (4) 37%
 (SSC CGL Tier-I Exam, 09.08.2015
 (IInd Sitting) TF No. 4239378)
- 43.** A shopkeeper allows a discount of 10% on the marked price of a camera. Marked price of the camera, which costs him ₹ 600, to make a profit of 20% should be
 (1) ₹ 700 (2) ₹ 750
 (3) ₹ 650 (4) ₹ 800
 (SSC CGL Tier-I Exam, 16.08.2015
 (IInd Sitting) TF No. 2176783)
- 44.** If the discount of 10% is given on the marked price of a radio, the gain is 20%. If the discount is increased to 20%, the gain per cent is :
 (1) 5% (2) $6\frac{1}{4}\%$
 (3) $6\frac{2}{3}\%$ (4) $7\frac{5}{8}\%$
 (SSC CGL Tier-I Exam, 16.08.2015
 (IInd Sitting) TF No. 2176783)
- 45.** 20% profit is made when a discount of 20% is given on the marked price. When the discount is 30% profit will be
 (1) 4% (2) 5%
 (3) 6% (4) 7.5%
 (SSC CGL Tier-I Re-Exam, 30.08.2015)
- 46.** A seller increases the cost price of an article by 30% and fixed the marked price as Rs. 286. But during sale he gave 10% discount to the purchaser. Percentage of profit will be
 (1) 17 (2) 15
 (3) 10 (4) 20
 (SSC Constable (GD) Exam, 04.10.2015, 1st Sitting)
- 47.** If a shopkeeper wants to give 20% discount on a toy, he has to sell it for Rs. 300. If he sells it at Rs. 405, then his gain percent is
 (1) 5% (2) 4%
 (3) 8% (4) 6%
 (SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)
- 48.** A shopkeeper marks his goods 20% higher than the cost price and allows a discount of 5%. The percentage of his profit is:
 (1) 15% (2) 20%
 (3) 10% (4) 14%
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015
 (IInd Sitting) TF No. 3441135)
- 49.** After allowing 15% discount, the selling price of a radio becomes Rs. 255. The marked price is
 (1) Rs. 500 (2) Rs. 600
 (3) Rs. 400 (4) Rs. 300
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015
 (Ist Sitting) TF No. 9692918)
- 50.** The marked price of an article is 30% higher than the cost price. If a trader sells the articles allowing 10% discount to customer, then the gain percent will be
 (1) 17 (2) 20
 (3) 19 (4) 15
 (SSC CGL Tier-II Online Exam.01.12.2016)
- 51.** A merchant marked the price of an article by increasing its production cost by 40%. Now he allows 20% discount and gets a profit of Rs. 48 after selling it. The production cost is
 (1) Rs. 320 (2) Rs. 360
 (3) Rs. 400 (4) Rs. 440
 (SSC CGL Tier-II Online Exam.01.12.2016)
- 52.** A watch dealer pays 10% customs duty on a watch which costs Rs. 500 abroad. He desires to make a profit of 20% after giving a discount of 25% to the buyer. The marked price should be
 (1) Rs. 950 (2) Rs. 800
 (3) Rs. 880 (4) Rs. 660
 (SSC CGL Tier-II Online Exam.01.12.2016)
- 53.** The marked price of a laptop is Rs. 12000. In a clearance sale it is sold at a discount of 15%, incurring a loss of 4%. What is the cost price of the laptop?
 (1) Rs. 10200 (2) Rs. 10625
 (3) Rs. 11200 (4) Rs. 10275
 (SSC CPO SI, ASI Online Exam.05.06.2016) (IInd Sitting)
- 54.** A merchant marks an article 20% above cost price. He then sells it at a discount of 20%. The sale gives him :
 (1) No loss or gain
 (2) 4% loss
 (3) 2% gain
 (4) 4% gain
 (SSC CPO Exam. 06.06.2016)
 (Ist Sitting)
- 55.** A merchant marks an article 20% above cost price. He then sells it at a discount of 20%. The sale gives him:
 (1) No loss or gain
 (2) 4% loss
 (3) 2% gain
 (4) 4% gain
 (SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016)
 (Ist Sitting)
- 56.** A trader purchased a gift box for Rs. 150. What should be the marked price on the gift box so that after allowing a discount of 10%, he makes a profit of 10%?
 (1) Rs. 180 (2) Rs. 183.3
 (3) Rs. 186.6 (4) Rs. 190
 (SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016)
 (Ist Sitting)
- 57.** An article was sold at Rs. 950 allowing 5% discount on the marked price. The marked price of the article is
 (1) Rs. 960 (2) Rs. 1000
 (3) Rs. 955 (4) Rs. 945
 (SSC CGL Tier-I (CBE) Exam. 28.08.2016) (IInd Sitting)

DISCOUNT

- 58.** If a shop-keeper marks his goods for a certain amount so as to get 25% gain after allowing a discount of 20%, then his marked price is
 (1) Rs. 156.25 (2) Rs. 146.25
 (3) Rs. 166.25 (4) Rs. 150.25
 (SSC CGL Tier-I (CBE)

Exam. 31.08.2016 (Ist Sitting)

- 59.** A shopkeeper marks his goods 40% above the cost price and allows a discount of 25% on it. His gain per cent is
 (1) 5% (2) 10%
 (3) 15% (4) 20%

(SSC CGL Tier-I (CBE)

Exam. 04.09.2016 (Ist Sitting)

- 60.** A dealer marks his goods 20% above cost price. He then allows some discount on it and makes a profit of 8%. The rate of discount is
 (1) 4% (2) 6%
 (3) 10% (4) 12%

(SSC CGL Tier-I (CBE)

Exam. 07.09.2016 (Ist Sitting)

- 61.** A man bought a watch for 10% discount. If he had bought for 20% discount he would have got the watch for Rs. 125 less. The marked price of the watch is
 (1) Rs. 2500 (2) Rs. 1250
 (3) Rs. 3750 (4) Rs. 1000

(SSC CGL Tier-I (CBE)

Exam. 30.08.2016 (IIInd Sitting)

- 62.** A merchant marked cloth at Rs. 50 per metre. He offers two successive discounts of 15% and 20%. The net price per metre of cloth is :
 (1) Rs. 32.50 (2) Rs. 42.50
 (3) Rs. 34.00 (4) Rs. 40.00

(SSC CGL Tier-I (CBE)

Exam. 31.08.2016 (IIInd Sitting)

- 63.** A dealer marks his goods 20% above their cost prices. Then, he allows such a discount on the marked price so that he makes a profit of 8%. The rate of discount is :
 (1) 12% (2) 10%
 (3) 6% (4) 4%

(SSC CGL Tier-I (CBE)

Exam. 31.08.2016 (IIInd Sitting)

- 64.** A trader marks his goods in such a way that after allowing a discount of 10% he gains 15%. If an article costs him Rs. 720, his marked price is
 (1) Rs. 920 (2) Rs. 900
 (3) Rs. 820 (4) Rs. 950

(SSC CGL Tier-I (CBE)

Exam. 01.09.2016 (IIInd Sitting)

- 65.** While selling a shirt, a shopkeeper gives a discount of 7%. If he gives discount of 9% he earns Rs. 15 less on profit. The marked price of the shirt is
 (1) Rs. 712 (2) Rs. 787
 (3) Rs. 750 (4) Rs. 697

(SSC CGL Tier-I (CBE)

Exam. 02.09.2016 (IIInd Sitting)

- 66.** A book seller allowed 10% discount on printed price. He gets 30% commission from publisher. His profit in per cent will be
 (1) 20 (2) $28\frac{4}{7}$
 (3) 25 (4) $26\frac{3}{7}$

(SSC CGL Tier-II (CBE)

Exam. 30.11.2016

- 67.** A dealer is selling an article at a discount of 5% on the marked price. If the marked price is 12% above the cost price and the article was sold for Rs. 532, then the cost price is (in Rs.)
 (1) 500 (2) 525
 (3) 505 (4) 520

(SSC CGL Tier-II (CBE)

Exam. 30.11.2016

- 68.** A shopkeeper increases the price of an object by 40% and then sells it at 25% discount on the marked price. If the selling price of such an object be Rs. 2100, its cost price for the shopkeeper was
 (1) Rs. 3000 (2) Rs. 1500
 (3) Rs. 1750 (4) Rs. 2000

(SSC CGL Tier-II (CBE)

Exam. 30.11.2016

- 69.** A retailer gets a discount of 40% on the printed price of an article. The retailer sells it at the printed price. His gain per cent is
 (1) 40% (2) 55%
 (3) $66\frac{2}{3}\%$ (4) 75%

(SSC CGL Tier-I (CBE)

Exam. 11.09.2016 (Ist Sitting)

- 70.** The list price (marked price) of an article is Rs. 900 and is available at two successive discounts of 20% and 10%. The selling price of the article, in rupees, is :
 (1) 640 (2) 648
 (3) 720 (4) 738

(SSC CGL Tier-I (CBE)

Exam. 31.08.2016 (IIIrd Sitting)

- 71.** A shopkeeper marks his goods 50% more than the cost price and allows a discount of 25%. His profit or loss percentage is :
 (1) 37.5% (2) 25.5%
 (3) 12.5% (4) 25%

(SSC CGL Tier-I (CBE)

Exam. 07.09.2016 (IIIrd Sitting)

TYPE-III

- 1.** A dealer offers a discount of 10% on the marked price of an article and still makes a profit of 20%. If its marked price is ₹ 800, then the cost price of the article is :

- (1) ₹ 900 (2) ₹ 800
 (3) ₹ 700 (4) ₹ 600

(SSC CGL Prelim Exam.
24.02.2002 (First Sitting)

- 2.** The marked price of an article is ₹ 200. A discount of $12\frac{1}{2}\%$ is allowed on the marked price and a profit of 25% is made. The cost price of the article is :
 (1) ₹ 200 (2) ₹ 175
 (3) ₹ 120 (4) ₹ 140

(SSC CGL Prelim Exam. 24.02.2002
(Second Sitting)

- 3.** A shopkeeper earns a profit of 10% after allowing a discount of 20% on the marked price. The cost price of the article whose marked price is ₹ 880, is
 (1) ₹ 704 (2) ₹ 640
 (3) ₹ 774 (4) ₹ 680

(SSC CGL Prelim Exam. 24.02.2002
(Middle Zone)

- 4.** By giving a discount of 10% on the marked price of ₹ 1100 of a cycle, a dealer gains 10%. The cost price of the cycle is :
 (1) ₹ 1100 (2) ₹ 900
 (3) ₹ 1089 (4) ₹ 891

(SSC CGL Prelim Exam. 11.05.2003
(First Sitting)

- 5.** The marked price of an electric iron is ₹ 690. The shopkeeper allows a discount of 10% and gains 8%. If no discount is allowed, his gain per cent would be
 (1) 20% (2) 24%
 (3) 25% (4) 28%

(SSC CPO S.I. Exam. 07.09.2003)

DISCOUNT

- 6.** A trader wishes to gain 20% after allowing 10% discount on the marked price to his customers. At what per cent higher than the cost price must he marks his goods ?
- (1) 30% (2) $33\frac{1}{3}\%$
 (3) $34\frac{2}{3}\%$ (4) 35%
- (SSC CGL Prelim Exam. 08.02.2004 (IInd Sitting) & (SSC CGL Prelim Exam. 04.02.2007) & (SSC MTS Exam. 17.03.2013 (Ist Sitting)
- 7.** A shopkeeper buys an article for ₹ 180. He wishes to gain 20% after allowing a discount of 10% on the marked price to the customer. The marked price will be
- (1) ₹ 210 (2) ₹ 240
 (3) ₹ 270 (4) ₹ 300
- (SSC Section Officer (Commercial Audit) Exam. 25.09.2005)
- 8.** The cost of manufacturing an article was ₹ 900. The trader wants to gain 25% after giving a discount of 10%. The marked price must be :
- (1) ₹ 1500 (2) ₹ 1250
 (3) ₹ 1200 (4) ₹ 1000
- (SSC CGL Prelim Exam. 13.11.2005 (Ist Sitting) & (SSC GL Tier-I Exam. 21.04.2013)
- 9.** A shopkeeper offers 10% discount on the marked price of his articles and still makes a profit of 20%. What is the actual cost of the article marked ₹ 500 for him ?
- (1) ₹ 440 (2) ₹ 425
 (3) ₹ 400 (4) ₹ 375
- (SSC CGL Prelim Exam. 13.11.2005 (IInd Sitting) & (FCI Assistant Grade-III Exam. 25.02.2012 (Paper-I) (North Zone))
- 10.** The marked price of an electric iron is ₹ 300. The shopkeeper allows a discount of 12% and still gains 10%. If no discount is allowed, his gain per cent would have been :
- (1) 20% (2) 25%
 (3) 27% (4) 30%
- (SSC CPO S.I. Exam. 16.12.2007)
- 11.** A manufacturer marked an article at ₹ 50 and sold it allowing 20% discount. If his profit was 25%, then the cost price of the article was
- (1) ₹ 40 (2) ₹ 35
 (3) ₹ 32 (4) ₹ 30
- (SSC CGL Tier-I Exam. 16.05.2010 (First Sitting))
- 12.** A shopkeeper earns a profit of 12% on selling a book at 10% discount on the printed price. The ratio of the cost price and the printed price of the book is
- (1) 45 : 56 (2) 45 : 51
 (3) 47 : 56 (4) 47 : 51
- (SSC CGL Tier-I Exam. 16.05.2010 (First Sitting))
- 13.** The marked price of a radio is ₹ 480. The shopkeeper allows a discount of 10% and gains 8%. If no discount is allowed, his gain percent would be
- (1) 18% (2) 18.5%
 (3) 20.5% (4) 20%
- (SSC CGL Tier-I Exam. 19.06.2011 (First Sitting))
- 14.** Marked price of an article is ₹ 275. Shopkeeper allows a discount of 5% and he gets a profit of 4.5%. The actual cost of the article is
- (1) ₹ 250 (2) ₹ 225
 (3) ₹ 215 (4) ₹ 210
- (SSC CGL Tier-I Exam. 19.06.2011 (Second Sitting))
- 15.** The price that Akbar should mark on a pair of shoes which costs him ₹ 1,200 to gain 12% after allowing a discount of 16% (in rupees) is
- (1) 1,344 (2) 1,433
 (3) 1,600 (4) 1,500
- FCI Assistant Grade-III Exam. 25.02.2012 (Paper-I) North Zone (Ist Sitting)
- 16.** In order to maintain the price line a trader allows a discount of 10% on the marked price of an article. However, he still makes a profit of 17% on the cost price. Had he sold the article at the marked price, he would have earned a profit per cent of
- (1) 30% (2) 32%
 (3) 33% (4) 35%
- (SSC CPO S.I. Exam. 05.09.2004)
- 17.** A trader sells his goods at a discount of 20%. He still makes a profit of 25%. If he sells the goods at the marked price only, his profit will be
- (1) 56.25% (2) 25.56%
 (3) 50.25% (4) 54.25%
- (SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (Second Sitting))
- 18.** After allowing a discount of 16%, there was still a gain of 5%. Then the percentage of marked price over the cost price is
- (1) 15% (2) 18%
 (3) 21% (4) 25%
- (SSC CPO (SI, ASI & Intelligence Officer) Exam. 28.08.2011 Paper-I)
- 19.** The marked price of a radio is ₹ 4,800. The shopkeeper allows a discount of 10% and gains 8%. If no discount is allowed, his gain per cent will be
- (1) 18% (2) 20%
 (3) 22% (4) 25%
- (SSC Data Entry Operator Exam. 02.08.2009)
- 20.** An article of cost price ₹ 8,000 is marked at ₹ 11,200. After allowing a discount of $x\%$ a profit of 12% is made. The value of x is
- (1) 21% (2) 20%
 (3) 22% (4) 23%
- (SSC CHSL DEO & LDC Exam. 04.12.2011 (IInd Sitting (East Zone))
- 21.** A trader allows a trade discount of 20% and a cash discount of $6\frac{1}{4}\%$ on the marked price of the goods and gets a net gain of 20% of the cost. By how much above the cost should the goods be marked for the sale ?
- (1) 40% (2) 50%
 (3) 60% (4) 70%
- (SSC Graduate Level Tier-II Exam. 16.09.2012)
- 22.** A tradesman marks his goods at such a price that after allowing a discount of 15%, he makes a profit of 20%. What is the marked price of an article whose cost price is ₹ 170 ?
- (1) ₹ 240 (2) ₹ 260
 (3) ₹ 220 (4) ₹ 200
- (SSC CHSL DEO & LDC Exam. 21.10.2012 (Ist Sitting))
- 23.** How much percent above the cost price should a shopkeeper mark his goods so as to earn a profit of 32% after allowing a discount of 12% on the marked price ?
- (1) 50% (2) 40%
 (3) 60% (4) 45%
- (SSC CGL Tier-I Exam. 11.11.2012, Ist Sitting)

DISCOUNT

- 24.** After allowing a discount of 12% on the marked price, a shopkeeper still gains 21%. The marked price is above the cost price by
 (1) 25% (2) 30%
 (3) 37.5% (4) 42.5%
 (SSC Multi-Tasking Staff Exam. 10.03.2013, 1st Sitting : Patna)
- 25.** A profit of 10% is made after giving a discount of 5% on a T. V. If the marked price of the TV is ₹ 2640.00, the cost price of the TV was :
 (1) ₹ 2280 (2) ₹ 2296
 (3) ₹ 2380 (4) ₹ 2396
 (SSC Multi-Tasking Staff Exam. 10.03.2013)
- 26.** A grinder was marked at ₹ 3,600. After given a discount of 10% the dealer made a profit of 8%. Calculate the cost price.
 (1) ₹ 3,000 (2) ₹ 3,312
 (3) ₹ 3,240 (4) ₹ 2,960
 (SSC Constable (GD) Exam. 12.05.2013 1st Sitting)
- 27.** How much percent more than the cost price should a shopkeeper mark his goods so that after allowing a discount of 25% on the marked price, he gains 20% ?
 (1) 70% (2) 50%
 (3) 60% (4) 55%
 (SSC Graduate Level Tier-I Exam. 19.05.2013 1st Sitting)
- 28.** A shopkeeper marks his goods 20% above his cost price and gives 15% discount on the marked price. His gain percent is
 (1) 5% (2) 4%
 (3) 2% (4) 1%
 (SSC Graduate Level Tier-I Exam. 19.05.2013)
- 29.** A shopkeeper marks his goods 40% above the cost price. He allows a discount of 5% for cash payment to his customers. He receives ₹1064 after paying the discount. His profit is
 (1) ₹ 264 (2) ₹ 164
 (3) ₹ 200 (4) ₹ 800
 (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)
- 30.** The true discount on ₹ 1, 860 due after a certain time at 5% is ₹ 60. Find the time after which it is due.
 (1) 10 months (2) 8 months
 (3) 9 months (4) 1 year
 (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (1st Sitting))
- 31.** A shopkeeper sold an item for ₹1,510 after giving a discount of $24\frac{1}{2}\%$ and thereby incurred a loss of 10%. Had he sold the item without discount, his net profit would have been
 (1) ₹ 641 (2) ₹ $322\frac{1}{9}$
 (3) ₹ $422\frac{2}{9}$ (4) ₹ $322\frac{2}{9}$
 (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IInd Sitting))
- 32.** A trader buys goods at 20% discount on marked price. If he wants to make a profit of 25% after allowing a discount of 20%, by what percent should his marked price be greater than the original marked price ?
 (1) 15% (2) 65%
 (3) 25% (4) 20%
 (SSC CGL Tier-I Exam. 19.10.2014)
- 33.** A shopkeeper sold an item at 10% loss after giving a discount equal to half the marked price. Then the cost price is
 (1) $\frac{1}{9}$ th of marked price
 (2) $\frac{4}{9}$ th of marked price
 (3) $\frac{5}{9}$ th of marked price
 (4) $\frac{7}{9}$ th of marked price
 (SSC CGL Tier-II Exam. 21.09.2014)
- 34.** A person purchased a saree for ₹ 7710 after availing a net discount of ₹ 1285. The percentage of discount, the saree shop offers, is
 (1) $14\frac{1}{7}\%$ (2) $14\frac{2}{7}\%$
 (3) $14\frac{3}{7}\%$ (4) $14\frac{4}{7}\%$
 (SSC CGL Tier-II Exam. 21.09.2014)
- 35.** After allowing 10% discount, a dealer wishes to sell a machine for ₹ 2,700. At what price must the machine be marked ?
 (1) ₹ 270 (2) ₹ 3,000
 (3) ₹ 2,970 (4) ₹ 2,430
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)
- 36.** The marked price of a saree is Rs. 200. After allowing a discount of 20% on the marked price, the shopkeeper makes a profit of Rs. 16. Find the gain percent.
 (1) $11\frac{1}{9}\%$ (2) $9\frac{1}{11}\%$
 (3) 11% (4) 8%
 (SSC CHSL DEO & LDC Exam. 9.11.2014)
- 37.** A merchant offers 8% discount on all his goods and still makes a profit of 15%. If an item is marked ₹ 250, then its cost price is
 (1) ₹ 180 (2) ₹ 200
 (3) ₹ 230 (4) ₹ 187
 (SSC CHSL DEO Exam. 16.11.2014)
 (Ist Sitting)
- 38.** A store offers a variety of discounts that range between 20% and 25% inclusive. If a book is discounted to a price of ₹ 270, then its greatest possible original price was
 (1) ₹ 345.5 (2) ₹ 324
 (3) ₹ 360 (4) ₹ 337.5
 (SSC CGL Tier-II Exam. 12.04.2015)
 TF No. 567 TL 9)
- 39.** A man allows a discount of 10% on a book whose marked price is Rs. 40. What is the cost price so that the profit is 20%?
 (1) Rs. 35 (2) Rs. 40
 (3) Rs. 30 (4) Rs. 45
 (SSC Constable (GD) Exam. 04.10.2015, IInd Sitting)
- 40.** A shopkeeper earns a profit of 12% on selling a book at 10% discount on the printed price. The ratio of the cost price to the printed price of the book is
 (1) 45 : 56 (2) 50 : 61
 (3) 99 : 125 (4) None of these
 (SSC CGL Tier-I (CBE) Exam. 02.09.2016) (Ist Sitting)

DISCOUNT

- 41.** A man sold an article for Rs. 450, after allowing a discount of

$16\frac{2}{3}\%$ on the printed price. What is that printed price?

- (1) Rs. 525 (2) Rs. 530
 (3) Rs. 535 (4) Rs. 540

(SSC CGL Tier-I (CBE)
 Exam. 28.08.2016 (IST Sitting)

- 42.** A dealer purchased an article for Rs. 900 and fixes the list price in such a way that he gains 20% after allowing 10% discount, then the list price is :

- (1) Rs. 1180 (2) Rs. 1080
 (3) Rs. 1200 (4) Rs. 1100

(SSC CGL Tier-I (CBE)
 Exam. 10.09.2016 (IIIRD Sitting)

TYPE-IV

- 1.** A discount of $2\frac{1}{2}\%$ is given to the customer on the marked price of an article. A man bought the article for ₹ 39. The marked price of the article is :

- (1) ₹ 42 (2) ₹ 36.5
 (3) ₹ 40 (4) ₹ 41.5

(SSC CGL Prelim Exam. 04.07.1999
 (IInd Sitting)

- 2.** The printed price of an article is ₹ 900 but the retailer gets a discount of 40%. He sells the article for ₹ 900. Retailer's gain per cent is :

- (1) 40% (2) 60%

- (3) $66\frac{2}{3}\%$ (3) $68\frac{1}{3}\%$

(SSC CGL Prelim Exam. 04.07.1999
 (IInd Sitting)

- 3.** A retailer buys 40 pens at the marked price of 36 pens from a wholesaler. If he sells these pens giving a discount of 1%, what is the profit percent?

- (1) 9% (2) 10%
 (3) $10\frac{1}{9}\%$ (4) 11%

(SSC CGL Prelim Exam.
 27.02.2000 (First Sitting)

- 4.** A fan is listed at ₹ 1,500 and a discount of 20% is offered on the list price. What additional discount must be offered to the customer now to bring the net price to ₹ 1,104?

- (1) 8% (2) 10%
 (3) 15% (4) 12%

(SSC CGL Prelim Exam.
 24.02.2002 (Second Sitting)

- 5.** A retailer gets a discount of 40% on the printing price of an article. The retailer sells it at the printing price. His gain per cent is

- (1) 40% (2) 55%

- (3) $66\frac{2}{3}\%$ (4) 75%

(SSC CPO S.I. Exam. 12.01.2003)

- 6.** A man buys an article for ₹ 80 and marks it at ₹ 120. He then allows a discount of 40%. What is the loss or gain per cent?

- (1) 12% gain (2) 12% loss
 (3) 10% gain (4) 10% loss

(SSC CPO S.I. Exam. 12.01.2003)

- 7.** A discount of 14% on the marked price of an article is allowed and then the article is sold for ₹ 387. The marked price of the article is

- (1) ₹ 450 (2) ₹ 427

- (3) ₹ 500 (4) ₹ 440

(SSC CGL Prelim Exam. 11.05.2003
 (First Sitting))

- 8.** A shopkeeper sells his goods at 10% discount on the marked price. What price should he mark on an article that costs him ₹ 900 to gain 10%?

- (1) ₹ 1275 (2) ₹ 1250
 (3) ₹ 1175 (4) ₹ 1100

(SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting))

- 9.** A tradesman gives 4% discount on the marked price and gives 1 article free for buying every 15 articles and thus gains 35%. The marked price is increased above the cost price by

- (1) 40% (2) 39%
 (3) 50% (4) 20%

(SSC CGL Prelim Exam.
 11.05.2003 (Second Sitting))

- 10.** A sells a scooter priced ₹ 36,000. He gives a discount of 8% on the first ₹ 20,000 and 5% on the next ₹ 10,000. How much discount can he offer on the remaining ₹ 6,000 if he is to get as much as when 7% discount is allowed on the total?

- (1) 5% (2) 6%
 (3) 7% (4) 8%

(SSC CPO S.I. Exam. 07.09.2003)

- 11.** A trader marked the price of his commodity so as to include a profit of 25%. He allowed discount of 16% on the marked price. His actual profit was :

- (1) 5% (2) 9%
 (3) 16% (4) 25%

(SSC CGL Prelim Exam. 08.02.2004
 (First Sitting))

- 12.** If a discount of 20% on the marked price of a shirt saves a man Rs. 150, how much did he pay for the shirt?

- (1) ₹ 600 (2) ₹ 650
 (3) ₹ 500 (4) ₹ 620

(SSC Section Officer (Commercial Audit) Exam. 30.09.2007
 (Second Sitting))

- 13.** Ravi buys an article with a discount of 25% on its marked price. He makes a profit of 10% by selling it at ₹ 660. The marked price of the article was:

- (1) ₹ 600 (2) ₹ 700
 (3) ₹ 800 (4) ₹ 685

(SSC CPO S.I. Exam. 16.12.2007)

- 14.** An article is sold at a discount of 20% and an additional discount of 30% is allowed on cash payment. If Vidya purchased the article by paying ₹ 2240 in cash, the marked price of the article was

- (1) ₹ 4000 (2) ₹ 4368
 (3) ₹ 4400 (4) ₹ 4480

(SSC CGL Prelim Exam. 27.07.2008
 (First Sitting))

- 15.** While selling a cooler, a shopkeeper gives a discount of 10% on the marked price. If he gives a discount of 12% he earns ₹ 35 less as profit. The marked price of the cooler is

- (1) ₹ 1,650 (2) ₹ 1,625
 (3) ₹ 1,725 (4) ₹ 1,750

(SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting))

- 16.** A trader gains 15% after selling an item at 10% discount on the printed price. The ratio of the cost price and printed price of the item is

- (1) 18 : 23 (2) 17 : 18
 (3) 17 : 23 (4) 18 : 25

(SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting))

- 17.** While selling a shirt, a shopkeeper gives a discount of 7%. If he had given a discount of 9% he would have got ₹ 15 less as profit. The marked price of the shirt is

- (1) ₹ 750 (2) ₹ 720
 (3) ₹ 712.50 (4) ₹ 600

(SSC SAS Exam 26.06.2010
 (Paper-1))

DISCOUNT

- 18.** The selling price of an article is ₹ 1,920 and the discount given is 4%. The marked price of the article is

(1) ₹ 2,400 (2) ₹ 2,000

(3) ₹ 1,600 (4) ₹ 1,200

(SSC CISF ASI)

Exam. 29.08.2010 (Paper-1)

- 19.** An article, which is marked ₹ 650, is sold for ₹ 572. The discount given is

(1) 12% (2) 13%

(3) 21% (4) 26%

(SSC CPO S.I. Exam 12.12.2010 (Paper-I))

- 20.** The cost price of an article is 64% of the marked price. The gain percentage after allowing a discount of 12% on the marked price is

(1) 37.5% (2) 48%

(3) 50.5% (4) 52%

(SSC CGL Tier-1 Exam 19.06.2011

(Second Sitting))

- 21.** While selling a watch, a shopkeeper gives a discount of 5%. If he gives a discount of 6%, he earns ₹ 15 less as profit. What is the marked price of the watch?

(1) ₹ 1,250 (2) ₹ 1,400

(3) ₹ 1,500 (4) ₹ 750

(SSC CGL Tier-1 Exam 26.06.2011

(First Sitting))

- 22.** A shop-keeper sells a badminton racket whose marked price is ₹ 30, at a discount of 15% and gives a shuttle cock costing ₹ 1.50 free with each racket. Even then he makes a profit of 20%. His cost price, per racket, is

(1) ₹ 21.00 (2) ₹ 21.25

(3) ₹ 20.00 (4) ₹ 19.75

(SSC CGL Prelim Exam. 08.02.2004

(Second Sitting))

- 23.** A shopkeeper allows 4% discount on his marked price. If the cost price of an article is ₹ 100 and he has to make a profit of 20%, then his marked price must be

(1) ₹ 96 (2) ₹ 120

(3) ₹ 125 (4) ₹ 130

(SSC Data Entry Operator

Exam. 31.08.2008))

- 24.** A shopkeeper sells his goods at 15% discount. The marked price of an article whose selling price is ₹ 629 is :

(1) ₹ 740 (2) ₹ 704

(3) ₹ 700 (4) ₹ 614

(SSC CHSL DEO & LDC

Exam. 27.11.2010))

- 25.** When a shopkeeper gives 10% discount on the list price of a toy, his gain is 20%. If he had given a discount of 20%, his percentage of gain would have been

(1) $6\frac{2}{3}\%$ (2) $8\frac{1}{3}\%$

(3) 10% (4) 15%

(SSC CPO S.I. Exam. 09.11.2008) &
(SSC CHSL DEO & LDC Exam.
28.11.2010 (IInd Sitting))

- 26.** A discount of 24% on the marked price of an article is allowed and then the article is sold for ₹ 342. The marked price of the article is

(1) ₹ 500 (2) ₹ 490

(3) ₹ 450 (4) ₹ 430

(SSC CISF Constable (GD)
Exam. 05.06.2011))

- 27.** Rahim bought a T.V. with 20% discount on list price. Had he bought it with 25% discount he would have saved ₹ 500. At what price did he buy the T.V?

(1) ₹ 16,000 (2) ₹ 12,000

(3) ₹ 10,000 (4) ₹ 8,000

(SSC CHSL DEO & LDC Exam.
04.12.2011 (Ist Sitting (East Zone)) &
(SSC GL Tier-II Exam. 16.09.2012))

- 28.** A shopkeeper gains ₹ 56 on a toy after allowing 23% discount on its marked price. If his gain is 10%, then the marked price of the toy is :

(1) ₹ 810 (2) ₹ 800

(3) ₹ 560 (4) ₹ 740

(SSC CHSL DEO & LDC Exam.
11.12.2011 (IInd Sitting (East Zone)))

- 29.** A discount of 16% on the marked price of a book enables a man to buy a pen that costs ₹ 80. How much did he pay for the book ?

(1) ₹ 500 (2) ₹ 480

(3) ₹ 420 (4) ₹ 340

(SSC Constable (GD) & Rifleman
(GD) Exam. 22.04.2012 (Ist Sitting))

- 30.** After allowing a discount of 12% on the marked price of an article, it is sold for ₹ 880. Find its marked price.

(1) ₹ 1,100 (2) ₹ 2,000

(3) ₹ 1,000 (4) ₹ 2,100

(SSC Constable (GD) & Rifleman
(GD) Exam. 22.04.2012 (IInd Sitting))

- 31.** A fan in a shop is offered at a discount of 10%. It is sold during clearance sale at 6% discount over the already discounted price at ₹ 846. The original marked price of the fan is

(1) ₹ 900 (2) ₹ 946

(3) ₹ 850 (4) ₹ 896

(SSC Graduate Level Tier-II
Exam. 16.09.2012))

- 32.** Mr. A bought a refrigerator with

$16\frac{2}{3}\%$ discount on the labelled

price. Had he bought it with 25% discount, he would have saved ₹ 600. At what price did he buy the refrigerator ?

(1) ₹ 6000 (2) ₹ 7200

(3) ₹ 7500 (4) ₹ 5000

(SSC CHSL DEO & LDC Exam.
21.10.2012 (IInd Sitting))

- 33.** The selling price of a video game is ₹ 740 and the discount allowed is 7.5%. The marked price of the video game is :

(1) ₹ 600 (2) ₹ 700

(3) ₹ 800 (4) ₹ 900

(SSC CHSL DEO & LDC Exam.
28.10.2012 (Ist Sitting))

- 34.** A fan is listed at ₹ 150 and a discount of 20% is given. Then the selling price is

(1) ₹ 180 (2) ₹ 150

(3) ₹ 120 (4) ₹ 110

(SSC CHSL DEO & LDC Exam.
28.10.2012 (Ist Sitting))

- 35.** If a dining table with marked price ₹ 6,000 was sold to a customer for ₹ 5,500, then the rate of discount allowed on the table is

(1) 10% (2) 8%

(3) $8\frac{1}{3}\%$ (4) 9%

(SSC Graduate Level Tier-I Exam.
11.11.2012 (Ist Sitting))

- 36.** A washing machine is sold at a discount of 30%. If a man buys it for ₹ 6,580, its list price is

(1) ₹ 7,500 (2) ₹ 8,600

(3) ₹ 9,400 (4) ₹ 6,990

(SSC Delhi Police S.I. (SI)
Exam. 19.08.2012))

- 37.** An article marked ₹ 800 is offered at ₹ 736 in the off season. The rate of discount offered is :

(1) 10% (2) 7%

(3) 7.5% (4) 8%

(SSC CHSL DEO & LDC Exam.
21.10.2012, IInd Sitting))

- 38.** Discount on a pair of shoes marked at ₹ 475 and discounted at 15%, is

(1) ₹ 70 (2) ₹ 71.25

(3) ₹ 72 (4) ₹ 72.25

(SSC Constable (GD)
Exam. 12.05.2013 Ist Sitting))

DISCOUNT

39. A machine is marked at ₹ 6,800 and available at a discount of 10%. The shopkeeper gives another off season discount to the buyer and sells the machine for ₹ 5,202. Find the off season discount.

- (1) 10% (2) 12%
 (3) 15% (4) 18%

(SSC Multi-Tasking Staff Exam. 24.03.2013, 1st Sitting)

40. A shopkeeper buys an article for ₹ 360. He wants to make a gain of 25% on it after a discount of 10%. The marked price is

- (1) ₹ 486 (2) ₹ 450
 (3) ₹ 500 (4) ₹ 460

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IIInd Sitting))

41. A table with marked price ₹ 1200 was sold to a customer for ₹ 1100. Find the rate of discount allowed on the table.

- (1) 9% (2) $8\frac{1}{3}\%$
 (3) $9\frac{1}{3}\%$ (4) 10%

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

42. The marked price of an item is twice the cost price. For a gain of 15%, the discount should be

- (1) 7.5% (2) 20.5%
 (3) 32.5% (4) 42.5%

(SSC CHSL DEO & LDC Exam. 9.11.2014)

43. The listed price of a shirt is ₹ 270 and it is available at ₹ 237.60. The rate of discount is

- (1) 10% (2) 12%
 (3) 15% (4) 20%

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting)

TF No. 545 QP 6)

44. A dealer allows his customers a discount of 25% and still gains 25%. If an article costs Rs. 1,440 to the dealer; then its marked price is

- (1) Rs. 1,850 (2) Rs. 2,400
 (3) Rs. 2,560 (4) Rs. 1,500

(SSC CGL Tier-II Exam. 2014 12.04.2015 (Kolkata Region))

TF No. 789 TH 7)

45. The marked price of a watch was Rs. 720. A man bought the same for Rs. 550.80 after getting two successive discounts, the first being 10%. The second discount rate is

- (1) 18% (2) 12%
 (3) 14% (4) 15%
 (SSC CGL Tier-I Exam, 09.08.2015 (Ist Sitting) TF No. 1443088)

46. An item was sold for Rs. 3600 at 25% discount. Its marked price was

- (1) Rs. 2880 (2) Rs. 2700
 (3) Rs. 4800 (4) Rs. 4500

(SSC Constable (GD) Exam, 04.10.2015, 1st Sitting)

47. A shopkeeper, in order to clear his old stock of T.V. sets, offers 12% discount on the T.V. sets. If the marked price of a T.V. set is Rs. 6500, the selling price of the T.V. set is:

- (1) Rs. 5700 (2) Rs. 5720
 (3) Rs. 5400 (4) Rs. 6000

(SSC Constable (GD)

Exam, 04.10.2015, 1st Sitting)

48. A seller gains 20% profit even after allowing 10% discount. If the amount of profit on a TV set is Rs. 750, then the marked price of the TV set is

- (1) Rs. 5200 (2) Rs. 5000
 (3) Rs. 4800 (4) Rs. 5500

(SSC Constable (GD))

Exam, 04.10.2015, IIInd Sitting)

49. Articles are marked at a price which gives a profit of 25%. After allowing a certain discount the

profit reduces to $12\frac{1}{2}\%$. The discount percent is

- (1) 11.1% (2) 10%

- (3) $12\frac{1}{2}\%$ (4) 12%

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

50. After allowing a discount of 20%, a radio is available for Rs. 1200. Its marked price was:

- (1) Rs. 1550 (2) Rs. 1500
 (3) Rs. 1800 (4) Rs. 1400

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IIInd Sitting) TF No. 7203752)

51. The marked price of a CD is Rs. 250. It is sold for Rs. 225. The rate of discount is :

- (1) 2.5% (2) 10%

- (3) 25% (4) $11\frac{1}{9}\%$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)

52. A shopkeeper fixes the price of an article at 30% higher than its actual cost. If he sells it at 10% discount on marked price then, the profit is :

- (1) 18% (2) 19%
 (3) 17% (4) 20%
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)

53. A shop keeper allows 20% discount on the marked price on his articles. Find the marked price of an article for which he charges Rs. 740.

- (1) Rs. 725 (2) Rs. 875
 (3) Rs. 925 (4) Rs. 1040
 (SSC CGL Tier-I (CBE) Exam. 03.09.2016 (IIIrd Sitting))

54. The price of a shirt after 15% discount, is Rs. 119. What was the marked price of the shirt before discount?

- (1) Rs. 129 (2) Rs. 140
 (3) Rs. 150 (4) Rs. 160
 (SSC CGL Tier-I (CBE) Exam. 29.08.2016 (IST Sitting))

55. A shopkeeper offers 2.5% discount on cash purchases. What cash amount would Rohit pay for a cycle, the marked price of which is Rs. 3600 ?

- (1) Rs. 3490 (2) Rs. 3500
 (3) Rs. 3510 (4) Rs. 3520
 (SSC CGL Tier-I (CBE) Exam. 04.09.2016 (IIIrd Sitting))

56. The marked price of an article is 10% higher than the cost price. A discount of 10% is given at the marked price. In this kind of sale, the seller

- (1) bears no gain , no loss
 (2) gains
 (3) loses 1%
 (4) None of these
 (SSC CGL Tier-I (CBE) Exam. 06.09.2016 (IIInd Sitting))

57. The rate of discount being given on a shirt, where selling price is Rs. 576 after deducting a discount of Rs. 109 on its marked price, is :

- (1) 14% (2) 18%
 (3) 15% (4) 16%
 (SSC CGL Tier-I (CBE) Exam. 06.09.2016 (IIIrd Sitting))

58. At what percentage above the cost price must an article be marked so as to gain 33% after allowing a customer a discount of 5% ?

- (1) 40% (2) 45%
 (3) 35% (4) 47%
 (SSC CGL Tier-I (CBE) Exam. 07.09.2016 (IIInd Sitting))

DISCOUNT

- 59.** The marked price of a ceiling fan is Rs. 1200 and the shopkeeper allows a discount of 5 % on it. Then selling price of the fan is
 (1) Rs. 1410 (2) Rs. 1400
 (3) Rs. 1140 (4) Rs. 1104

(SSC CGL Tier-I (CBE)
 Exam. 09.09.2016 (IIInd Sitting)

- 60.** When a discount of Rs. 42 is allowed on the marked price of an article, the new reduced price becomes 86% of the original price. Find the marked price.
 (1) Rs. 250 (2) Rs. 300
 (3) Rs. 350 (4) Rs. 400

(SSC CGL Tier-I (CBE)
 Exam. 09.09.2016 (IIIrd Sitting)

- 61.** While selling a watch, a shopkeeper gives a discount of 5%. If he gives a discount of 7%, he earns Rs. 15 less as profit. The marked price of the watch is :
 (1) Rs. 697.5
 (2) Rs. 712.5
 (3) Rs. 750
 (4) None of the these

(SSC CGL Tier-I (CBE)
 Exam. 10.09.2016 (IIInd Sitting)

- 62.** The cost price of an article is Rs. 200. If 20% profit is made after giving 20% discount on the marked price, the marked price is :
 (1) Rs. 300 (2) Rs. 320
 (3) Rs. 420 (4) Rs. 450

(SSC CGL Tier-I (CBE)

Exam. 27.10.2016 (Ist Sitting)

- 63.** If a retailer offers a discount of 32% on the marked price of his goods and thus ends up selling at cost price, what was the percentage markup price?
 (1) 24 per cent
 (2) 47.05 per cent
 (3) 22.34 per cent
 (4) 32 per cent

(SSC CHSL (10+2) Tier-I (CBE)
 Exam. 15.01.2017) (IIInd Sitting)

- 64.** If the shopkeeper sells an item at Rs 960 which is marked as Rs 1200, what is the discount he is offering ?

- (1) 25 percent (2) 12 percent
 (3) 20 percent (4) 28 percent

(SSC CHSL (10+2) Tier-I (CBE)
 Exam. 16.01.2017) (IIInd Sitting)

- 65.** A photographer allows a discount of 10% on the advertised price of a camera. The price (in Rs.) that must be marked on the camera, which cost him Rs. 600, to make a profit of 20% would be
 (1) 650 (2) 800
 (3) 700 (4) 850

(SSC CGL Tier-II (CBE)
 Exam. 12.01.2017)

- 66.** What was the rate of discount if a computer with marked price ₹ 30,000 was sold for ₹ 28,000 ?

- (1) 20% (2) $7\frac{1}{2}\%$

- (3) $6\frac{2}{3}\%$ (4) 15%

(SSC Multi-Tasking Staff
 Exam. 30.04.2017)

- 67.** Peter bought an item at 20% discount on its original price. He sold it with 40% increase on the price he bought it. The new sale price is greater than the original price (in per cent) by

- (1) 10 (2) 8
 (3) 7.5 (4) 12

(SSC Multi-Tasking Staff
 Exam. 30.04.2017)

TYPE-V

- 1.** A discount of 15% on one article is the same as discount of 20% on a second article. The costs of the two articles can be :

- (1) ₹ 85, ₹ 60 (2) ₹ 60, ₹ 40
 (3) ₹ 40, ₹ 20 (4) ₹ 80, ₹ 60

(SSC CGL Prelim Exam. 04.07.1999
 (First Sitting)

- 2.** A salesman is allowed $5\frac{1}{2}\%$ discount on the total sales made

by him plus a bonus of $\frac{1}{2}\%$ on

sales over ₹ 10,000. If his total earnings were ₹ 1,990, his total sales (in ₹) was

- (1) 30,000 (2) 32,000
 (3) 34,000 (4) 35,000

(SSC CPO S.I. Exam. 12.01.2003)

- 3.** A housewife saved ₹ 2.50 in buying a dress on sale. If she spent ₹ 25 for the dress, **approximately** how much per cent she saved in the transaction?

- (1) 8% (2) 9%
 (3) 10% (4) 11%

(SSC Section Officer (Commercial
 Audit) Exam. 16.11.2003)

- 4.** A trader marked his goods at 20% above the cost price. He sold half the stock at the marked price, one quarter at a discount

of 20% on the marked price and the rest at a discount of 40% on the marked price. His total gain is

- (1) 2% (2) 4.5%
 (3) 13.5% (4) 15%

(SSC CGL Prelim Exam. 08.02.2004
 (First Sitting)

- 5.** A fan is listed at ₹ 1500 and a discount of 20% is offered on the list price. What additional discount must be offered to the customer to bring the net price to ₹ 1104 ?

- (1) 8% (2) 10%
 (3) 12% (4) 15%

(SSC CGL Prelim Exam. 13.11.2005
 (First Sitting)

- 6.** A shopkeeper gives 12 per cent additional discount after giving an initial discount of 20 per cent on the marked price of a radio. If the sale price of the radio is ₹ 704, the marked price is

- (1) ₹ 844.80 (2) ₹ 929.28
 (3) ₹ 1,044.80 (4) ₹ 1,000

(SSC Section Officer (Commercial
 Audit) Exam. 26.11.2006
 (Second Sitting)

- 7.** A dealer buys an article marked at ₹ 25,000 with 20% and 5% off. He spends ₹ 1,000 for its repair and sells it for ₹ 25,000. What is his gain or loss per cent?

- (1) Loss of 25% (2) Gain of 25%
 (3) Gain of 10% (4) Loss of 10%

(SSC CGL Prelim Exam. 04.02.2007
 (First Sitting)

- 8.** The marked price of a shirt and trousers are in the ratio 1 : 2. The shopkeeper gives 40% discount on the shirt. If the total discount on the set of the shirt and trousers is 30%, the discount offered on the trousers is

- (1) 15% (2) 20%
 (3) 25% (4) 30%

(SSC CGL Prelim Exam. 04.02.2007
 (First Sitting)

- 9.** A retailer purchases a grinder at a discount of 15% and sells it for ₹ 1955 at a profit of 15%. The amount of discount received by the retailer from the wholesaler was

- (1) ₹ 270 (2) ₹ 290
 (3) ₹ 300 (4) ₹ 330

(SSC CGL Prelim Exam. 27.07.2008
 (First Sitting)

DISCOUNT

- 10.** A dozen pair of socks quoted at ₹ 80 are available at a discount of 10%. How many pairs of socks can be bought for ₹ 24?

(1) 4 (2) 5
(3) 3 (4) 6

(SSC CPO S.I. Exam. 06.09.2009)

- 11.** If an electricity bill is paid before due date, one gets a reduction of 4% on the amount of the bill. By paying the bill before due date a person got a reduction of ₹ 13. The amount of his electricity bill was

(1) ₹ 125 (2) ₹ 225
(3) ₹ 325 (4) ₹ 425

(SSC CGLTier-I Exam. 16.05.2010
(Second Sitting)

- 12.** The true discount on a sum of money due 2 years hence at 5% is ₹ 15. Find the sum.

(1) ₹ 150 (2) ₹ 165
(3) ₹ 170 (4) ₹ 160

FCI Assistant Grade-III
Exam. 05.02.2012 (Paper-I)
East Zone (IInd Sitting)

- 13.** A shopkeeper lists the price of an article as ₹ 500. But he gives a certain discount which allows the buyer to pay ₹ 500 for the article including 10% sales tax. The rate of discount is

(1) 10% (2) $10 \frac{1}{11}\%$
 $(3) 9 \frac{1}{11}\%$ (4) 11%

(SSC CPO (SI, ASI & Intelligence Officer) Exam. 28.08.2011 (Paper-I)

- 14.** With a 5% discount on the cost of sugar, a buyer could purchase 2 kg more sugar for ₹ 608. Selling price of sugar is :

(1) ₹ 15.50 (2) ₹ 15
(3) ₹ 16.50 (4) ₹ 16

(SSC CHSL DEO & LDC Exam.
Exam. 28.11.2010 (Ist Sitting)

- 15.** During a month-long annual sale, a shopkeeper sells his goods at a discount of 50%. But in the last week, he offers an additional discount of 40%. If the original price of a shirt is ₹ x , then the price, (in rupees) during the last week of the sale will be

(1) 90% of x (2) 70% of x
(3) 30% of x (4) 10% of x

(SSC CHSL DEO & LDC Exam.
28.10.2012 (Ist Sitting)

- 16.** Ramesh bought 10 cycles for ₹ 500 each. He spent ₹ 2,000 on the repair of all cycles. He sold five of them for ₹ 750 each and the remaining for ₹ 550 each. Then the total gain or loss % is

(1) Gain of $8 \frac{1}{3}\%$

(2) Loss of $8 \frac{1}{3}\%$

(3) Gain of $7 \frac{2}{3}\%$

(4) Loss of $7 \frac{1}{7}\%$

(SSC Graduate Level Tier-I
Exam. 11.11.2012 (Ist Sitting)

- 17.** A fan is listed at ₹ 1,400 and the discount offered is 10%. What additional discount must be given to bring the net selling price to ₹ 1,200?

(1) $16 \frac{2}{3}\%$ (2) 5%

(3) $4 \frac{16}{21}\%$ (4) 6%

(SSC CPO S.I. Exam. 16.12.2007)

- 18.** The Banker's discount on a bill due 6 months hence at 16% per annum is ₹ 216. The true discount is :

(1) ₹ 212 (2) ₹ 180
(3) ₹ 210 (4) ₹ 200

(SSC CHSL DEO & LDC Exam.
04.11.2012, Ist Sitting)

- 19.** The cost of manufacture of a tape recorder is ₹ 1,500. The manufacturer fixes the marked price 20% above the cost of manufacture and allows a discount in such a way as to get a profit of 8%. The rate of discount is

(1) 12% (2) 8%
(3) 20% (4) 10%

(SSC Graduate Level Tier-I
Exam. 11.11.2012, Ist Sitting)

- 20.** A shop offers 10% discount on every purchase of an article. It also offers an additional discount of 12%, if the payment is made in cash. If the original price of an item

is ₹ 250, how much a customer will pay, if he wants to pay the price in cash?

(1) ₹ 180 (2) ₹ 192
(3) ₹ 198 (4) ₹ 195

(SSC Multi-Tasking Staff
Exam. 24.03.2013, Ist Sitting)

- 21.** The interest on a certain sum of money is ₹ 22 and the true discount on the same sum for the same time and at the same rate is ₹ 20. Find the sum.

(1) ₹ 220 (2) ₹ 200
(3) ₹ 210 (4) ₹ 212

(SSC Graduate Level Tier-I
Exam. 21.04.2013)

- 22.** A mobile phone is listed at ₹ 1,500 and a discount of 10% is offered on the list price. What additional discount must be offered to the customer now to bring the net price to ₹ 1,242?

(1) 10% (2) 8%
(3) 12% (4) 18%

(SSC CHSL DEO & LDC Exam.
27.10.2013 IInd Sitting)

- 23.** A reduction of 20% in the price of rice enables a customer to purchase 12.5 kg more for ₹ 800. The original price of rice (per kg) is

(1) ₹ 14 (2) ₹ 16
(3) ₹ 12 (4) ₹ 15

(SSC CHSL DEO & LDC Exam.
10.11.2013, Ist Sitting)

- 24.** A reduction of 10% in the price of a commodity enables a person to buy 25 kg more for ₹ 225. The original price of the commodity per kg was

(1) ₹ 2 (2) ₹ 1
(3) ₹ 2.50 (4) ₹ 1.50

(SSC CHSL DEO & LDC Exam.
10.11.2013, IInd Sitting)

- 25.** For a certain article, if discount is 25% the profit is 25%. If the discount is 10%, then the profit is

(1) 50% (2) 40%
(3) 30% (4) $33 \frac{1}{3}\%$

(SSC CHSL DEO & LDC Exam.
25.02.2012 (Paper-I)
North Zone (Ist Sitting)

DISCOUNT

26. A toy train is marked at ₹ 400 and sold at a discount of 8% during Ganesh puja. A shopkeeper announces a discount of 8%. The amount he will loose if he announces a single discount of 16% is

- (1) ₹ 2.56 (2) ₹ 3.84

- (3) ₹ 4.16 (4) ₹ 5.78

(SSC CHSL DEO & LDC Exam.
04.11.2012 (IInd Sitting)

27. The marked price of a toy is ₹ 60 and at a discount that was sold for ₹ 45. Then rate of discount allowed is

- (1) 30% (2) 35%

- (3) 20% (4) 25%

(SSC Multi-Tasking Staff
Exam. 17.03.2013, Ist Sitting)

28. A pen is listed for ₹ 12. A discount of 15% is given on it. A second discount is given bringing the price down to ₹ 8.16. The rate of second discount is

- (1) 20% (2) 15%

- (3) 18% (4) 25%

(SSC CGL Prelim Exam. 04.02.2007
(First Sitting)

29. A man saves ₹ 25 on the purchase of an article on which a discount of 20% is allowed. How much did the man pay ?

- (1) ₹ 75 (2) ₹ 150

- (3) ₹ 100 (4) ₹ 125

(SSC CGL Tier-I

Re-Exam. (2013) 27.04.2014)

30. A is to pay B, ₹ 600 in 4 years time. A offers to pay up B at present. What discount should B allow A ?

- (1) ₹ 96 (2) ₹ 100

- (3) ₹ 120 (4) ₹ 110

(SSC CGL Tier-I Re-Exam. (2013)

20.07.2014 (IInd Sitting)

31. To attract more visitors, Zoo authority announces 20% discount on every ticket which costs 25 paise. For this reason, sale of ticket increases by 28%. Find the percentage of increase in the number of visitors.

- (1) 40% (2) 50%

- (3) 60% (4) No change

(SSC CGL Tier-I Exam.

19.10.2014 (Ist Sitting)

32. The list price of a shirt is ₹ 440 and a customer pays ₹ 396 for it. The discount rate is

- (1) 10% (2) $10\frac{1}{2}\%$

- (3) 20% (4) 12%

(SSC CGL Tier-I Exam.
19.10.2014 (Ist Sitting)

33. A shopkeeper listed the price of goods at 30% above the cost price. He sells half the stock at this price, one fourth of the stock at a discount of 15% and the remaining at 30% discount. His overall profit is

- (1) $15\frac{3}{8}\%$ (2) 15%

- (3) $15\frac{3}{5}\%$ (4) $15\frac{2}{3}\%$

(SSC CGL Tier-I Exam. 19.10.2014)

34. The discount on a certain sum of money, due at the end of $2\frac{1}{4}$

years at $2\frac{2}{3}\%$ p.a. is ₹ 78. Find the sum.

- (1) ₹ 1,278 (2) ₹ 1,300

- (3) ₹ 1,378 (4) ₹ 1,400

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

35. X purchased an item at a discount of 10% and sold it to Y at 10% profit. The marked price and the price for which Y purchased the item are in ratio

- (1) 1 : 1 (2) 10 : 99

- (3) 20 : 99 (4) 100 : 99

(SSC CHSL DEO & LDC
Exam. 16.11.2014)

36. If in a sale, the discount given on a saree is equal to one-fourth the marked price and the loss due to this discount is 15%, then the ratio of the cost price to the selling price is

- (1) 3 : 4 (2) 4 : 3

- (3) 10 : 17 (4) 20 : 17

(SSC CHSL DEO Exam. 16.11.2014
(Ist Sitting)

37. A trader who marks his goods up to 50% offered a discount of 20%. What % profit the trader makes after offering the payment ?

- (1) 30% (2) 70%

- (3) 20% (4) 50%

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

TF No. 999 KPO)

38. A retailer buys a sewing machine at a discount of 15% and sells it for ₹ 1955. Thus he makes a profit of 15%. The discount is

- (1) ₹ 270 (2) ₹ 290

- (3) ₹ 300 (4) ₹ 310

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014
TF No. 999 KPO)

39. After allowing a discount of 10% on marked price a trader makes a profit of 15%. The ratio of the marked price to the cost price is

- (1) 23 : 9 (2) 23 : 10

- (3) 23 : 18 (4) 23 : 19

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, Ist Sitting
TF No. 333 LO 2)

40. Mr. x and Mr. y each bought the same motorcycle using a 10% off coupon. Mr. x's cashier took 10% off the price and then added 8.5% sales tax whereas Mr. y's cashier first added the sales tax and then took 10% off the total price. The amount Mr. x paid is

- (1) less by ₹ 550 as the amount Mr. y paid

- (2) same as the amount Mr. y paid

- (3) greater by ₹ 85 as the amount Mr. y paid

- (4) greater by ₹ 850 as the amount Mr. y paid

(SSC CGL Tier-II Exam. 12.04.2015
TF No. 567 TL 9)

41. The price of an antique is reduced by 20% and then this price is again reduced by 10%. The total reduction of the price is

- (1) 25% (2) 30%

- (3) 23% (4) 28%

(SSC CGL Tier-II Exam. 12.04.2015
TF No. 567 TL 9)

42. A builder purchases 25 windows at 25% off the total price of ₹ 1,20,000. If the builder receives an additional discount of ₹ 7500 for the purchase, then the cost of each window is

- (1) ₹ 3300 (2) ₹ 3100

- (3) ₹ 3400 (4) ₹ 3200

(SSC CGL Tier-II Exam. 12.04.2015
TF No. 567 TL 9)

DISCOUNT

43. The list price of a book is Rs. 100. A dealer sells three such books for Rs. 274.50 after allowing discount at a certain rate. Find the rate of discount.

- (1) 8.16% (2) 8.5%
 (3) 8.34% (4) 8.33%

(SSC CGL Tier-I Exam, 09.08.2015
 (IInd Sitting) TF No. 4239378)

44. A dealer buys an article listed at Rs. 100 and gets successive discounts of 10% and 20%. He spends 10% of the cost price on transportation. At what price should he sell the article to earn a profit of 15%?

- (1) ₹ 90.80 (2) ₹ 92.00
 (3) ₹ 91.08 (4) ₹ 91.20

(SSC CGL Tier-I Exam, 16.08.2015
 (IInd Sitting) TF No. 2176783)

45. A company showroom gives a discount of 20% on the second grade shoes and a further discount of 15% on shareholder's coupon. The total discount, a coupon holder will get is

- (1) 32% (2) 36%
 (3) 35% (4) 38%

(SSC CGL Tier-I

Re-Exam, 30.08.2015)

46. Two blends of a commodity costing Rs. 35 and Rs. 40 per kg. respectively are mixed in the ratio 2 : 3 by weight. If one-fifth of the mixture is sold at Rs. 46 per kg and the remaining at the rate of Rs. 55 per kg. the profit percent is

- (1) 50 (2) 30
 (3) 40 (4) 20

(SSC CGL Tier-II Exam,
 25.10.2015, TF No. 1099685)

47. The total discount on Rs. 1860 due after a certain time at 5% is Rs. 60. Find the time after which it is due

- (1) 9 months (2) 8 months
 (3) 7 months (4) 10 months

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IInd Sitting)

48. State electricity board gives 15% discount on electric bills if it is paid before due date. One person gets Rs. 54 as discount. The amount of actual bill was :

- (1) Rs. 362 (2) Rs. 359
 (3) Rs. 360 (4) Rs. 361

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015
 (Ist Sitting) TF No. 6636838)

49. A house was sold for Rs. y by giving a discount of $x\%$, then the list price was :

$$(1) \frac{100y}{100-x} \quad (2) \frac{100y}{1-\frac{x}{100}}$$

$$(3) \frac{100x}{100-y} \quad (4) \frac{100y}{1-x}$$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015
 (IInd Sitting) TF No. 3441135)

50. A shopkeeper allows 20% discount on his advertised price and to make a profit of 25% on his outlay. What is the advertised price (in Rs.) on which he gains Rs. 6000 ?

- (1) 36000 (2) 37500
 (3) 39000 (4) 42500

(SSC CGL Tier-II Online Exam.01.12.2016)

51. Ramesh marks his goods 30% above cost price. If he sells the item for . 910 after allowing a discount of 15 %, find his cost price.

- (1) Rs. 823.5 (2) Rs. 758
 (3) Rs. 814.2 (4) Rs. 856.5

(SSC CPO SI, ASI Online Exam.05.06.2016) (IInd Sitting)

52. A shopkeeper used to allow a discount of Rs. 20 on a product. He doubles the discount on the product and sold it for Rs. 80. What was the percentage of discount offered ?

- (1) 20% (2) 25%
 (3) 30% (4) 33.33%

(SSC CPO Exam. 06.06.2016)
 (Ist Sitting)

53. The original price of a TV set is Rs. 6,000. If the price is discounted by 20% and then raised by 10% for service contract, the price charged by the shopkeeper is

- (1) Rs. 5400 (2) Rs. 5280
 (3) Rs. 5100 (4) Rs. 4200

(SSC CGL Tier-I (CBE) Exam. 09.09.2016) (Ist Sitting)

54. A sells a car priced at Rs. 36,000. He gives a discount of 8% on the first Rs. 20,000 and 5% on the remaining Rs. 16,000. B also sells a car of the same make, priced at Rs. 36,000. He

gives a discount of 7% on the total price. Calculate the actual prices charged by A and B for the cars.

- (1) A = Rs. 33,500;

B = Rs. 33,400

- (2) A = Rs. 33,480;

B = Rs. 33,600

- (3) A = Rs. 33,450;

B = Rs. 33,650

- (4) A = Rs. 33,600;

B = Rs. 33,480

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 20.03.2016)

(IInd Sitting)

55. A cloth merchant has announced 25% rebate in prices. If one needs to have a rebate of Rs. 40, then how many metres of cloth costing Rs. 32 per metre he should purchase ?

- (1) 6 m (2) 5 m

- (3) 10 m (4) 7 m

(SSC CGL Tier-I (CBE) Exam. 29.08.2016) (IInd Sitting)

56. An article marked at Rs. 540 is sold at Rs. 496.80 in an offseason offer. Then the rate of discount offered (in per cent) is

- (1) 7 (2) 7.5

- (3) 8 (4) 10

(SSC CGL Tier-I (CBE) Exam. 30.08.2016) (Ist Sitting)

57. A bookseller allowed 15% discount on the books sold. Sunil purchased books worth Rs. 1500. How much will he have to pay to the bookseller.

- (1) Rs. 1200 (2) Rs. 1250

- (3) Rs. 1275 (4) Rs. 1300

(SSC CGL Tier-I (CBE) Exam. 03.09.2016) (IIInd Sitting)

58. The list price of TV is Rs. 2300 and discount series is found to be 25% and 10%. Then the selling price of TV is

- (1) Rs. 1255.5 (2) Rs. 1525.5

- (3) Rs. 1552.5 (4) Rs. 1555.2

(SSC CGL Tier-I (CBE) Exam. 30.08.2016 (IIIrd Sitting))

59. A watch is listed for Rs. 230 and is sold at a discount of 12%. The sale price of the watch is

- (1) Rs. 27.6 (2) Rs. 276

- (3) Rs. 202.4 (4) Rs. 257.6

(SSC CGL Tier-I (CBE) Exam. 02.09.2016 (IInd Sitting))

10

SIMPLE INTEREST

Importance : Questions on simple interest are asked in different competitive exams. Note that to solve compound interest questions, a command over simple interest questions is a must.

Scope of questions : Simple interest questions don't have much variation. Here, questions to find out. Principal, interest, rate, time or amount are asked. Questions on two interest rates for different times may also be asked.

Way to success : All questions are based on a single basic formulae, but to increase speed, direct formulae are required to?

IMPORTANT POINTS

Borrowed money is called Principal and it is denoted by 'P'.

Money is borrowed for certain time period, that time is called interest time and it is denoted by 'T' or 't'.

The principal becomes Amount when interest is added to it. Amount is represented as A.

$$\text{So, Amount} = \text{Principal} + \text{Interest} \Rightarrow A = P + S. I.$$

OR

$$\text{Interest} = \text{Amount} - \text{Principal} \Rightarrow S. I. = A - P$$

When Interest is payable half - yearly

Rate will be half and time will be twice

When Interest is payable quarterly

Rate will be one-fourth and time will be four times.

$$\text{RULE 1 : Simple Interest (S.I.)} = \frac{\text{Principal} \times \text{Rate} \times \text{Time}}{100}$$

or,

$$S.I. = \frac{P \times R \times T}{100}$$

$$P = \frac{S.I. \times 100}{R \times T}, R = \frac{S.I. \times 100}{P \times T}, T = \frac{S.I. \times 100}{P \times R},$$

$$A = P + S.I.$$

or,

$$S.I. = A - P$$

RULE 2 : If there are distinct rates of interest for distinct time periods i.e.

Rate for 1st t_1 years $\rightarrow R_1\%$

Rate for 2nd t_2 years $\rightarrow R_2\%$

Rate for 3rd t_3 years $\rightarrow R_3\%$

$$\text{Then, Total S.I. for 3 years} = \frac{P(R_1 t_1 + R_2 t_2 + R_3 t_3)}{100}$$

RULE 3 : If a certain sum becomes 'n' times of itself in T years on Simple Interest, then the rate per cent per annum is.

$$R\% = \frac{(n-1)}{T} \times 100\% \text{ and,}$$

$$T = \frac{(n-1)}{R} \times 100\%$$

RULE 4 : If a certain sum becomes n_1 times of itself at $R_1\%$ rate and n_2 times of itself at $R_2\%$ rate, then,

$$R_2 = \frac{(n_2 - 1)}{(n_1 - 1)} R_1 \text{ and } T_2 = \frac{(n_2 - 1)}{(n_1 - 1)} T_1$$

RULE 5 : If Simple Interest (S.I.) becomes 'n' times of principal i.e.

$$S.I. = P \times n \text{ then.}$$

$$RT = n \times 100$$

RULE 6 : If an Amount (A) becomes 'n' times of certain sum (P) i.e.

$$A = Pn \text{ then,}$$

$$RT = (n - 1) \times 100$$

RULE 7 : If the difference between two simple interests is 'x' calculated at different annual rates and times, then principal (P) is

$$P = \frac{x \times 100}{(\text{difference in rate}) \times (\text{difference in time})}$$

RULE 8 : If a sum amounts to x_1 in t years and then this sum amounts to x_2 in t yrs. Then the sum is given by

$$P = \frac{(\text{Difference in amount}) \times 100}{(\text{Change in interest Rate}) \times \text{time}}$$

RULE 9 : If a sum with simple interest rate, amounts to 'A' in t_1 years and 'B' in same t_2 years, then,

$$R\% = \frac{(B - A) \times 100}{A \cdot t_2 - B \cdot t_1} \text{ and}$$

$$P = \frac{At_2 - Bt_1}{t_2 - t_1}$$

RULE 10 : If a sum is to be deposited in equal instalments, then,

$$\text{Equal instalment} = \frac{A \times 200}{T[200 + (T-1)r]}$$

where T = no. of years, A = amount, r = Rate of Interest.

RULE 11 : To find the rate of interest under current deposit plan,

$$r = \frac{S.I. \times 2400}{n(n+1) \times (\text{deposited amount})}$$

where n = no. of months.

RULE 12 : If certain sum P amounts to Rs. A_1 in t_1 years at rate of $R\%$ and the same sum amounts to Rs. A_2 in t_2 years at same rate of interest $R\%$. Then,

$$(i) R = \left(\frac{A_1 - A_2}{A_2 T_1 - A_1 T_2} \right) \times 100$$

$$(ii) P = \left(\frac{A_2 T_1 - A_1 T_2}{T_1 - T_2} \right)$$

RULE 13 : The difference between the S.I. for a certain sum P_1 deposited for time T_1 at R_1 rate of interest and another sum P_2 deposited for time T_2 at R_2 rate of interest is

$$S.I. = \frac{P_2 R_2 T_2 - P_1 R_1 T_1}{100}$$



QUESTIONS ASKED IN PREVIOUS SSC EXAMS

TYPE-I

- 1.** What sum of money must be given as simple interest for six months at 4% per annum in order to earn ₹ 150 interest?
 (1) ₹ 5000 (2) ₹ 7500
 (3) ₹ 10000 (4) ₹ 15000
 (SSC CGL Prelim Exam. 04.07.1999
 (Second Sitting)
- 2.** A sum of ₹ 1600 gives a simple interest of ₹ 252 in 2 years and 3 months. The rate of interest per annum is:
 (1) $5\frac{1}{2}\%$ (2) 8%
 (3) 7% (4) 6%
 (SSC CGL Prelim Exam. 27.02.2000
 (First Sitting)
- 3.** A sum of money lent at simple interest amounts to ₹ 880 in 2 years and to ₹ 920 in 3 years. The sum of money (in rupees) is
 (1) 700 (2) 760
 (3) 784 (4) 800
 (SSC CISF ASI Exam. 29.08.2010
 (Paper-1))
- 4.** At some rate of simple interest, A lent ₹ 6,000 to B for 2 years and ₹ 1,500 to C for 4 years and received ₹ 9,000 as interest from both of them together. The rate of interest per annum was
 (1) 5% (2) 6%
 (3) 8% (4) 10%
 (SSC CPO S.I. Exam. 12.12.2010
 (Paper-1))
- 5.** A lent ₹ 5000 to B for 2 years and ₹ 3000 to C for 4 years on simple interest at the same rate of interest and received ₹ 2200 in all from both as interest. The rate of interest per annum is
 (1) 7% (2) 5%
 (3) $7\frac{1}{8}\%$ (4) 10%
 (SSC CPO S.I. Exam. 12.01.2003
 & (SSC SAS Exam. 26.06.2010
 (Paper-1))
- 6.** What sum of money will amount to ₹ 520 in 5 years and to ₹ 568 in 7 years at simple interest?
 (1) ₹ 400 (2) ₹ 120
 (3) ₹ 510 (4) ₹ 220
 (SSC CGL Prelim Exam. 11.05.2003
 (First Sitting))

- 7.** ₹ 500 was invested at 12% per annum simple interest and a certain sum of money invested at 10% per annum simple interest. If the sum of the interest on both the sum after 4 years is ₹ 480, the latter sum of money is :
 (1) ₹ 450 (2) ₹ 750
 (3) ₹ 600 (4) ₹ 550
 (SSC CGL Prelim Exam. 11.05.2003
 (First Sitting))
- 8.** A money lender finds that due to fall in the annual rate of interest 8% to $7\frac{3}{4}\%$, his yearly income diminishes by ₹ 61.50. His capital is
 (1) ₹ 22400 (2) ₹ 23800
 (3) ₹ 24600 (4) ₹ 26000
 (SSC CGL Prelim Exam. 11.05.2003
 (First Sitting))
- 9.** A lends ₹ 2500 to B and a certain sum to C at the same time at 7% annual simple interest. If after 4 years, A altogether receives ₹ 1120 as interest from B and C, the sum lent to C is
 (1) ₹ 700 (2) ₹ 6500
 (3) ₹ 4000 (4) ₹ 1500
 (SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting))
- 10.** A certain sum of money amounts to ₹ 756 in 2 years and to ₹ 873 in $3\frac{1}{2}$ years at a certain rate of simple interest. The rate of interest per annum is
 (1) 10% (2) 11%
 (3) 12% (4) 13%
 (SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting))
- 11.** What sum will amount to ₹ 7000 in 5 years at $3\frac{1}{3}\%$ simple interest?
 (1) ₹ 6300 (2) ₹ 6500
 (3) ₹ 6000 (4) ₹ 5000
 (SSC CPO S.I. Exam. 07.09.2003)
- 12.** A man took a loan from a bank at the rate of 12% per annum at simple interest. After 3 years he had to pay ₹ 5,400 as interest only for the period. The principal amount borrowed by him was :
 (1) ₹ 2,000 (2) ₹ 10,000
 (3) ₹ 20,000 (4) ₹ 15,000
 (SSC CGL Prelim Exam. 08.02.2004
 (First Sitting))
- 13.** A sum of money at simple interest amounts to ₹ 1,012 in $2\frac{1}{2}$ years and to ₹ 1,067.20 in 4 years. The rate of interest per annum is :
 (1) 2.5% (2) 3%
 (3) 4% (4) 5%
 (SSC CGL Prelim Exam. 08.02.2004
 (Ist Sitting) & (SSC SAS Exam.
 26.06.2010 (Paper-I) & (SSC CHSL
 DEO & LDC Exam. 28.10.2012))
- 14.** A sum of money lent out at simple interest amounts to ₹ 720 after 2 years and to ₹ 1020 after a further period of 5 years. The sum is :
 (1) ₹ 500 (2) ₹ 600
 (3) ₹ 700 (4) ₹ 710
 (SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting))
- 15.** The sum of money, that will give ₹ 1 as interest per day at the rate of 5% per annum simple interest is
 (1) ₹ 3650 (2) ₹ 36500
 (3) ₹ 730 (4) ₹ 7300
 (SSC CPO S.I. Exam. 05.09.2004)
- 16.** If the simple interest on a certain sum of money for 15 months at $7\frac{1}{2}\%$ per annum exceeds the simple interest on the same sum for 8 months at $12\frac{1}{2}\%$ per annum by ₹ 32.50, then the sum of money (in ₹) is :
 (1) 312 (2) 312.50
 (3) 3120 (4) 3120.50
 (SSC CPO S.I. Exam. 26.05.2005)
- 17.** What annual instalment will discharge a debt of ₹ 6450 due in 4 years at 5% simple interest ?
 (1) ₹ 1500 (2) ₹ 1835
 (3) ₹ 1935 (4) ₹ 1950
 (SSC CGL Prelim Exam. 13.11.2005
 (Ist Sitting) & (SSC CGL Tier-I
 Exam. 16.05.2010))

SIMPLE INTEREST

18. In what time will ₹ 72 become ₹ 81 at $6\frac{1}{4}\%$ per annum simple interest?

- (1) 2 years
- (2) 3 years
- (3) 2 years 6 months
- (4) None of these

(SSC CGL Prelim Exam. 13.11.2005
(First Sitting)

19. The simple interest on ₹ 7,300 from 11 May, 1987 to 10 September, 1987 (both days included) at 5% per annum is

- (1) ₹ 123
- (2) ₹ 103
- (3) ₹ 200
- (4) ₹ 223

(SSC CGL Prelim Exam. 13.11.2005
(Second Sitting)

20. A person borrows ₹ 5,000 for 2 years at 4% per annum simple interest. He immediately lends it

to another person at $6\frac{1}{4}\%$ per annum simple interest for 2 years. His gain in the transaction is

- (1) ₹ 112.50
- (2) ₹ 450
- (3) ₹ 225
- (4) ₹ 150

(SSC CGL Prelim Exam. 13.11.2005
(Second Sitting)

21. A man had ₹ 16,000, part of which he lent at 4% and the rest at 5% per annum simple interest. If the total interest received was ₹ 700 in one year, the money lent at 4% per annum was

- (1) ₹ 12,000
- (2) ₹ 8,000
- (3) ₹ 10,000
- (4) ₹ 6,000

(SSC CGL Prelim Exam. 13.11.2005
(Second Sitting)

22. ₹ 1,000 is invested at 5% per annum simple interest. If the interest is added to the principal after every 10 years, the amount will become ₹ 2,000 after

- (1) 15 years
- (2) 18 years
- (3) 20 years
- (4) $16\frac{2}{3}$ years

(SSC CGL Prelim Exam. 04.02.2007
(First Sitting)

23. A sum of money amounts to ₹ 5,200 in 5 years and to ₹ 5,680 in 7 years at simple interest. The rate of interest per annum is

- (1) 3%
- (2) 4%
- (3) 5%
- (4) 6%

(SSC CGL Prelim Exam. 04.02.2007
(First Sitting)

24. ₹ 800 becomes ₹ 956 in 3 years at a certain rate of simple interest. If the rate of interest is increased by 4%, what amount will ₹ 800 become in 3 years?

- (1) ₹ 1020.80
- (2) ₹ 1025
- (3) ₹ 1052
- (4) ₹ 1050

(SSC CGL Tier-1 Exam. 26.06.2011
(Second Sitting)

25. A person deposited ₹ 400 for 2 years, ₹ 550 for 4 years and ₹ 1,200 for 6 years. He received the total simple interest of ₹ 1,020. The rate of interest per annum is

- (1) 10%
- (2) 5%
- (3) 15%
- (4) 20%

(SSC CGL Prelim Exam. 04.02.2007
(First Sitting)

26. Manoj deposited ₹ 29400 for 6 years at a simple interest. He got ₹ 4200 as interest after 6 years. The annual rate of interest was

- (1) $2\frac{8}{21}\%$
- (2) $2\frac{7}{20}\%$

- (3) $3\frac{8}{21}\%$
- (4) $4\frac{8}{21}\%$

(SSC CGL Prelim Exam. 04.02.2007
(Second Sitting)

27. A man lent ₹ 60,000, partly at 5% and the rest at 4% simple interest. If the total annual interest is ₹ 2560, the money lent at 4% was

- (1) ₹ 40000
- (2) ₹ 44000
- (3) ₹ 30000
- (4) ₹ 45000

(SSC CGL Prelim Exam. 27.07.2008
(First Sitting)

28. A sum of money at some rate of simple interest amounts to ₹ 2,900 in 8 years and to ₹ 3,000 in 10 years. The rate of interest per annum is

- (1) 4%
- (2) $2\frac{1}{2}\%$
- (3) 3%
- (4) 2%

(SSC CPO S.I. Exam. 09.11.2008)

29. In how many years will a sum of ₹ 3,000 yield a simple interest of ₹ 1,080 at 12% per annum?

- (1) 3 years
- (2) $2\frac{1}{2}$ years
- (3) 2 years
- (4) $3\frac{1}{2}$ years

(SSC Data Entry Operator
Exam. 02.08.2009)

30. A sum of money amounts to ₹ 850 in 3 years and to ₹ 925 in 4 years at some rate of simple interest. The sum is :

- (1) ₹ 550
- (2) ₹ 600
- (3) ₹ 625
- (4) ₹ 700

(SSC CHSL DEO & LDC
Exam. 27.11.2010)

31. In what time will ₹ 1,860 amount to 2,641.20 at simple interest 12% per annum?

- (1) 3 years
- (2) $3\frac{1}{2}$ years
- (3) 4 years
- (4) $4\frac{1}{2}$ years

(SSC Constable (GD) & Rifleman
(GD) Exam. 22.04.2012 (IInd Sitting)

32. The population of a village decreases at the rate of 20% per annum. If its population 2 years ago was 10,000, the present population is

- (1) 4600
- (2) 6400
- (3) 7600
- (4) 6000

(SSC CHSL DEO & LDC Exam.
04.11.2012, IInd Sitting)

33. The sum lent at 5% per annum (i.e. 365 days) simple interest, that produces interest, of ₹ 2.00 a day, is

- (1) ₹ 1,400
- (2) ₹ 14,700
- (3) ₹ 14,600
- (4) ₹ 7,300

(SSC Multi-Tasking Staff
Exam. 17.03.2013, Ist Sitting)

34. A certain sum of money lent out at simple interest amounts to ₹ 1380 in 3 years and ₹ 1500 in 5 years. Find the rate per cent per annum.

- (1) 3%
- (2) 3.5%
- (3) 4%
- (4) 5%

(SSC Multi-Tasking Staff
Exam. 17.03.2013, Kolkata Region)

35. If a sum of money amounts to ₹ 12,900 and ₹ 14,250 at the end of 4th year and 5th year respectively at a certain rate of simple interest, then the rate of interest is

- (1) 10%
- (2) 12%
- (3) 18%
- (4) 20%

(SSC Constable (GD)
Exam. 12.05.2013 Ist Sitting)

SIMPLE INTEREST

36. In what time will ₹ 8,000, at 3% per annum, produce the same interest as ₹ 6,000 does in 5 years at 4 % simple interest ?

- (1) 5 years (2) 6 years

- (3) 3 years (4) 4 years

(SSC CGL Tier-I Exam. 26.10.2014)

37. The principal which gives ₹ 1 interest per day at a rate of 5% simple interest per annum is

- (1) ₹ 5000 (2) ₹ 7300

- (3) ₹ 36500 (4) ₹ 3650

(SSC CGL Tier-II Exam. 12.04.2015

(TF No. 567 TL 9)

38. A sum of money lent out at simple interest amounts to Rs. 720 after 2 years and Rs. 1020 after a further period of 5 years. Find the principal.

- (1) Rs. 600 (2) Rs. 1740

- (3) Rs. 6000 (4) Rs. 120

(SSC CGL Tier-I Exam. 09.08.2015

(IIInd Sitting) TF No. 4239378)

39. The simple interest on Rs. 36,000 for the period from 5th January to 31st May, 2013 at 9.5% per annum is

- (1) Rs. 1,338 (2) Rs. 1,425

- (3) Rs. 1,400 (4) Rs. 1,368

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015

(Ist Sitting) TF No. 9692918)

40. Alipta got some amount of money from her father. In how many years will the ratio of the money and the interest obtained from it be 10:3 at the rate of 6% simple interest per annum?

- (1) 7 years (2) 3 years

- (3) 5 years (4) 4 years

(SSC CGL Tier-I (CBE)

Exam. 10.09.2016)

41. The sum of money that will yield Rs. 60 as simple interest at the rate of 6% per annum in 5 years is

- (1) 200 (2) 225

- (3) 175 (4) 300

(SSC CGL Tier-I (CBE)

Exam. 11.09.2016) (Ist Sitting)

42. If a sum of money becomes Rs. 4000 in 2 years and Rs. 5500 in 4 years 6 months at the same rate of simple interest per annum, then the rate of simple interest is

- (1) $21\frac{3}{7}\%$ (2) $21\frac{2}{7}\%$

- (3) $21\frac{1}{7}\%$ (4) $21\frac{5}{7}\%$

(SSC CGL Tier-II Online
Exam. 01.12.2016

43. The simple interest on a certain sum of money at the rate of 5% per annum for 8 years is Rs. 840. Rate of interest for which the same amount of interest can be received on the same sum after 5 years is :

- (1) 7% per annum

- (2) 8% per annum

- (3) 9% per annum

- (4) 10% per annum

(SSC CHSL (10+2) Tier-I (CBE)
Exam. 08.09.2016) (Ist Sitting)

44. A sum of Rs. 2800 is divided into two parts in such a way that the interest on both the parts is equal. If the first part is lent at 9% p.a. for 5 years and second part is for 6 years at 10% p.a., find the two sums.

- (1) Rs. 1800, Rs. 1000

- (2) Rs. 1600, Rs. 1200

- (3) Rs. 1400, Rs. 1400

- (4) Rs. 1300, Rs. 1500

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 05.06.2016)

(Ist Sitting)

45. The simple interest on a sum for 5 years is two-fifth of the sum. The rate of interest per annum is

- (1) 0.1 (2) 0.08

- (3) 0.06 (4) 0.04

(SSC CGL Tier-I (CBE)
Exam. 31.08.2016) (Ist Sitting)

46. If the simple interest on Rs. 400 for 10 years is Rs. 280, the rate of interest per annum is

- (1) 7% (2) $7\frac{1}{2}\%$

- (3) $7\frac{1}{4}\%$ (4) $8\frac{1}{2}\%$

(SSC CGL Tier-I (CBE)
Exam. 04.09.2016) (Ist Sitting)

47. If the simple interest on Re. 1 for 1 month is 1 paisa, then the rate per cent per annum will be

- (1) 10% (2) 8%

- (3) 12% (4) 6%

(SSC CGL Tier-I (CBE)
Exam. 07.09.2016) (Ist Sitting)

48. How much simple interest will Rs. 4000 earn in 18 months at 12% per annum?

- (1) Rs. 216 (2) Rs. 360

- (3) Rs. 720 (4) Rs. 960

(SSC CGL Tier-I (CBE)

Exam. 01.09.2016) (IIInd Sitting)

49. In how many years a sum of Rs. 3000 will yield an interest of Rs. 1080 at 12% per annum simple interest ?

- (1) 4 years (2) 3 years

- (3) 5 years (4) $2\frac{1}{2}$ years

(SSC CGL Tier-I (CBE)

Exam. 29.08.2016 (IST Sitting)

50. In simple interest rate per annum a certain sum amounts to Rs. 5,182 in 2 years and Rs. 5,832 in 3 years. The principal in rupees is

- (1) Rs. 2882 (2) Rs. 5000

- (3) Rs. 3882 (4) Rs. 4000

(SSC CGL Tier-I (CBE)

Exam. 30.08.2016 (IIIrd Sitting)

51. For what sum will the simple interest at R% per annum for 2 years will be R ?

- (1) Rs. $\frac{100}{2R}$ (2) Rs. 50

- (3) Rs. $\frac{100}{R}$ (4) Rs. $\frac{200}{R}$

(SSC CGL Tier-I (CBE)

Exam. 10.09.2016 (IIInd Sitting)

52. The amount to be paid, when principal = Rs. 2000, rate of simple interest (R) = 5%, T = 2 years, is :

- (1) Rs. 3,200 (2) Rs. 2,400

- (3) Rs. 2,200 (4) Rs. 3,400

(SSC CGL Tier-I (CBE)

Exam. 27.10.2016 (Ist Sitting)

53. The rate of simple interest for which Rs. 6,000 will amount to Rs. 6,900 in 3 years is

- (1) 5% (2) 7%

- (3) 2% (4) 4%

(SSC CGL Tier-I (CBE)

Exam. 27.10.2016 (Ist Sitting)

SIMPLE INTEREST

TYPE-II

1. A sum of money becomes $\frac{7}{6}$ of itself in 3 years at a certain rate of simple interest. The rate per annum is :

- (1) $5\frac{5}{9}\%$ (2) $6\frac{5}{9}\%$
 (3) 18% (4) 25%

(SSC CGL Prelim Exam. 04.07.1999
 (First Sitting)

2. A sum of money becomes $\frac{41}{40}$ of itself in $\frac{1}{4}$ years at a certain rate of simple interest. The rate of interest per annum is

- (1) 10% (2) 1%
 (3) 2.5% (4) 5%

(SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting)

3. A certain sum of money becomes three times of itself in 20 years at simple interest. In how many years does it become double of itself at the same rate of simple interest ?

- (1) 8 years (2) 10 years
 (3) 12 years (4) 14 years
 (SSC CPO S.I. Exam. 26.05.2005)

4. At what rate per cent per annum will the simple interest on a sum

- of money be $\frac{2}{5}$ of the amount in 10 years ?
- (1) 4% (2) 6%

- (3) $5\frac{2}{3}\%$ (4) $6\frac{2}{3}\%$

(SSC CGL Prelim Exam. 24.02.2002 & (SSC CGL Prelim Exam. 13.11.2005 (IInd Sitting)

5. ₹ 6,000 becomes ₹ 7,200 in 4 years at a certain rate of simple interest. If the rate becomes 1.5 times of itself, the amount of the same principal in 5 years will be

- (1) ₹ 8,000 (2) ₹ 8,250
 (3) ₹ 9,250 (4) ₹ 9,000
 (SSC CGL Prelim Exam. 04.02.2007
 (First Sitting)

6. A sum of money at simple interest trebles itself in 15 years. It will become 5 times of itself in

- (1) 40 years (2) 36 years
 (3) 30 years (4) 25 years
 (SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting)

7. If a sum of money at simple interest doubles in 12 years, the rate of interest per annum is

- (1) $16\frac{2}{3}\%$ (2) 7.5%

- (3) $8\frac{1}{3}\%$ (4) 10%

(SSC CGL Prelim Exam. 27.07.2008
 (First Sitting)

8. At what rate of simple interest per annum will a sum become $\frac{7}{4}$ of itself in 4 years ?

- (1) 18% (2) $18\frac{1}{4}\%$

- (3) $18\frac{3}{4}\%$ (4) $18\frac{1}{2}\%$

(SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting)

9. A sum of money at a certain rate per annum of simple interest doubles in the 5 years and at a different rate becomes three times in 12 years. The lower rate of interest per annum is

- (1) 15% (2) 20%
 (3) $15\frac{3}{4}\%$ (4) $16\frac{2}{3}\%$

(SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting)

10. In how many years will a sum of

money double itself at $6\frac{1}{4}\%$ simple interest per annum ?

- (1) 24 years (2) 20 years
 (3) 16 years (4) 12 years
 (SSC CGL Tier-I Exam. 16.05.2010
 (Second Sitting)

11. At a certain rate of simple interest, a certain sum of money becomes double of itself in 10 years. It will become treble of itself in

- (1) 15 years (2) 18 years
 (3) 20 years (4) 30 years

(SSC CISF ASI Exam. 29.08.2010
 (Paper-1)

12. In how much time, will a sum of money become double of itself at 15% per annum simple interest?

- (1) $6\frac{1}{4}$ years (2) $6\frac{1}{2}$ years

- (3) $6\frac{1}{3}$ years (4) $6\frac{2}{3}$ years

(SSC Data Entry Operator
 Exam. 31.08.2008)

13. In how many years will a sum of money double itself at 12% per annum?

- (1) 8 yrs. 6 months
 (2) 6 yrs. 9 months
 (3) 8 yrs. 4 months
 (4) 7 yrs. 6 months

(SSC CHSL DEO & LDC
 Exam. 21.10.2012 (IInd Sitting)

14. A sum amounts to double in 8 years by simple interest. Then the rate of simple interest per annum is

- (1) 10% (2) 12.5%
 (3) 15% (4) 20%

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014
 TF No. 999 KPO)

15. A sum doubles itself in 16 years, then in how many years will it triple itself; rate of interest being simple

- (1) 25 years (2) 24 years
 (3) 48 years (4) 64 years

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IInd Sitting
 TF No. 545 QP 6)

16. In certain years a sum of money

is doubled to itself at $6\frac{1}{4}\%$ simple interest per annum, then the required time will be

- (1) 16 years (2) $12\frac{1}{2}$ years

- (3) 8 years (4) $10\frac{2}{3}$ years

(SSC CGL Tier-I Exam. 09.08.2015
 (Ist Sitting) TF No. 1443088)

17. The simple interest on a sum of

money is $\frac{8}{25}$ of the sum. If the number of years is numerically half the rate percent per annum, then the rate percent per annum is

- (1) 5 (2) 8
 (3) $6\frac{1}{4}$ (4) 4

(SSC CGL Tier-II Exam.
 25.10.2015, TF No. 1099685)

SIMPLE INTEREST

- 18.** A certain sum doubles in 7 years at simple interest. The same sum under the same interest rate will become 4 times in how many years.

(1) 14 (2) 28
 (3) 21 (4) 10

(SSC CPO SI, ASI Online Exam. 05.06.2016) (IIInd Sitting)

- 19.** A certain sum of money amounts to Rs. 2200 at 5% p.a. rate of interest, Rs. 2320 at 8% interest in the same period of time. The period of time is :

(1) 3 years (2) 4 years
 (3) 5 years (4) 2 years

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 20.03.2016)
 (IIInd Sitting)

- 20.** At what per cent of simple interest will a sum of money double itself in 15 years?

(1) $6\frac{1}{3}\%$ (2) $6\frac{2}{3}\%$

(3) $6\frac{1}{2}\%$ (4) 6%

(SSC CGL Tier-I (CBE) Exam. 03.09.2016) (IIInd Sitting)

- 21.** If a sum of money deposited in a bank at simple interest is doubled in 6 years, then after 12 years, the amount will be

(1) $\frac{5}{2}$ times the original amount
 (2) 3 times the original amount
 (3) $\frac{7}{2}$ times the original amount
 (4) 4 times the original amount

(SSC CGL Tier-I (CBE) Exam. 03.09.2016) (IIInd Sitting)

- 22.** The rate of simple interest for which a sum of money becomes 5 times of itself in 8 years is :

(1) 30% (2) 40%
 (3) 50% (4) 55%

(SSC CGL Tier-I (CBE) Exam. 04.09.2016) (IIIrd Sitting)

- 23.** If a sum of money doubles itself in 8 years, then the interest rate in percentage is

(1) $8\frac{1}{2}\%$ (2) 10%
 (3) $10\frac{1}{2}\%$ (4) $12\frac{1}{2}\%$

(SSC CGL Tier-I (CBE) Exam. 10.09.2016) (IIIrd Sitting)

- 24.** The rate of simple interest per annum at which a sum of money

doubles itself in $16\frac{2}{3}$ years is

(1) 4% (2) 5%
 (3) 6% (4) $6\frac{2}{3}\%$

(SSC CGL Tier-I (CBE) Exam. 11.09.2016) (IIInd Sitting)

TYPE-III

- 1.** In what time will the simple interest be $\frac{2}{5}$ of the principal at 8 per cent per annum?

(1) 8 years (2) 7 years
 (3) 5 years (4) 6 years

(SSC CGL Prelim Exam. 24.02.2002 (First Sitting))

- 2.** The simple interest on a sum after 4 years is $\frac{1}{5}$ of the sum. The rate of interest per annum is

(1) 4% (2) 5%
 (3) 6% (4) 8%

(SSC CGL Prelim Exam. 24.02.2002 (Middle Zone))

- 3.** Simple interest on a certain sum for 6 years is $\frac{9}{25}$ of the sum. The rate of interest is

(1) 6% (2) $6\frac{1}{2}\%$

(3) 8% (4) $8\frac{1}{2}\%$

(SSC CGL Tier-1 Exam. 19.06.2011 (Second Sitting))

- 4.** The simple interest on a sum for 5 years is one fourth of the sum. The rate of interest per annum is

(1) 5% (2) 6%
 (3) 4% (4) 8%

(SSC CGL Tier-1 Exam. 26.06.2011 (First Sitting))

- 5.** On a certain sum, the simple

interest at the end of $6\frac{1}{4}$ years

becomes $\frac{3}{8}$ of the sum. The rate of interest is

(1) 5% (2) 6%
 (3) 7% (4) 8%

(SSC CPO (SI, ASI & Intelligence Officer) Exam. 28.08.2011 (Paper-I))

- 6.** The present worth of a bill due 7 months hence is ₹ 1200 and if the bill were due at the end of

$2\frac{1}{2}$ years its present worth

would be ₹ 1016. The rate per cent is

(1) 5% (2) 10%
 (3) 15% (4) 20%

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting TF No. 545 QP 6)

- 7.** At the rate of simple interest per annum, the interest on a certain sum of money for 10 years will be $\frac{2}{5}$ th part of the amount, then

the rate of simple interest is

(1) 5% (2) $6\frac{2}{3}\%$

(3) 7% (4) $4\frac{1}{2}\%$

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

- 8.** A and B borrowed Rs. 3000 and Rs. 3200 respectively at the same

rate of interest for $2\frac{1}{2}$ years. If B paid Rs. 40 more interest than A, find the rate of interest.

(1) 5% (2) 7%
 (3) 8% (4) 6%

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015 IIInd Sitting)

TYPE-IV

- 1.** The simple interest on a certain sum at 5% per annum for 3 years and 4 years differ by ₹ 42. The sum is :

(1) ₹ 210 (2) ₹ 280
 (3) ₹ 750 (4) ₹ 840

(SSC CGL Prelim Exam. 04.07.1999 (First Sitting))

- 2.** The difference between the simple interest received from two different sources on ₹ 1500 for 3 years is ₹ 13.50. The difference between their rates of interest is:

(1) 0.1% (2) 0.2%
 (3) 0.3% (4) 0.4%

(SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))

SIMPLE INTEREST

- 3.** The simple interest on a sum of money is $\frac{4}{9}$ of the principal and the number of years is equal to the rate percent per annum. The rate per annum is :
- (1) 5% (2) $6\frac{2}{3}\%$
 (3) 6% (4) $7\frac{1}{5}\%$
- (SSC CGL Prelim Exam. 27.02.2000
 (Second Sitting)
- 4.** The simple interest on a certain sum for 8 months at 4% per annum is ₹ 129 less than the simple interest on the same sum for 15 months at 5% per annum. The sum is :
- (1) ₹ 2,580 (2) ₹ 2400
 (3) ₹ 2529 (4) ₹ 3600
- (SSC CGL Prelim Exam. 11.05.2003
 (First Sitting)
- 5.** Mohan lent some amount of money at 9% simple interest and an equal amount of money at 10% simple interest each for two years. If his total interest was Rs. 760, what amount was lent in each case ?
- (1) ₹ 1700 (2) ₹ 1800
 (3) ₹ 1900 (4) ₹ 2000
- (SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting)
- 6.** Simple interest on a certain sum at a certain annual rate of interest is $\frac{16}{25}$ of the sum. If the number representing rate per cent and time in years be equal, then the rate of interest is
- (1) 8% (2) $11\frac{1}{2}\%$
 (3) $12\frac{1}{2}\%$ (4) $12\frac{1}{4}\%$
- (SSC CGL Prelim Exam. 08.02.2004
 (IInd Sitting) & (SSC CGL Tier-I Exam. 26.06.2011) (IInd Sitting)
- 7.** A sum of ₹ 1500 is lent out in two parts in such a way that the simple interest on one part at 10% per annum for 5 years is equal to that on another part at 12.5% per annum for 4 years. The sum lent out at 12.5% is :
- (1) ₹ 500 (2) ₹ 1000
 (3) ₹ 750 (4) ₹ 1250
- (SSC CGL Prelim Exam. 13.11.2005
 (First Sitting)
- 8.** If the simple interest for 6 years be equal to 30% of the principal, it will be equal to the principal after
- (1) 20 years (2) 30 years
 (3) 10 years (4) 22 years
- (SSC CPO S.I. Exam. 03.09.2006)
- 9.** Simple interest on ₹ 500 for 4 years at 6.25% per annum is equal to the simple interest on ₹ 400 at 5% per annum for a certain period of time. The period of time is
- (1) 4 years (2) 5 years
 (3) $6\frac{1}{4}$ years (4) $8\frac{2}{3}$ years
- (SSC CGL Prelim Exam. 04.02.2007
 (First Sitting)
- 10.** The simple interest on a sum of money is $\frac{1}{16}$ of the principal and the number of years is equal to the rate per cent per annum. The rate per annum is
- (1) $1\frac{1}{2}\%$ (2) $2\frac{1}{2}\%$
 (3) $3\frac{1}{2}\%$ (4) $4\frac{1}{2}\%$
- (SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (IInd Sitting) & (SSC CHSL DEO & LDC Exam. 27.10.2013)
- 11.** If ₹ 12,000 is divided into two parts such that the simple interest on the first part for 3 years at 12% per annum is equal to the simple interest on the second part for $4\frac{1}{2}$ years at 16% per annum, the greater part is
- (1) ₹ 8,000 (2) ₹ 6,000
 (3) ₹ 7,000 (4) ₹ 7,500
- (SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting)
- 12.** The simple interest on a sum of money is $\frac{1}{4}$ th of the principal and the number of years is equal to rate per cent per annum. The rate per cent is
- (1) 2.5% (2) 5%
 (3) 7.5% (4) 10%
- (SSC CPO S.I. Exam. 06.09.2009)
- 13.** Equal sum of money are lent to X and Y at 7.5% per annum for a period of 4 years and 5 years respectively. If the difference in interest, paid by them was ₹ 150, the sum lent to each was
- (1) ₹ 500 (2) ₹ 1000
 (3) ₹ 2000 (4) ₹ 3000
- (SSC CPO S.I. Exam. 06.09.2009)
- 14.** A sum of ₹ 1750 is divided into two parts such that the interests on the first part at 8% simple interest per annum and that on the other part at 6% simple interest per annum are equal. The interest on each part (In rupees) is
- (1) 60 (2) 65
 (3) 70 (4) 40
- (SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone)
- 15.** A borrows ₹ 800 at the rate of 12% per annum simple interest and B borrows ₹ 910 at the rate of 10% per annum, simple interest. In how many years will their amounts of debt be equal ?
- (1) 18 years (2) 20 years
 (3) 22 years (4) 24 years
- (SSC CGL Prelim Exam. 04.02.2007
 (First Sitting)
- 16.** The simple interest on a sum of money is $\frac{1}{9}$ of the principal and the number of years is equal to rate per cent per annum. The rate per annum is
- (1) 3% (2) $\frac{1}{3}\%$
 (3) $3\frac{1}{3}\%$ (4) $\frac{3}{10}\%$
- (SSC CPO SI. Exam. 12.12.2010) &
 (SSC CGL Tier-1 Exam. 19.06.2011)
 (First Sitting)
- 17.** A person deposited ₹ 500 for 4 years and ₹ 600 for 3 years at the same rate of simple interest in a bank. Altogether he received ₹ 190 as interest. The rate of simple interest per annum was
- (1) 4% (2) 5%
 (3) 2% (4) 3%
- (SSC Multi-Tasking Staff Exam. 17.03.2013, IInd Sitting)

SIMPLE INTEREST

18. The difference between the simple interest received from two different banks on ₹ 500 for 2 years is ₹ 2.50. The difference between their (per annum) rate of interest is :

- (1) 0.10% (2) 0.25%
 - (3) 0.50% (4) 1.00%
- (SSC CHSL DEO CHSL DEO & LDC Exam. 27.11.2010) & (SSC CHSL DEO & LDC Exam. 04.11.2012)

19. In how many years will the simple interest on a sum of money be equal to the principal at the

rate of $\frac{16}{3}\%$ per annum ?

- (1) 4 years (2) 5 years
 - (3) 6 years (4) 8 years
- (SSC CHSL DEO & LDC Exam. 28.11.2010 (IInd Sitting))

20. The rate of interest per annum at which the total simple interest of a certain capital for 1 year is equal to the total simple interest of the same capital at the rate of 5% per annum for 2 years, is

- (1) $\frac{5}{2}\%$ (2) 10%
 - (3) 25% (4) 12.5%
- (SSC Delhi Police S.I. (SI) Exam. 19.08.2012)

21. The simple interest on ₹ 4,000 in 3 years at the rate of $x\%$ per annum equals the simple interest on ₹ 5,000 at the rate of 12% per annum in 2 years. The value of x is

- (1) 10% (2) 6%
 - (3) 8% (4) 9%
- (SSC Graduate Level Tier-I Exam. 19.05.2013 1st Sitting)

22. If x, y, z are three sum of money such that y is the simple interest on x and z is the simple interest on y for the same time and at the same rate of interest, then we have

- (1) $z^2 = xy$ (2) $xyz = 1$
 - (3) $x^2 = yz$ (4) $y^2 = zx$
- (SSC CHSL DEO & LDC Exam. 10.11.2013, IInd Sitting)

23. Prakash lends a part of ₹ 20,000 at 8% simple interest and retaining at $\frac{4}{3}\%$ simple interest.

- His total income after a year was ₹ 800. Find the sum lent at 8%.
- (1) ₹ 8,000 (2) ₹ 12,000
 - (3) ₹ 6,000 (4) ₹ 10,000
- (SSC CGL Tier-II Exam. 21.09.2014)

24. Ram deposited a certain sum of money in a company at 12% per annum simple interest for 4 years and deposited equal amount in fixed deposit in a bank for 5 years at 15% per annum simple interest. If the difference in the interest from two sources is ₹ 1350, then the sum deposited in each case is :

- (1) ₹ 3000 (2) ₹ 4000
 - (3) ₹ 5000 (4) ₹ 6500
- (SSC CGL Tier-I Exam. 16.08.2015 (IInd Sitting) TF No. 2176783)

25. The difference between simple interest and the true discount on Rs. 2400 due 4 years hence at 5% per annum simple interest is

- (1) Rs. 30 (2) Rs. 70
- (3) Rs. 80 (4) Rs. 50

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IInd Sitting)

TYPE-V

1. A sum of ₹1550 was lent partly at 5% and partly at 8% simple interest. The total interest received after 3 years is ₹ 300. The ratio of money lent at 5% to that at 8% is :

- (1) 5 : 8 (2) 8 : 5
 - (3) 31 : 6 (4) 16 : 15
- (SSC CGL Prelim Exam. 24.02.2002 (First Sitting))

2. A person lent ₹ 5,000 partly at the rate of 4 per cent and partly at the rate of 5 per cent per annum simple interest. The total interest after 2 years is ₹ 440. To find the sum of money lent at each of the above rates, ₹ 5,000 is to be divided in the ratio :

- (1) 4 : 5 (2) 3 : 2
 - (3) 5 : 4 (4) 2 : 3
- (SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))

3. A person borrows some money for 5 years and loan amount : total interest amount is 5 : 2. The ratio of loan amount : interest rate is equal to :

- (1) 2 : 25 (2) 2 : 1
 - (3) 5 : 2 (4) 25 : 2
- (SSC Section Officer (Commercial Audit) Exam. 25.09.2005)

4. A person invests money in three different schemes for 6 years, 10 years and 12 years at 10 per cent, 12 per cent and 15 per cent simple interest respectively. At the

completion of each scheme, he gets the same interest. The ratio of his investment is

- (1) 6 : 3 : 2 (2) 2 : 3 : 4
- (3) 3 : 4 : 6 (4) 3 : 4 : 2

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006 (Second Sitting))

5. With a given rate of simple interest, the ratio of principal and amount for a certain period of time is 4 : 5. After 3 years, with the same rate of interest, the ratio of the principal and amount becomes 5 : 7. The rate of interest is

- (1) 4% (2) 6%
 - (3) 5% (4) 7%
- (SSC CGL Prelim Exam. 04.02.2007 (First Sitting))

6. Ratio of the principal and the amount after 1 year is 10 : 12. Then the rate of interest per annum is :

- (1) 12% (2) 16%
- (3) 18% (4) 20%

FCI Assistant Grade-III Exam. 05.02.2012 (Paper-I) East Zone (IInd Sitting)

7. In a certain time, the ratio of a certain principal and the simple interest obtained from it are in the ratio 10 : 3 at 10% interest per annum. The number of years the money was invested is

- (1) 1 year (2) 3 years
 - (3) 5 years (4) 7 years
- (SSC Multi-Tasking (Non-Technical) Staff Exam. 20.02.2011)

8. ₹12,000 is divided into two parts so that the simple interest on the first part for 3 years at 12% per annum may be equal to the simple interest on the second part

for $\frac{1}{2}$ years at 16% per annum.

The ratio of the first part to the second part is

- (1) 2 : 1 (2) 1 : 2
 - (3) 2 : 3 (4) 3 : 2
- (SSC CHSL DEO & LDC Exam. 28.10.2012, 1st Sitting)

9. If ratio of principal and simple interest for 1 year is 25 : 1, then the rate of interest is

- (1) 4% (2) 25%
 - (3) 5% (4) 20%
- (SSC CGL Tier-I Re-Exam, 30.08.2015)

SIMPLE INTEREST

- 10.** If the ratio of principal and the simple interest for 5 years is 10 : 3, then the rate of interest is :
 (1) 5% (2) 6%
 (3) 8% (4) 3%
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 15.11.2015
 (IInd Sitting) TF No. 7203752)
- 11.** A sum of Rs. 4000 is lent out in two parts, one at 8% simple interest and the other at 10% simple interest. If the annual interest is Rs. 352, the sum lent at 8% is
 (1) Rs. 2900 (2) Rs. 2200
 (3) Rs. 2400 (4) Rs. 3100
 (SSC CGL Tier-II (CBE) Exam. 30.11.2016)
- TYPE-VI**
- 1.** A sum of ₹ 400 amounts to ₹ 480 in 4 years. What will it amount to if the rate of interest is increased by 2%?
 (1) ₹ 484 (2) ₹ 560
 (3) ₹ 512 (4) None of these
 (SSC CGL Prelim Exam. 27.02.2000
 (First Sitting))
- 2.** A man loses ₹ 55.50 yearly when the annual rate of interest falls from 11.5% to 10%. His capital (in rupees) is
 (1) 3700 (2) 7400
 (3) 8325 (4) 11100
 (SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting))
- 3.** If the annual rate of simple interest increases from 10% to $12\frac{1}{2}\%$, a man's yearly income increases by ₹ 1250. His principal (in rupees) is
 (1) 50,000 (2) 45,000
 (3) 60,000 (4) 65,000
 (SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting))
- 4.** A sum was invested on simple interest at a certain rate for 2 years. Had it been put at 3% higher rate, it would have fetched ₹ 72 more. The sum is
 (1) ₹ 1,200 (2) ₹ 1,500
 (3) ₹ 1,600 (4) ₹ 1,800
 (SSC CPO S.I. Exam. 06.09.2009)
- 5.** A sum of money was lent at simple interest at a certain rate for 3 years. Had it been lent at 2.5% per annum higher rate, it would have fetched ₹ 540 more. The money lent was :
 (1) ₹ 6400 (2) ₹ 6472
 (3) ₹ 6840 (4) ₹ 7200
 (SSC CHSL DEO & LDC Exam. 27.11.2010)
- 6.** A sum of money was invested at a certain rate of simple interest for 2 years. Had it been invested at 1% higher rate, it would have fetched ₹ 24 more interest. The sum of money is :
 (1) ₹ 1200 (2) ₹ 1050
 (3) ₹ 1000 (4) ₹ 9600
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (Ist Sitting))
- 7.** A person who pays income tax at the rate of 4 paise per rupee, find that a fall of interest rate from 4% to 3.75% diminishes his net yearly income by ₹ 48. What is his capital?
 (1) ₹ 24,000 (2) ₹ 25,000
 (3) ₹ 20,000 (4) ₹ 18,000
 (SSC CHSL DEO & LDC Exam. 04.11.2012, IInd Sitting)
- 8.** A sum was lent at simple interest at a certain rate for 2 years. Had it been lent at 3% higher rate, it would have fetched ₹ 300 more. The original sum of money was :
 (1) ₹ 5000 (2) ₹ 6000
 (3) ₹ 7000 (4) ₹ 4000
 (SSC Multi-Tasking Staff Exam. 10.03.2013)
- 9.** A sum of ₹ 2,400 amounts to ₹ 3,264 in 4 years at a certain rate of simple interest. If the rate of interest is increased by 1%, the same sum in the same time would amount to
 (1) ₹ 3,288 (2) ₹ 3,312
 (3) ₹ 3,340 (4) ₹ 3,360
 (SSC Multi-Tasking Staff Exam. 24.03.2013, Ist Sitting)
- 10.** ₹ 800 amounts to ₹ 920 in 3 years at simple interest. If the interest rate is increased by 3%, it would amount to
 (1) ₹ 1,056 (2) ₹ 1,112
 (3) ₹ 1,182 (4) ₹ 992
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)
- 11.** A sum of Rs. 800 amounts to Rs. 920 in 3 years at the simple interest rate. If the rate is increased by 3% p.a., what will be the sum amount to in the same period ?
 (1) ₹ 992 (2) ₹ 962
 (3) ₹ 942 (4) ₹ 982
 (SSC CHSL DEO & LDC Exam. 02.11.2014 (IInd Sitting))
- 12.** The amount ₹ 2,100 became ₹ 2,352 in 2 years at simple interest. If the interest rate is decreased by 1%, what is the new interest ?
 (1) ₹ 210 (2) ₹ 220
 (3) ₹ 242 (4) ₹ 252
 (SSC CHSL DEO Exam. 02.11.2014 (Ist Sitting))
- 13.** A sum of Rs. 800 becomes Rs. 956 in 3 years at a certain rate of simple interest. If the rate of interest is increased by 4%, what amount will the same sum become in 3 years ?
 (1) Rs. 1025 (2) RS. 1042
 (3) Rs. 1052 (4) Rs. 1024
 (SSC Constable (GD) Exam. 04.10.2015, Ist Sitting)
- 14.** The rate of simple interest per annum of bank being decreased from $5\frac{1}{2}\%$ to $3\frac{1}{2}\%$, the annual income of a person from interest was less by Rs. 105. The sum deposited at the bank was
 (1) Rs. 6,000 (2) Rs. 7,200
 (3) Rs. 6,800 (4) Rs. 7,000
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 20.12.2015 (Ist Sitting) TF No. 9692918)
- TYPE-VII**
- 1.** A sum of ₹ 10,000 is lent partly at 8% and remaining at 10% per annum. If the yearly interest on the average is 9.2%, the two parts are :
 (1) ₹ 4000, ₹ 6000
 (2) ₹ 4500, ₹ 5500
 (3) ₹ 5000, ₹ 5000
 (4) ₹ 5500, ₹ 4500
 (SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))
- 2.** A sum of ₹ 1000 is lent out partly at 8% and the remaining at 10% per annum. If the yearly income on the average is 9.2%, the two parts respectively are
 (1) ₹ 400, ₹ 600 (2) ₹ 450, ₹ 550
 (3) ₹ 500, ₹ 500 (4) ₹ 550, ₹ 450
 (SSC Section Officer (Commercial Audit) Exam. 16.11.2003)

SIMPLE INTEREST

- 3.** An old article is available for ₹ 12,000 at cash payment or is available for ₹ 7,000 cash payment and a monthly instalment of ₹ 630 for 8 months. The rate per cent per annum is
 (1) 2.1 per cent (2) 3 per cent
 (3) 3.25 per cent (4) 3.3 per cent
 (SSC Section Officer (Commercial Audit) Exam. 25.09.2005)
- 4.** The effective annual rate of interest, corresponding to a nominal rate of 6% per annum payable half yearly, is :
 (1) 6.06% (2) 6.07%
 (3) 6.08% (4) 6.09%
 (SSC CGL Prelim Exam. 13.11.2005 (First Sitting))
- 5.** A person lends 40% of his sum of money at 15% per annum, 50% of rest at 10% per annum and the rest at 18% per annum rate of interest. What would be the annual rate of interest, if the interest is calculated on the whole sum ?
 (1) 13.4% (2) 14.33%
 (3) 14.4% (4) 13.33%
 (SSC CGL Prelim Exam. 04.02.2007 (Second Sitting))
- 6.** Ramesh deposited ₹ 15600 in a fixed deposit at the rate of 10% per annum simple interest. After every second year, he adds his interest earnings to the principal. The interest at the end of fourth year is
 (1) ₹ 1716 (2) ₹ 1560
 (3) ₹ 3432 (4) ₹ 1872
 (SSC CGL Prelim Exam. 04.02.2007 (Second Sitting))
- 7.** A part of ₹ 1500 was lent at 10% per annum and the rest at 7% per annum simple interest. The total interest earned in three years was ₹ 396. The sum lent at 10% was
 (1) ₹ 900 (2) ₹ 800
 (3) ₹ 700 (4) ₹ 600
 (SSC CGL Prelim Exam. 04.02.2007 (Second Sitting))
- 8.** What equal instalment of annual payment will discharge a debt which is due as ₹ 848 at the end of 4 years at 4% per annum simple interest ?
 (1) ₹ 212 (2) ₹ 200
 (3) ₹ 250 (4) ₹ 225
 (SSC CPO S.I. Exam. 16.12.2007)

- 9.** Out of ₹ 50,000, that a man has, he lends ₹ 8000 at $5\frac{1}{2}\%$ per annum simple interest and Rs. 24,000 at 6% per annum simple interest. He lends the remaining money at a certain rate of interest so that he gets total annual interest of ₹ 3680. The rate of interest per annum, at which the remaining money is lent, is
 (1) 5% (2) 7%
 (3) 10% (4) 12%
 (SSC CGL Prelim Exam. 27.07.2008 (First Sitting))
- 10.** A man invests half his capital at the rate of 10% per annum, one-third at 9% and the rest at 12% per annum. The average rate of interest per annum, which he gets, is
 (1) 9% (2) 10%
 (3) 10.5% (4) 12%
 (SSC CISF ASI Exam. 29.08.2010 (Paper-1))
- 11.** John invested a sum of money at an annual simple interest rate of 10%. At the end of four years the amount invested plus interest earned was ₹ 770. The amount invested was
 (1) ₹ 650 (2) ₹ 350
 (3) ₹ 550 (4) ₹ 500
 (SSC CISF Constable (GD) Exam. 05.06.2011)
- 12.** Arun lends ₹ 20,000 to two of his friends. He gives ₹ 12,000 to the first at 8% p.a. simple interest. Arun wants to make a profit of 10% on the whole. The simple interest rate at which he should lend the remaining sum of money to the second friend is
 (1) 8% (2) 16%
 (3) 12% (4) 13%
 (SSC Graduate Level Tier-II Exam. 16.09.2012)
- 13.** A person invests ₹ 12,000 as fixed deposit at a bank at the rate of 10% per annum simple interest. But due to some pressing needs he has to withdraw the entire money after 3 years, for which the bank allowed him a lower rate of interest. If he gets ₹ 3,320 less than what he would have got at the end of 5 years, the rate of interest allowed by the bank is
 (1) 7 $\frac{5}{9}\%$ (2) 7 $\frac{4}{9}\%$
 (3) 7 $\frac{8}{9}\%$ (4) 8 $\frac{7}{9}\%$
 (SSC CHSL DEO & LDC Exam. 21.10.2012 (1st Sitting))
- 14.** A certain scheme of investment in simple interest declares that it trebles the investment in 8 years. If you want to quadruple your money through that scheme, you have to invest it for :
 (1) 11 years 6 months
 (2) 10 years 8 months
 (3) 10 years (4) 12 years
 (SSC CHSL DEO & LDC Exam. 21.10.2012 (IIInd Sitting))
- 15.** If a man receives on one-fourth of his capital 3% interest, on two third 5% and on the remainder 11%, the percentage he receives on the whole is
 (1) 4.5% (2) 5%
 (3) 5.5% (4) 5.2%
 (SSC CHSL DEO & LDC Exam. 04.11.2012 (IIInd Sitting))
- 16.** At the same rate of simple interest sum of the interest of ₹ 300 for 4 years and the interest of ₹ 400 for 3 years is ₹ 120. The rate of interest is
 (1) 5 % (2) 4%
 (3) 6% (4) 10%
 (SSC Multi-Tasking Staff Exam. 10.03.2013, Ist Sitting : Patna)
- 17.** Nitin borrowed some money at the rate of 6% p.a. for the first three years, 9% p.a. for the next five years and 13% p.a. for the period beyond eight years. If the total interest paid by him at the end of eleven years is ₹ 8,160, the money borrowed by him (in ₹) was
 (1) 12,000 (2) 6,000
 (3) 8,000 (4) 10,000
 (SSC FCI Assistant Grade-III Main Exam. 07.04.2013)
- 18.** Two equal sums were lent out at 7% and 5% S.I. respectively. The interest earned on the two loans add up to ₹ 960 for 4 years. The total sum lent out is
 (1) ₹ 3500 (2) ₹ 2500
 (3) ₹ 2000 (4) ₹ 3000
 (SSC Constable (GD) Exam. 12.05.2013)

SIMPLE INTEREST

- 19.** Mohan lends Rs. 500 to John and a certain sum to Tom at the same time at a simple interest of 8% per annum. If in 4 years, he altogether receives Rs. 210 as interest from the two, then the sum of money he lent to Tom was
 (1) Rs. 144.75 (2) Rs. 148
 (3) Rs. 156.25 (4) Rs. 165.50
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014 , Ist Sitting TF No. 333 LO 2)
- 20.** What should be the least number of years in which the simple interest on Rs. 2600 at $6\frac{2}{3}\%$ will be an exact number of rupees ?
 (1) 3 (2) 2
 (3) 5 (4) 4
 (SSC Constable (GD) Exam, 04.10.2015, IIInd Sitting)
- 21.** Ram bought a bike for Rs. 60,000. He paid Rs. 10000 cash down and the rest at the end of 2 years at 15% simple interest. How much more did he pay as simple interest ?
 (1) Rs. 15,000 (2) Rs. 25,000
 (3) Rs. 35,000 (4) Rs. 50,000
 (SSC Constable (GD) Exam, 04.10.2015, IIInd Sitting)
- 22.** A sum of Rs. 7,930 is divided into three parts and given on loan at 5% simple interest to A, B and C for 2, 3 and 4 years respectively. If the amounts of all three are equal after their respective periods of loan, then A received a loan of
 (1) Rs. 3,050 (2) Rs. 2,760
 (3) Rs. 2,750 (4) Rs. 2,800
 (SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)
- 23.** A man buys a TV priced at Rs. 16000. He pays Rs. 4000 at once and the rest after 15 months on which he is charged a simple interest at the rate of 12% per year. The total amount he pays for the TV is
 (1) Rs. 18,200 (2) Rs. 17,800
 (3) Rs. 16,800 (4) Rs. 17,200
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IIInd Sitting)
- 24.** If Rahim deposited the same amount of Rs. x in a bank at the beginning of successive 3 years and the bank pays simple interest of 5% per annum, then the amount at his credit at the end of 3rd year will be :
 (1) Rs. $\frac{861x}{400}$ (2) Rs. $\frac{1261x}{400}$
 (3) Rs. $\frac{21x}{20}$ (4) Rs. $\frac{26481x}{8000}$
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IIInd Sitting) TF No. 7203752)
- 25.** A boy aged 12 years is left with Rs. 100,000 which is under a trust. The trustees invest the money at 6% per annum and pay the minor boy a sum of Rs. 2500, for his pocket money at the end of each year. The expenses of trust come out to be Rs. 500 per annum. Find the amount that will be handed over to the minor boy after he attains the age of 18 years.
 (1) Rs. 120000 (2) Rs. 150000
 (3) Rs. 118000 (4) Rs. 125000
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)
- 26.** If A borrowed Rs. P at $x\%$ and B borrowed Rs. Q ($> P$) at $y\%$ per annum at simple interest at the same time, then the amount of their debts will be equal after
 (1) $100 \left(\frac{Q-P}{Px-Qy} \right)$ years
 (2) $100 \left(\frac{Px-Qy}{Q-P} \right)$ years
 (3) $100 \left(\frac{Px-Qy}{P-Q} \right)$ years
 (4) $100 \left(\frac{P-Q}{Px-Qy} \right)$ years
 (SSC CGL Tier-II Online Exam.01.12.2016)
- 27.** A money lender claims to lend money at the rate of 10% per annum simple interest. However, he takes the interest in advance when he lends a sum for one year. At what interest rate does he lend the money actually?
 (1) 10% (2) $10\frac{1}{9}\%$
 (3) 11% (4) $11\frac{1}{9}\%$
 (SSC CPO SI, ASI Online Exam.05.06.2016) (IIInd Sitting)
- 28.** Ramesh borrowed a sum at 5 per annum simple interest from Rahul. He returns the amount after 5 years. Rahul returns 2 % of the total amount received. How much did Ramesh borrowed if he received Rs. 5?
 (1) Rs. 250 (2) Rs. 200
 (3) Rs. 150 (4) Rs. 175
 (SSC CPO SI, ASI Online Exam.05.06.2016) (IIInd Sitting)
- 29.** A man buys a watch for Rs. 1950 in cash and sells it for Rs. 2200 at a credit of 1 year. If the rate of interest be 10% per annum, then how much profit or loss will he have?
 (1) Rs. 55 gain (2) Rs. 30 profit
 (3) Rs. 30 loss (4) Rs. 30 profit
 (SSC CGL Tier-I (CBE) Exam. 27.08.2016) (IIInd Sitting)
- 30.** A money lender lends Rs. 400 for 3 years to a person and lends Rs. 500 for 4 years to the other person at the same rate of simple interest. If altogether he receives Rs. 160 as interest, what is the rate of interest per annum ?
 (1) 5% (2) 7%
 (3) 9% (4) 10%
 (SSC CGL Tier-I (CBE) Exam. 08.09.2016) (IIIInd Sitting)

■ ■ ■ SHORT ANSWERS ■ ■ ■

TYPE-I

1. (2)	2. (3)	3. (4)	4. (1)
5. (4)	6. (1)	7. (3)	8. (3)
9. (4)	10. (4)	11. (3)	12. (4)
13. (3)	14. (2)	15. (4)	16. (3)
17. (1)	18. (1)	19. (1)	20. (3)
21. (3)	22. (4)	23. (4)	24. (3)
25. (1)	26. (1)	27. (2)	28. (4)
29. (1)	30. (3)	31. (2)	32. (2)
33. (3)	34. (4)	35. (3)	36. (1)
37. (2)	38. (1)	39. (4)	40. (3)
41. (1)	42. (1)	43. (2)	44. (2)
45. (2)	46. (1)	47. (3)	48. (3)
49. (2)	50. (3)	51. (2)	52. (3)
53. (1)			

11

COMPOUND INTEREST

Importance : In examinations of different levels 1 or 2 questions of compound interest are essentially asked, they differ in difficulty level. Questions are of limited variety and hence, marks may be ensured with preparation.

Scope of questions : Questions asked in different examinations are mainly of two types – Based on compound interest only and based on both of simple interest and compound interest. Rate of interest may be yearly, half yearly or quarterly. EMI (Equal Monthly Installments) based questions are also asked.

Way to success : Questions can be solved easily by learning basic concepts and formulae learning squares and cubes of numbers will increase speed.

RULE 1 : If A = Amount, P = Principal, r = Rate of Compound Interest (C.I.), n = no. of years then,

$$A = P \left(1 + \frac{r}{100}\right)^n, \text{ C.I.} = A - P$$

$$\text{C.I.} = P \left[\left(1 + \frac{r}{100}\right)^n - 1 \right]$$

RULE 2 : Compound interest is calculated on four basis:

	Rate	Time(n)
Annually	$r\%$	t years
Half-yearly	$\frac{r}{2}\%$	$t \times 2$ years
(Semi-annually)		
Quarterly	$\frac{r}{4}\%$	$t \times 4$ years
Monthly	$\frac{r}{12}\%$	$t \times 12$ years

RULE 3 : If there are distinct 'rates of interest' for distinct time periods i.e.,

Rate for 1st year $\rightarrow r_1\%$

Rate for 2nd year $\rightarrow r_2\%$

Rate for 3rd year $\rightarrow r_3\%$ and so on

$$\text{Then } A = P \left(1 + \frac{r_1}{100}\right) \left(1 + \frac{r_2}{100}\right) \left(1 + \frac{r_3}{100}\right) \dots \dots \dots$$

C.I. = $A - P$

RULE 4 : If the time is in fractional form i.e., $t = nF$, then

$$A = P \left(1 + \frac{r}{100}\right)^n \left(1 + \frac{rF}{100}\right) \text{ e.g. } t = 3\frac{5}{7} \text{ yrs, then}$$

$$A = P \left(1 + \frac{r}{100}\right)^3 \left(1 + \frac{r}{100} \times \frac{5}{7}\right)$$

RULE 5 : A certain sum becomes ' m ' times of itself in ' t ' years on compound interest then the time it will take to become m^n times of itself is $t \times n$ years.

RULE 6 : The difference between C.I. and S.I. on a sum 'P' in 2 years at the rate of $R\%$ rate of compound interest will be

$$\text{C.I.} - \text{S.I.} = P \left(\frac{R}{100}\right)^2 = \frac{\text{S.I.} \times R}{200}$$

$$\text{For 3 years, C.I.} - \text{S.I.} = P \left(\frac{R}{100}\right)^2 \times \left(3 + \frac{R}{100}\right)$$

RULE 7 : If on compound interest, a sum becomes ₹ A in ' a ' years and ₹ B in ' b ' years then,

$$(i) \text{ If } b - a = 1, \text{ then, } R\% = \left(\frac{B}{A} - 1\right) \times 100\%$$

$$(ii) \text{ If } b - a = 2, \text{ then, } R\% = \left(\sqrt{\frac{B}{A}} - 1\right) \times 100\%$$

$$(iii) \text{ If } b - a = n \text{ then, } R\% = \left[\left(\frac{B}{A}\right)^{\frac{1}{n}} - 1\right] \times 100\%$$

where n is a whole number.

RULE 8 : If a sum becomes 'n' times of itself in ' t ' years

$$\text{on compound interest, then } R\% = \left[n^{\frac{1}{t}} - 1\right] \times 100\%$$

RULE 9 : If a sum 'P' is borrowed at $r\%$ annual compound interest which is to be paid in 'n' equal annual installments including interest, then

(i) for $n = 2$, Each annual installment

$$= \frac{P}{\left(\frac{100}{100+r}\right) + \left(\frac{100}{100+r}\right)^2}$$

(ii) For $n = 3$, Each annual installment

$$= \frac{P}{\left(\frac{100}{100+r}\right) + \left(\frac{100}{100+r}\right)^2 + \left(\frac{100}{100+r}\right)^3}$$

RULE 10 : The simple interest for a certain sum for 2 years at an annual rate interest $R\%$ is S.I., then

$$\text{C.I.} = \text{S.I.} \left(1 + \frac{R}{200}\right)$$

RULE 11 : A certain sum at C.I. becomes x times in n_1 year and y times in n_2 years then $\frac{1}{x^{n_1}} = \frac{1}{y^{n_2}}$



QUESTIONS ASKED IN PREVIOUS SSC EXAMS

TYPE-I

- 1.** At what percent per annum will ₹ 3000/- amounts to ₹ 3993/- in 3 years if the interest is compounded annually?

(1) 9% (2) 10%
 (3) 11% (4) 13%

(SSC CGL Prelim Exam. 27.02.2000
 (First Sitting) & (SSC SAS Exam.
 26.06.2010 (Paper-I)

- 2.** The compound interest on ₹ 10,000 in 2 years at 4% per annum, the interest being compounded half-yearly, is :

(1) ₹ 636.80 (2) ₹ 824.32
 (3) ₹ 912.86 (4) ₹ 828.82

(SSC CGL Prelim Exam. 27.02.2000
 (Second Sitting)

- 3.** In how many years will ₹ 2,000 amounts to ₹ 2,420 at 10% per annum compound interest?

(1) 3 years (2) $2\frac{1}{2}$ years
 (3) 2 years (4) $1\frac{1}{2}$ years

(SSC CGL Prelim Exam. 27.02.2000
 (IInd Sitting) & (SSC CGL Prelim
 Exam. 13.11.2005 (IInd Sitting)

- 4.** In what time will ₹ 1000 becomes ₹ 1331 at 10% per annum compounded annually?

(1) 3 years (2) $2\frac{1}{2}$ years
 (3) 2 years (4) $3\frac{1}{2}$ years

(SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting) & (SSC MTS
 Exam. 24.03.2013 (Ist Sitting)

- 5.** The principal, which will amount to ₹ 270.40 in 2 years at the rate of 4% per annum compound interest, is

(1) ₹ 200 (2) ₹ 225
 (3) ₹ 250 (4) ₹ 220

(SSC CPO S.I. Exam. 05.09.2004)

- 6.** A sum of money on compound interest amounts to ₹ 10648 in 3 years and ₹ 9680 in 2 years. The rate of interest per annum is :

(1) 5% (2) 10%
 (3) 15% (4) 20%

(SSC CPO S.I. Exam. 26.05.2005)

- 7.** At what rate per cent per annum will ₹ 2304 amount to ₹ 2500 in 2 years at compound interest?

(1) $4\frac{1}{2}\%$ (2) $4\frac{1}{5}\%$

(3) $4\frac{1}{6}\%$ (4) $4\frac{1}{3}\%$

(SSC CPO S.I. Exam. 05.09.2004)
 & (SSC CGL Prelim Exam.
 13.11.2005 (First Sitting)

- 8.** A sum becomes ₹ 1,352 in 2 years at 4% per annum compound interest. The sum is

(1) ₹ 1,225 (2) ₹ 1,270
 (3) ₹ 1,245 (4) ₹ 1,250

(SSC CGL Prelim Exam. 11.05.2003
 (IInd Sitting) & (SSC CGL Prelim
 Exam. 13.11.2005 (IInd Sitting) &
 (SSC CISF ASI Exam. 29.08.2010)

- 9.** The compound interest on ₹ 16,000 for 9 months at 20% per annum, interest being compounded quarterly, is

(1) ₹ 2,520 (2) ₹ 2,524
 (3) ₹ 2,522 (4) ₹ 2,518

(SSC CPO S.I. Exam. 03.09.2006)

- 10.** If the rate of interest be 4% per annum for first year, 5% per annum for second year and 6% per annum for third year, then the compound interest of ₹ 10,000 for 3 years will be

(1) ₹ 1,600 (2) ₹ 1,625.80
 (3) ₹ 1,575.20 (4) ₹ 2,000

(SSC CPO S.I. Exam. 03.09.2006)

- 11.** The compound interest on ₹ 2000 in 2 years if the rate of interest is 4% per annum for the first year and 3% per annum for the second year, will be

(1) ₹ 142.40 (2) ₹ 140.40
 (3) ₹ 141.40 (4) ₹ 143.40

(SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting))

- 12.** At what rate per annum will ₹ 32000 yield a compound interest of ₹ 5044 in 9 months interest being compounded quarterly?

(1) 20% (2) 32%
 (3) 50% (4) 80%

(SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting))

- 13.** The compound interest on ₹ 8,000 at 15% per annum for 2 years 4 months, compounded annually is:

(1) ₹ 2980 (2) ₹ 3091
 (3) ₹ 3109 (4) ₹ 3100

(SSC CPO S.I. Exam. 16.12.2007)

- 14.** In what time will ₹ 10,000 amount to ₹ 13310 at 20% per annum compounded half yearly?

(1) $1\frac{1}{2}$ years (2) 2 years

(3) $2\frac{1}{2}$ years (4) 3 years

(SSC CGL Prelim Exam. 27.07.2008
 (First Sitting))

- 15.** A certain sum of money yields ₹ 1261 as compound interest for 3 years at 5% per annum. The sum is

(1) ₹ 9000 (2) ₹ 8400
 (3) ₹ 7500 (4) ₹ 8000

(SSC CGL Prelim Exam. 27.07.2008
 (First Sitting))

- 16.** A certain sum, invested at 4% per annum compound interest, compounded half yearly, amounts to ₹ 7,803 at the end of one year. The sum is

(1) ₹ 7,000 (2) ₹ 7,200
 (3) ₹ 7,500 (4) ₹ 7,700

(SSC CGL Prelim Exam. 27.07.2008 (IInd Sitting))

- 17.** A certain sum amounts to ₹ 5,832 in 2 years at 8% per annum compound interest, the sum is

(1) ₹ 5,000 (2) ₹ 5,200
 (3) ₹ 5,280 (4) ₹ 5,400

(SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting))

- 18.** The compound interest on ₹ 6,000 at 10% per annum for

$1\frac{1}{2}$ years, when the interest being compounded annually, is

(1) ₹ 910 (2) ₹ 870
 (3) ₹ 930 (4) ₹ 900

(SSC CPO S.I. Exam. 09.11.2008)

- 19.** In what time ₹ 8,000 will amount to ₹ 9,261 at 10% per annum compound interest, when the interest is compounded half yearly?

(1) $3\frac{1}{2}$ years (2) $1\frac{1}{2}$ years

(3) $2\frac{1}{2}$ years (4) 2 years

(SSC CPO S.I. Exam. 09.11.2008)

COMPOUND INTEREST

20. At what rate per cent per annum will a sum of ₹ 1,000 amounts to ₹ 1,102.50 in 2 years at compound interest?

- (1) 5% (2) 5.5%
 (3) 6% (4) 6.5%

(SSC CGL Tier-I Exam. 16.05.2010
 (First Sitting)

21. In how many years will a sum of ₹ 800 at 10% per annum compound interest, compounded semi-annually becomes ₹ 926.10?

- (1) $1\frac{1}{2}$ years (2) $1\frac{2}{3}$ years
 (3) $2\frac{1}{3}$ years (4) $2\frac{1}{2}$ years

(SSC CGL Tier-I Exam. 16.05.2010
 (Second Sitting)

22. An amount of ₹ 6,000 lent at 5% per annum compound interest for 2 years will become

- (1) ₹ 600 (2) ₹ 6,600
 (3) ₹ 6,610 (4) ₹ 6,615

(SSC (South Zone) Investigator Exam. 12.09.2010)

23. In what time will ₹ 1000 amounts to ₹ 1331 at 20% per annum, compounded half yearly?

- (1) $1\frac{1}{2}$ years (2) 2 years
 (3) 1 year (4) $2\frac{1}{2}$ years

(SSC CGL Prelim Exam. 11.05.2003
 (First Sitting)

24. The compound interest on ₹ 30,000 at 7% per annum for a certain time is ₹ 4,347. The time is

- (1) 3 years (2) 4 years
 (3) 2 years (4) 2.5 years

(SSC Sub-Inspector & LDC Exam. 21.10.2012 (Ist Sitting)

25. A sum of ₹ 8000 will amount to ₹ 8820 in 2 years if the interest is calculated every year. The rate of compound interest is

- (1) 6% (2) 7%
 (3) 3% (4) 5%

(SSC Sub-Inspector & LDC Exam. 28.10.2012, Ist Sitting)

26. A principal of ₹ 10,000, after 2 years compounded annually, the rate of interest being 10% per annum during the first year and 12% per annum during the second year (in rupees) will amount to :

- (1) ₹ 12,000 (2) ₹ 12,320
 (3) ₹ 12,500 (4) ₹ 11,320
 (SSC Sub-Inspector & LDC Exam. 04.11.2012, Ist Sitting)

27. The sum of money that yields a compound interest of ₹ 420 during the second year at 5% p.a. is

- (1) ₹ 4,000 (2) ₹ 42,000
 (3) ₹ 8,000 (4) ₹ 21,000

(SSC Graduate Level Tier-I Exam. 11.11.2012, Ist Sitting)

28. A man saves ₹ 2000 at the end of each year and invests the money at 5% compound interest. At the end of 3 years he will have :

- (1) ₹ 4305 (2) ₹ 6305
 (3) ₹ 4205 (4) ₹ 2205

(SSC Multi-Tasking Staff Exam. 10.03.2013)

29. The time in which ₹ 80,000 amounts to ₹ 92,610 at 10% p.a. compound interest, interest being compounded semi-annually is :

- (1) $1\frac{1}{2}$ years (2) 2 years
 (3) $2\frac{1}{2}$ years (4) 3 years

(SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting)

30. A man borrows ₹ 21000 at 10% compound interest. How much he has to pay annually at the end of each year, to settle his loan in two years?

- (1) ₹ 12000 (2) ₹ 12100
 (3) ₹ 12200 (4) ₹ 12300

(SSC Graduate Level Tier-I Exam. 21.04.2013 IIInd Sitting)

31. ₹ 800 at 5% per annum compounded annually will amount to ₹ 882 in

- (1) 1 year (2) 2 years
 (3) 3 years (4) 4 years

(SSC Constable (GD) Exam. 12.05.2013)

32. The compound interest on ₹ 5,000 for 3 years at 10% p. a. will amount to

- (1) ₹ 1,654 (2) ₹ 1,655
 (3) ₹ 1,600 (4) ₹ 1,565

(SSC Graduate Level Tier-II Exam. 29.09.2013)

- 33.** A sum of ₹ 3,200 invested at 10% p.a. compounded quarterly amounts to ₹ 3,362. Compute the time period.

- (1) $\frac{1}{2}$ year (2) 1 year

- (3) 2 years (4) $\frac{3}{4}$ year

(SSC Graduate Level Tier-II Exam. 29.09.2013)

34. The compound interest on a certain sum of money for 2 years at 5% is ₹ 328, then the sum is

- (1) ₹ 3000 (2) ₹ 3600
 (3) ₹ 3200 (4) ₹ 3400

(SSC CGL Tier-II Exam. 21.09.2014)

35. Two years ago, the value of my motorbike was ₹ 62500. If the value depreciates by 4% every year, now its value is

- (1) ₹ 56700 (2) ₹ 57600
 (3) ₹ 57500 (4) ₹ 55700

(SSC CGL Tier-II Exam. 21.09.2014)

36. The compound interest on a sum of money for 2 years is ₹ 615 and the simple interest for the same period is ₹ 600. Find the principal.

- (1) ₹ 6,500 (2) ₹ 6,000
 (3) ₹ 8,000 (4) ₹ 9,500

(SSC CHSL DEO Exam. 16.11.2014 (Ist Sitting))

37. Rekha invested a sum of ₹ 12000 at 5% per annum compound interest. She received an amount of ₹ 13230 after n years. Find n .

- (1) 2.8 years (2) 3.0 years
 (3) 2.5 years (4) 2.0 years

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014 TF No. 999 KPO)

38. When principal = ₹ S , rate of interest = $2r\%$ p.a., then a person will get after 3 years at compound interest

$$(1) \text{₹ } \frac{6Sr}{100}$$

$$(2) \text{₹ } S \left(1 + \frac{r}{100}\right)^3$$

$$(3) \text{₹ } S \left(1 + \frac{r}{50}\right)^3$$

$$(4) \text{₹ } 3S \left(1 + \frac{r}{100}\right)^3$$

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

COMPOUND INTEREST

39. The sum of money which becomes ₹ 2420 at 10 % rate of compound interest after two years is

- (1) ₹ 2000 (2) ₹ 1000
 (3) ₹ 2500 (4) ₹ 1500
 (SSC CGL Tier-II Exam. 12.04.2015
 TF No. 567 TL 9)

40. On a certain principal the compound interest compounded annually for the second year at 10% per annum is ₹ 132. The principal is

- (1) ₹ 1250 (2) ₹ 1000
 (3) ₹ 1200 (4) ₹ 1320
 (SSC CGL Tier-II Exam. 12.04.2015
 TF No. 567 TL 9)

41. The principal that yields a compound interest of Rs. 420 during the second year at 5% per annum is

- (1) Rs. 7,000 (2) Rs. 5,000
 (3) Rs. 8,000 (4) Rs. 6,000
 (SSC CGL Tier-II Exam.
 2014 12.04.2015 (Kolkata Region)
 TF No. 789 TH 7)

42. In what time will Rs. 64,000 amount to Rs. 68,921 at 5% per annum, interest being compounded half yearly ?

- (1) 3 years (2) $2\frac{1}{2}$ years
 (3) 2 years (4) $1\frac{1}{2}$ years
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
 IIInd Sitting)

43. A certain sum will amount to ₹ 12,100 in 2 years at 10% per annum of compound interest, interest being compounded annually. The sum is

- (1) ₹ 8000 (2) ₹ 6000
 (3) ₹ 12000 (4) ₹ 10000
 (SSC CGL Tier-I Exam, 16.08.2015
 (Ist Sitting) TF No. 3196279)

44. At what rate of compound interest per annum will a sum of Rs. 1200 become Rs. 1348.32 in 2 years?

- (1) 7.5% (2) 6.5%
 (3) 7% (4) 6%
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015
 (IIInd Sitting) TF No. 7203752)

45. The compound interest on Rs. 12000 for 9 months at 20% per annum, interest being compounded quarterly is :

- (1) Rs. 1750 (2) Rs. 2089.70
 (3) Rs. 1891.50 (4) Rs. 2136.40
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015
 (IIInd Sitting) TF No. 3441135)

46. The compound interest on Rs. 30,000 at 7% per annum for n years is Rs. 4347. The value of n is

- (1) 3 (2) 2
 (3) 4 (4) 5
 (SSC CGL Tier-II Online Exam.01.12.2016)

47. A sum of Rs. 2420 is accumulated in 2 years at 10% compound interest on a certain amount. Then the original amount is :

- (1) Rs. 1000 (2) Rs. 2000
 (3) Rs. 1500 (4) Rs. 2500
 (SSC CPO Exam. 06.06.2016)
 (Ist Sitting)

48. The compound interest on a sum of Rs. 5000 at 8% per annum for 9 months when interest is compounded quarterly is :

- (1) Rs. 300 (2) Rs. 300.12
 (3) Rs. 306.04 (4) Rs. 308
 (SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016)
 (Ist Sitting)

49. A sum of money invested at compound interest amounts to Rs. 800 in 3 years and to Rs. 840 in 4 years. The rate of interest per annum is :

- (1) $2\frac{1}{2}\%$ (2) 4%
 (3) 5% (4) $6\frac{2}{3}\%$
 (SSC CGL Tier-I (CBE)
 Exam. 27.08.2016) (IIInd Sitting)

50. In how many years will a sum of Rs. 800 at 10% per annum compounded semi-annually become Rs. 926.10?

- (1) $2\frac{1}{2}$ years (2) 3 years
 (3) 2 years (4) $1\frac{1}{2}$ years
 (SSC CGL Tier-I (CBE)
 Exam. 27.08.2016) (IIInd Sitting)

51. A sum of Rs. 2000 amounts to Rs. 4000 in two years at compound interest. In how many years will the same amount become Rs. 8000 ?

- (1) 2 (2) 4
 (3) 6 (4) 8
 (SSC CGL Tier-I (CBE)
 Exam. 29.08.2016) (IIInd Sitting)

52. The compound interest on Rs. 64,000 for 3 years, compounded annually at 7.5% p.a. is

- (1) Rs. 14,400 (2) Rs. 15,705
 (3) Rs. 15,507 (4) Rs. 15,075
 (SSC CGL Tier-I (CBE)
 Exam. 01.09.2016) (Ist Sitting)

53. Find the amount which Shyam will get on Rs. 4096, if he gives

it for 18 months at $12\frac{1}{2}\%$ per annum, interest being compounded half yearly.

- (1) Rs. 5,813 (2) Rs. 4,515
 (3) Rs. 4,913 (4) Rs. 5,713
 (SSC CGL Tier-I (CBE)
 Exam. 02.09.2016) (IIInd Sitting)

54. If Rs. 10000 amounts to Rs. 11664 invested in compound interest (compounded annually) for two years then the annual rate of compound interest is

- (1) 10% (2) 9%
 (3) 8% (4) 6%
 (SSC CGL Tier-I (CBE)
 Exam. 06.09.2016) (Ist Sitting)

55. The compound interest on Rs. 4000 for 4 years at 10% per annum will be

- (1) Rs. 1856.40 (2) Rs. 1600
 (3) Rs. 1856 (4) Rs. 1756.60
 (SSC CGL Tier-II (CBE)
 Exam. 30.11.2016)

56. A man invested a sum of money at compound interest. It amounted to Rs. 2420 in 2 years and to Rs. 2662 in 3 years. Find the sum.

- (1) Rs. 1000 (2) Rs. 2000
 (3) Rs. 5082 (4) Rs. 3000
 (SSC CGL Tier-II Online Exam.01.12.2016)

57. A sum of Rs. 3000 amounts to Rs. 6000 in two years at compound interest. The interest for four years is :

- (1) Rs. 9000 (2) Rs. 12000
 (3) Rs. 6000 (4) Rs. 3000
 (SSC CGL Tier-I (CBE)
 Exam. 31.08.2016 (IIIrd Sitting))

58. If a sum of Rs.12500 is invested for 1 year at 12% per annum interest being compounded semi-annually, then interest earned is :

- (1) Rs.1505 (2) Rs.1535
 (3) Rs.1545 (4) Rs.1550
 (SSC CGL Tier-I (CBE)
 Exam. 06.09.2016 (IIInd Sitting))

59. A sum of money amounts to Rs. 6655 at the rate of 10% compounded annually for 3 years. The sum of money is

- (1) Rs. 5000 (2) Rs. 5500
 (3) Rs. 6000 (4) Rs. 6100
 (SSC CGL Tier-I (CBE)
 Exam. 06.09.2016 (IIIrd Sitting))

COMPOUND INTEREST

60. In what time (in years) will Rs. 8000 amount to Rs. 9261 at 5% per annum, compounded annually?

- (1) 3 (2) $3\frac{1}{2}$
 (3) 4 (4) $4\frac{1}{2}$

(SSC CGL Tier-I (CBE)
Exam. 07.09.2016 (IIInd Sitting)

61. The compound interest on Rs. 1000 at 10% per annum for 3 years in (Rs.) is :

- (1) Rs. 1331 (2) Rs. 331
 (3) Rs. 300 (4) Rs. 1300

(SSC CGL Tier-I (CBE)
Exam. 08.09.2016 (IIInd Sitting)

62. What would be the compound interest of Rs. 25000 for 2 years at the rate of 5% per annum ?

- (1) Rs. 2500 (2) Rs. 2562.5
 (3) Rs. 2425.25 (4) Rs. 5512.5

(SSC CGL Tier-I (CBE)
Exam. 09.09.2016 (IIInd Sitting)

63. The compound interest on Rs.

24000 at 10% per annum for $1\frac{1}{2}$ years, interest being compounded semi-annually is :

- (1) Rs. 3783 (2) Rs. 3777
 (3) Rs. 3780 (4) Rs. 3781

(SSC CGL Tier-I (CBE)
Exam. 09.09.2016 (IIInd Sitting)

64. The sum for 2 years gives a compound interest of Rs. 3225 at the rate of 15% per annum. The sum is

- (1) Rs. 10000 (2) Rs. 20000
 (3) Rs. 15000 (4) Rs. 32250

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

65. In 3 years Rs. 3000 amounts to Rs. 3993 at $x\%$ compound interest, compounded annually. The value of x is

- (1) 10 (2) 8
 (3) 5 (4) $3\frac{1}{3}$

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

66. The least number of years in which a sum of money on 19% p.a. compound interest will be more than double is

- (1) 3 years (2) 4 years
 (3) 5 years (4) 2 years

(SSC Multi-Tasking Staff
Exam. 30.04.2017)

TYPE-II

1. If the compound interest on a certain sum for 2 years at 3% per annum is ₹ 101.50, then the simple interest on the same sum at the same rate and for the same time will be
 (1) ₹ 90.00 (2) ₹ 95.50
 (3) ₹ 100.00 (4) ₹ 98.25

(SSC CPO S.I. Exam. 12.01.2003)

2. If the compound interest on a sum of money for 3 years at the rate of 5% per annum is ₹ 252.20, the simple interest on the same sum at the same rate and for the same time is
 (1) ₹ 220 (2) ₹ 240
 (3) ₹ 245 (4) ₹ 250

(SSC CPO S.I. Exam. 07.09.2003)

3. On a certain sum of money the compound interest for 2 years is ₹ 282.15 and the simple interest for the same period of time is ₹ 270. The rate of interest per annum is
 (1) 6.07% (2) 10%
 (3) 9% (4) 12.15%

(SSC CPO S.I. Exam. 07.09.2003)

4. If the compound interest on a sum for 2 years at $12\frac{1}{2}\%$ per annum is ₹ 510, the simple interest on the same sum at the same rate for the same period of time is :
 (1) ₹ 400 (2) ₹ 480
 (3) ₹ 450 (4) ₹ 460

(SSC CGL Prelim Exam. 08.02.2004)

(First Sitting)

5. The compound interest on a certain sum of money at a certain rate for 2 years is ₹ 40.80 and the simple interest on the same sum is ₹ 40 at the same rate and for the same time. The rate of interest is
 (1) 2% per annum
 (2) 3% per annum
 (3) 4% per annum
 (4) 5% per annum

(SSC CPO S.I. Exam. 05.09.2004)

6. The compound interest on a certain sum of money invested for 2 years at 5% per annum is ₹ 328. The simple interest on the sum, at the same rate and for the same period will be
 (1) ₹ 320 (2) ₹ 308
 (3) ₹ 300 (4) ₹ 287

(SSC CPO S.I. Exam. 05.09.2004) &

(SSC CPO S.I. Exam. 26.05.2005)

7. Compound interest on a sum of money for 2 years at 4 per cent per annum is ₹ 2, 448. Simple interest of the same sum of money at the same rate of interest for 2 years will be
 (1) ₹ 2,500 (2) ₹ 2,400
 (3) ₹ 2,360 (4) ₹ 2,250

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006
(Second Sitting)

8. At a certain rate per annum, the simple interest on a sum of money for one year is ₹ 260 and the compound interest on the same sum for two years is ₹ 540.80. The rate of interest per annum is
 (1) 4% (2) 6%
 (3) 8% (4) 10%

(SSC CGL Prelim Exam. 27.07.2008
(First Sitting)

9. The simple interest on a sum of money at 4% per annum for 2 years is ₹ 80. The compound interest in the same sum for the same period is
 (1) ₹ 82.60 (2) ₹ 82.20
 (3) ₹ 81.80 (4) ₹ 81.60

(SSC CGL Prelim Exam. 27.07.2008

(First Sitting)

10. The compound interest on a certain sum of money at 5% per annum for 2 years is ₹ 246. The simple interest on the same sum for 3 years at 6% per annum is
 (1) ₹ 435 (2) ₹ 450
 (3) ₹ 430 (4) ₹ 432

(SSC CGL Prelim Exam. 27.07.2008

(Second Sitting)

11. The simple interest and compound interest (compounded annually) on a certain sum of money with a given rate for a period of 2 years are ₹ 900 and ₹ 954 respectively. The sum of money is
 (1) ₹ 3700 (2) ₹ 3650
 (3) ₹ 3850 (4) ₹ 3750

(SSC CPO S.I. Exam. 09.11.2008)

12. The compound interest on a certain sum of money for 2 years at 10% per annum is ₹ 420. The simple interest on the same sum at the same rate and for the same time will be
 (1) ₹ 350 (2) ₹ 375
 (3) ₹ 380 (4) ₹ 400

(SSC Assistant Grade-III Exam.

11.11.2012 (IIInd Sitting)

COMPOUND INTEREST

13. If the compound interest on a certain sum for 2 years at 4% p.a. is ₹ 102, the simple interest at the same rate of interest for two years would be

- (1) ₹ 200 (2) ₹ 50
 (3) ₹ 150 (4) ₹ 100

(SSC CGL Exam. 04.07.1999 (Ist Sitting) & (SSC Multi-Tasking Staff Exam. 17.03.2013, Kolkata Region)

14. There is 100% increase to an amount in 8 years, at simple interest. Find the compound interest of ₹ 8000 after 2 years at the same rate of interest.

- (1) ₹ 2500 (2) ₹ 2000
 (3) ₹ 2250 (4) ₹ 2125

(SSC Graduate Level Tier-I Exam. 21.04.2013)

15. If the compound interest on a certain sum for two years at 12% per annum is ₹ 2,544, the simple interest on it at the same rate for 2 years will be

- (1) ₹ 2,400 (2) ₹ 2,500
 (3) ₹ 2,480 (4) ₹ 2,440

(SSC Graduate Level Tier-I Exam. 19.05.2013)

16. A sum becomes ₹ 2,916 in 2 years at 8% per annum compound interest. The simple interest at 9% per annum for 3 years on the same amount will be

- (1) ₹ 600 (2) ₹ 675
 (3) ₹ 650 (4) ₹ 625

(SSC Sub-Inspector & LDC Exam. 20.10.2013)

17. The compound interest on a certain sum of money at a certain rate per annum for two years is ₹ 2,050, and the simple interest on the same amount of money at the same rate for 3 years is ₹ 3,000. Then the sum of money is

- (1) ₹ 20,000 (2) ₹ 18,000
 (3) ₹ 21,000 (4) ₹ 25,000
 (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IIInd Sitting))

18. The compound interest on a certain sum of money for 2 years at 5% per annum is ₹ 410. The simple interest on the same sum at the same rate and for the same time is

- (1) ₹ 400 (2) ₹ 300
 (3) ₹ 350 (4) ₹ 405

(SSC CGL Tier-I Exam. 19.10.2014 (Ist Sitting))

19. If the compound interest on a sum for 2 years at $12\frac{1}{2}$ p.a. is ₹ 510, the simple interest on the same sum at the same rate for the same period of time is

- (1) ₹ 400 (2) ₹ 450
 (3) ₹ 460 (4) ₹ 480

(SSC CGL Tier-II Exam. 21.09.2014)

20. A man borrowed some money from a private organisation at 5% simple interest per annum. He lent 50% of this money to another person at 10% compound interest per annum and thereby the man made a profit of Rs. 3,205 in 4 years. The man borrowed.

- (1) Rs. 80,000
 (2) Rs. 1,00,000
 (3) Rs. 1,20,000
 (4) Rs. 1,50,000

(SSC CGL Tier-I Exam. 19.10.2014 TF No. 022 MH 3)

21. A certain amount of money earns Rs. 540 as Simple Interest in 3 years. If it earns a Compound Interest of Rs. 376.20 at the same rate of interest in 2 years, find the amount (in Rupees).

- (1) 1600 (2) 1800
 (3) 2000 (4) 2100

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 21.06.2015 (Ist Sitting) TF No. 8037731)

22. On a certain sum of money, the simple interest for 2 years is Rs. 350 at the rate of 4% per annum. If it was invested at compound interest at the same rate for the same duration as before, how much more interest would be earned?

- (1) Rs. 3.50 (2) Rs. 7
 (3) Rs. 14 (4) Rs. 35

(SSC CPO Exam. 06.06.2016 (Ist Sitting))

23. The simple interest on a sum of money for 3 years is Rs. 240 and the compound interest on the same sum, at the same rate for 2 years is Rs. 170. The rate of interest is :

- (1) 8% (2) $29\frac{1}{6}\%$
 (3) $12\frac{1}{2}\%$ (4) $5\frac{5}{17}\%$

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 20.03.2016 (IIInd Sitting))

24. The simple interest on a certain sum of money for 2 years at 5% is Rs. 1600. The compound interest at the same rate after 3 years interest compounded annually, is

- (1) Rs.2520 (2) Rs.2522
 (3) Rs.2555 (4) Rs.2535
 (SSC CGL Tier-I (CBE) Exam. 30.08.2016) (Ist Sitting)

25. A man borrowed some money from a private organisation at 5% simple interest per annum. He lent this money to another person at 10% compound interest per annum, and made a profit of Rs. 26,410 in 4 years. The man borrowed

- (1) Rs. 200000 (2) Rs. 150000
 (3) Rs. 132050 (4) Rs. 100000
 (SSC CGL Tier-I (CBE) Exam. 31.08.2016) (IIInd Sitting)

26. If the simple interest on a sum of money for 2 years at 5% per annum is Rs. 50, the compound interest on the same at the same rate and for the same time is :

- (1) Rs. 50.50 (2) Rs. 51.25
 (3) Rs. 51.50 (4) Rs. 50.05
 (SSC CGL Tier-I (CBE) Exam. 02.09.2016) (IIInd Sitting)

27. There is 40% increase in an amount in 8 years at simple interest. What will be the compound interest (in rupees) of Rs 30000 after 2 years at the same rate?

- (1) 6150 (2) 7687.5
 (3) 4612.5 (4) 3075
 (SSC CHSL (10+2) Tier-I (CBE) Exam. 16.01.2017) (IIInd Sitting)

TYPE-III

1. If the difference between the compound interest, compounded every six months, and the simple interest on a certain sum of money at the rate of 12% per annum for one year is ₹ 36, the sum is :

- (1) ₹ 10,000 (2) ₹ 12,000
 (3) ₹ 15,000 (4) ₹ 9,000
 (SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))

2. What is the difference between compound interest on ₹ 5,000 for $1\frac{1}{2}$ years at 4% per annum according as the interest is compounded yearly or half-yearly?

- (1) ₹ 2.04 (2) ₹ 3.06
 (3) ₹ 8.30 (4) ₹ 4.80
 (SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))

COMPOUND INTEREST

- 3.** The difference between the simple and compound interest on a certain sum of money at 5% rate of interest per annum for 2 years is ₹ 15. Then the sum is :
 (1) ₹ 6,500 (2) ₹ 5,500
 (3) ₹ 6,000 (4) ₹ 7,000
 (SSC CGL Prelim Exam. 24.02.2002
 (Second Sitting)
- 4.** If the difference between the compound interest and simple interest on a sum at 5% rate of interest per annum for three years is ₹ 36.60, then the sum is
 (1) ₹ 8000 (2) ₹ 8400
 (3) ₹ 4400 (4) ₹ 4800
 (SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone)
- 5.** The difference between compound interest and simple interest on ₹ 2500 for 2 years at 4% per annum is
 (1) ₹ 40 (2) ₹ 45
 (3) ₹ 14 (4) ₹ 4
 (SSC CPO S.I. Exam. 12.01.2003)
- 6.** The difference between simple and compound interest (compounded annually) on a sum of money for 2 years at 10% per annum is ₹ 65. The sum is
 (1) ₹ 65650 (2) ₹ 65065
 (3) ₹ 6565 (4) ₹ 6500
 (SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting))
- 7.** The difference between the compound interest (compounded annually) and the simple interest on a sum of ₹ 1000 at a certain rate of interest for 2 years is ₹ 10. The rate of interest per annum is :
 (1) 5% (2) 6%
 (3) 10% (4) 12%
 (SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting))
- 8.** If the difference between the simple and compound interests on a sum of money for 2 years at 4% per annum is ₹ 80, the sum is :
 (1) ₹ 5000 (2) ₹ 50000
 (3) ₹ 10000 (4) ₹ 1000
 (SSC CPO S.I. Exam. 26.05.2005)
- 9.** The difference between simple and compound interest on a certain sum of money for 2 years at 4 per cent per annum is ₹ 1. The sum of money is :
 (1) ₹ 600 (2) ₹ 625
 (3) ₹ 560 (4) ₹ 650
 (SSC CGL Prelim Exam. 13.11.2005
 (First Sitting) Exam. 26.05.2005)
- 10.** The difference between the simple and compound interest on a certain sum of money for 2 years at 4% per annum is ₹ 4. The sum is
 (1) ₹ 2500 (2) ₹ 2,400
 (3) ₹ 2,600 (4) ₹ 2,000
 (SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting))
- 11.** If the difference between the compound and simple interests on a certain sum of money for 3 years at 5% per annum is ₹ 15.25, then the sum is
 (1) ₹ 2,000 (2) ₹ 1,000
 (3) ₹ 1,500 (4) ₹ 2,500
 (SSC CPO S.I. Exam. 03.09.2006)
- 12.** The difference between compound interest and simple interest of a sum for 2 years at 8 per cent is ₹ 768. The sum is
 (1) ₹ 1,00,000 (2) ₹ 1,10,000
 (3) ₹ 1,20,000 (4) ₹ 1,70,000
 (SSC Section Officer (Commercial Audit) Exam. 26.11.2006
 (Second Sitting))
- 13.** The difference between the compound and the simple interest on a sum for 2 years at 10% per annum, when the interest is compounded annually, is ₹ 28. If the interest were compounded half yearly, the difference in the two interests will be
 (1) ₹ 44 (2) ₹ 28.35
 (3) ₹ 43.41 (4) ₹ 43.29
 (SSC Section Officer (Commercial Audit) Exam. 30.09.2007
 (Second Sitting))
- 14.** A sum of ₹ 6,000 is deposited for 3 years at 5% per annum compound interest (compounded annually). The difference of interests for 3 and 2 years will be
 (1) ₹ 75.00 (2) ₹ 30.75
 (3) ₹ 330.75 (4) ₹ 375.00
 (SSC Section Officer (Commercial Audit) Exam. 30.09.2007
 (Second Sitting))
- 15.** The difference between compound interest (compounded annually) and simple interest on a certain sum of money at 10% per annum for 2 years is ₹ 40. The sum is :
 (1) ₹ 4000 (2) ₹ 3600
 (3) ₹ 4200 (4) ₹ 3200
 (SSC CPO S.I. Exam. 16.12.2007)
- 16.** The difference between compound and simple interest on a certain sum for 3 years at 5% per annum is Rs. 122. The sum is
 (1) ₹ 16,000 (2) ₹ 15,000
 (3) ₹ 12,000 (4) ₹ 10,000
 (SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))
- 17.** The difference between simple interest and compound interest of a certain sum of money at 20% per annum for 2 years is ₹ 48. Then the sum is
 (1) ₹ 1,000 (2) ₹ 1,200
 (3) ₹ 1,500 (4) ₹ 2,000
 (SSC CGL Tier-1 Exam. 19.06.2011 (First Sitting))
- 18.** The difference between the compound interest and simple interest on ₹ 10,000 for 2 years is ₹ 25. The rate of interest per annum is
 (1) 5% (2) 7%
 (3) 10% (4) 12%
 (SSC CGL Tier-1 Exam. 26.06.2011
 (First Sitting))
- 19.** If the difference between S.I. and C.I. for 2 years on a sum of money lent at 5% is ₹ 6, then the sum is
 (1) ₹ 2200 (2) ₹ 2400
 (3) ₹ 2600 (4) ₹ 2000
 (SSC CGL Tier-1 Exam. 26.06.2011
 (Second Sitting))
- 20.** On a certain sum of money lent out at 16% p.a. the difference between the compound interest for 1 year, payable half yearly, and the simple interest for 1 year is ₹ 56. The sum is
 (1) ₹ 1080 (2) ₹ 7805
 (3) ₹ 8750 (4) ₹ 5780
 (SSC CPO (SI, ASI & Intelligence Officer) Exam. 28.08.2011 (Paper-I))
- 21.** On what sum does the difference between the compound interest and the simple interest for 3 years at 10% is ₹ 31 ?
 (1) ₹ 1500 (2) ₹ 1200
 (3) ₹ 1100 (4) ₹ 1000
 (SSC CGL Prelim Exam. 27.02.2000
 (First Sitting))
- 22.** The difference between simple and compound interests on a sum of money at 4% per annum for 2 years is ₹ 8. The sum is
 (1) ₹ 400 (2) ₹ 800
 (3) ₹ 4,000 (4) ₹ 5,000
 (SSC CGL Prelim Exam. 08.02.2004
 (First Sitting))

COMPOUND INTEREST

- 23.** On a certain sum of money, the difference between the compound interest for a year, payable half-yearly, and the simple interest for a year is ₹ 180. If the rate of interest in both the cases is 10%, then the sum is
 (1) ₹ 60,000 (2) ₹ 72,000
 (3) ₹ 62,000 (4) ₹ 54,000
 (SSC Multi-Tasking (Non-Technical) Staff Exam. 27.02.2011)
- 24.** The difference between the compound interest and the simple interest on a certain sum at 5% per annum for 2 years is ₹ 1.50. The sum is
 (1) ₹ 600 (2) ₹ 500
 (3) ₹ 400 (4) ₹ 300
 (SSC Multi-Tasking Staff Exam. 10.03.2013, 1st Sitting : Patna)
- 25.** What sum will give ₹ 244 as the difference between simple interest and compound interest at 10%
 in $1\frac{1}{2}$ years compounded half yearly?
 (1) ₹ 40,000 (2) ₹ 36,000
 (3) ₹ 32,000 (4) ₹ 28,000
 (SSC Graduate Level Tier-II Exam. 29.09.2013)
- 26.** The difference between simple and compound interest compounded annually, on a certain sum of money for 2 years at 4% per annum is ₹ 1. The sum (in ₹) is :
 (1) 650 (2) 630
 (3) 625 (4) 640
 (SSC CGL Prelim Exam. 11.05.2003 (First Sitting))
- 27.** The difference between the compound interest and simple interest for the amount ₹ 5,000 in 2 years is ₹ 32. The rate of interest is
 (1) 5% (2) 8%
 (3) 10% (4) 12%
 (SSC CGL Tier-1 Exam. 19.06.2011 (Second Sitting))
- 28.** On what sum of money will the difference between S.I and C.I for 2 years at 5% per annum be equal to ₹ 25 ?
 (1) ₹ 10,000 (2) ₹ 10,500
 (3) ₹ 9,500 (4) ₹ 9000
 (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)
- 29.** The difference between the compound interest and simple interest on a certain sum for 2 years at 10% per annum is ₹ 300. Find the sum.
 (1) ₹ 31,000 (2) ₹ 31,500
 (3) ₹ 30,000 (4) ₹ 30,500
 (SSC CGL Tier-I (CBE) Re-Exam. (2013) 27.04.2014)
- 30.** Find the difference between the compound interest and the simple interest on ₹ 32,000 at 10% p.a. for 4 years.
 (1) ₹ 2051.20 (2) ₹ 2052.50
 (3) ₹ 2025.20 (4) ₹ 2501.20
 (SSC CHSL DEO & LDC Exam. 16.11.2014)
- 31.** On what sum of money will the difference between simple interest and compound interest for 2 years at 5% per annum be equal to Rs. 63?
 (1) Rs. 24,600 (2) Rs. 24,800
 (3) Rs. 25,200 (4) Rs. 25,500
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IInd Sitting)
- 32.** The difference between simple and compound interests compounded annually on a certain sum of money for 2 years at 4% per annum is Re. 1. The sum (in Rs.) is :
 (1) 620 (2) 630
 (3) 640 (4) 625
 (SSC CGL Tier-I (CBE) Exam. 09.09.2016 (Ist Sitting))
- 33.** The difference between C I and S I for 2 years at 10% rate of interest is Rs. 4. Find the sum of money.
 (1) Rs. 400 (2) Rs. 200
 (3) Rs. 300 (4) Rs. 800
 (SSC CPO SI & ASI, Online Exam. 06.06.2016) (IIInd Sitting)
- 34.** The difference between simple and compound interest (compounded annually) on a sum of money for 3 years at 10% per annum is Rs. 93. The sum (in Rs.) is :
 (1) 30000 (2) 30300
 (3) 3000 (4) 3030
 (SSC CGL Tier-I (CBE) Exam. 27.08.2016) (Ist Sitting)
- 35.** The difference between compound interest and simple interest on a certain sum of money for 2 years at 5% per annum is Rs. 41. What is the sum of money ?
 (1) Rs. 7200 (2) Rs. 9600
 (3) Rs. 16400 (4) Rs. 8400
 (SSC CGL Tier-I (CBE) Exam. 28.08.2016) (IIInd Sitting)
- 36.** If the difference of the compound interest and the simple interest on a sum of money for 3 years is Rs. 186. Find the sum of money, if the rate of interest in both cases be 10%.
 (1) Rs. 5500 (2) Rs. 7200
 (3) Rs. 6500 (4) Rs. 6000
 (SSC CGL Tier-II (CBE) Exam. 30.11.2016)
- 37.** The difference between the simple interest and compound interest (compounded annually) on Rs. 40,000 for 3 years at 8% per annum is :
 (1) Rs. 684.32 (2) Rs. 788.48
 (3) Rs. 784.58 (4) Rs. 4000
 (SSC CGL Tier-I (CBE) Exam. 28.08.2016 (IST Sitting))
- 38.** The difference between compound interest and simple interest on an amount of Rs. 15,000 for 2 years is Rs. 96. The rate of interest per annum is
 (1) 6% (2) 7%
 (3) 8% (4) 9%
 (SSC CGL Tier-I (CBE) Exam. 01.09.2016 (IIIrd Sitting))
- 39.** The difference between compound interest and simple interest on Rs. 5000 for 2 years at 8% per annum payable yearly is
 (1) Rs. 30 (2) Rs. 31
 (3) Rs. 33 (4) Rs. 32
 (SSC CGL Tier-I (CBE) Exam. 03.09.2016 (IIIrd Sitting))
- 40.** If the difference between the compound interest and the simple interest on a certain sum at the rate of 5% per annum for 2 years is Rs. 20, then the sum is :
 (1) Rs. 2000 (2) Rs. 4000
 (3) Rs. 6000 (4) Rs. 8000
 (SSC CGL Tier-I (CBE) Exam. 07.09.2016 (IIInd Sitting))

COMPOUND INTEREST

TYPE-IV

1. If the amount is 2.25 times of the sum after 2 years at compound interest (compound annually), the rate of interest per annum is :
 (1) 25% (2) 30%
 (3) 45% (4) 50%
(SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))
2. A sum of money doubles itself in 4 years at compound interest. It will amount to 8 times itself at the same rate of interest in :
 (1) 18 years (2) 12 years
 (3) 16 years (4) 24 years
(SSC CGL Prelim Exam. 24.02.2002 (First Sitting) & (SSC CPO S.I. Exam. 16.12.2007))
3. A sum borrowed under compound interest doubles itself in 10 years. When will it become fourfold of itself at the same rate of interest ?
 (1) 15 years (2) 20 years
 (3) 24 years (4) 40 years
(SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))
4. A sum of money becomes eight times of itself in 3 years at compound interest. The rate of interest per annum is
 (1) 100% (2) 80%
 (3) 20% (4) 10%
(SSC CGL Prelim Exam. 08.02.2004 (First Sitting))
5. A sum of money invested at compound interest doubles itself in 6 years. At the same rate of interest it will amount to eight times of itself in :
 (1) 15 years (2) 12 years
 (3) 18 years (4) 10 years
(SSC CGL Prelim Exam. 24.02.2002 (Middle Zone) & (SSC CGL Prelim Exam. 13.11.2005 (First Sitting))
6. A sum of money placed at compound interest doubles itself in 5 years. In how many years, it would amount to eight times of itself at the same rate of interest ?
 (1) 10 years (2) 15 years
 (3) 7 years (4) 20 years
(SSC CGL Prelim Exam. 13.11.2005 (IInd Sitting) & (SSC CPO S.I. Exam. 06.09.2009) & (SSC CAPs S.I. & CISF ASI Exam. 23.06.2013))

7. A sum of money at compound interest doubles itself in 15 years. It will become eight times of itself in

- (1) 45 years (2) 48 years
 (3) 54 years (4) 60 years
(SSC CGL Prelim Exam. 04.07.1999 (Ist Sitting) & (SSC CGL Tier-I Exam. 16.05.2010 (First Sitting))

8. A sum of ₹ 12,000, deposited at compound interest becomes double after 5 years. How much will it be after 20 years ?
 (1) ₹ 1,44,000 (2) ₹ 1,20,000
 (3) ₹ 1,50,000 (4) ₹ 1,92,000
(SSC CGL Tier-I Exam. 16.05.2010 (IInd Sitting) & (SSC CGL Tier-I Exam. 19.06.2011 (IIInd Sitting))

9. At what rate percent per annum of compound interest, will a sum of money become four times of itself in two years ?
 (1) 100% (2) 75%
 (3) 50% (4) 20%
(SSC (South Zone) Investigator Exam. 12.09.2010)

10. A sum of money becomes double in 3 years at compound interest compounded annually. At the same rate, in how many years will it become four times of itself ?
 (1) 4 years (2) 6 years
 (3) 6.4 years (4) 7.5 years
(SSC CPO S.I. Exam. 12.12.2010 (Paper-I))

11. A sum of money becomes eight times in 3 years, if the rate is compounded annually. In how much time will the same amount at the same compound rate become sixteen times?
 (1) 6 years (2) 4 years
 (3) 8 years (4) 5 years
(SSC CGL Tier-1 Exam. 19.06.2011 (First Sitting))

12. A sum of money placed at compound interest doubles itself in 4 years. In how many years will it amount to four times itself ?
 (1) 12 years (2) 13 years
 (3) 8 years (4) 16 years
(SSC CGL Tier-1 Exam. 26.06.2011 (First Sitting))

13. A sum of money at compound interest amounts to thrice itself in 3 years. In how many years will it be 9 times itself ?

(1) 9 years (2) 27 years
 (3) 6 years (4) 3 years
(SSC Graduate Level Tier-II Exam. 16.09.2012)

14. A sum of money becomes 1.331 times in 3 years as compound interest. The rate of interest is
 (1) 8% (2) 7.5%
 (3) 10% (4) 50%
(SSC Multi-Tasking Staff Exam. 17.03.2013, IIInd Sitting)

15. If a sum of money compounded annually becomes 1.44 times of itself in 2 years, then the rate of interest per annum is
 (1) 25% (2) 22%
 (3) 21% (4) 20%
(SSC Graduate Level Tier-II Exam. 29.09.2013)

16. If the amount is $3\frac{3}{8}$ times the sum after 3 years at compound interest compounded annually, then the rate of interest per annum is
 (1) 25% (2) 50%
 (3) $16\frac{2}{3}\%$ (4) $33\frac{1}{3}\%$
(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

TYPE-V

1. A sum of money amounts to ₹ 4,840 in 2 years and to ₹ 5,324 in 3 years at compound interest compounded annually. The rate of interest per annum is :
 (1) 10% (2) 9%
 (3) 11% (4) 8%
(SSC CPO S.I. Exam. 16.12.2007)

2. A certain sum of money amounts to ₹ 2,420 in 2 years and ₹ 2,662 in 3 years at some rate of compound interest, compounded annually. The rate of interest per annum is
 (1) 6% (2) 8%
 (3) 9% (4) 10%
(SSC CPO S.I. Exam. 09.11.2008)

3. An amount of money at compound interest grows up to ₹ 3,840 in 4 years and up to ₹ 3,936 in 5 years. Find the rate of interest.
 (1) 2.5% (2) 2%
 (3) 3.5% (4) 2.05%
(SSC Graduate Level Tier-II Exam. 16.09.2012)

COMPOUND INTEREST

- 4.** A certain amount of money at $r\%$, compounded annually after two and three years becomes ₹1440 and ₹1728 respectively. r is
 (1) 5 (2) 10
 (3) 15 (4) 20
 (SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting))
- 5.** The compound interest on a certain sum for two successive years are ₹225 and ₹238.50. The rate of interest per annum is :
 (1) $7\frac{1}{2}\%$ (2) 5%
 (3) 10% (4) 6%
 (SSC CHSL DEO & LDC Exam. 21.10.2012 (IIInd Sitting))
- 6.** An amount of money appreciates to ₹7,000 after 4 years and to ₹10,000 after 8 years at a certain compound interest compounded annually. The initial amount of money was
 (1) ₹4,700 (2) ₹4,900
 (3) ₹4,100 (4) ₹4,300
 (SSC Multi-Tasking Staff Exam. 17.03.2013, Ist Sitting)
- 7.** A sum of money invested at compound interest amounts to ₹650 at the end of first year and ₹676 at the end of second year. The sum of money is :
 (1) ₹600 (2) ₹540
 (3) ₹625 (4) ₹560
 (SSC CGL Prelim Exam. 24.02.2002 (Ist Sitting) & (SSC CPO S.I. Exam. 07.09.2003))
- 8.** A sum of money invested at compound interest amounts in 3 years to ₹2,400 and in 4 years to ₹2,520. The interest rate per annum is :
 (1) 5% (2) 6%
 (3) 10% (4) 12%
 (SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))
- 9.** A sum becomes ₹4500 after two years and ₹6750 after four years at compound interest. The sum is
 (1) ₹4000 (2) ₹2500
 (3) ₹3000 (4) ₹3050
 (SSC CGL Prelim Exam. 24.02.2002 (Middle Zone) & (SSC CGL Exam. 13.11.2005))
- 10.** A sum of money at compound interest will amount to ₹650 at the end of the first year and ₹676 at the end of the second year. The amount of money is
 (1) ₹1,300 (2) ₹650
 (3) ₹1,250 (4) ₹625
 (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))
- 11.** On a certain sum of money, the simple interest for 2 years is Rs. 350 at the rate of 4% per annum. It was invested at compound interest at the same rate for the same duration as before, how much more interest would be earned?
 (1) Rs. 3.50 (2) Rs. 7
 (3) Rs. 14 (4) Rs. 35
 (SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016)
 (Ist Sitting)
- 12.** A certain amount grows at an annual interest rate of 12%, compounded monthly. Which of the following equations can be solved to find the number of years, y , that it would take for the investment to increase by a factor of 64 ?
 (1) $64 = (1.01)^{12y}$
 (2) $\frac{1}{64} = (1.04)^{12y}$
 (3) $64 = (1.04)^{12y}$
 (4) $8 = (1.01)^{6y}$
 (SSC CPO SI & ASI, Online Exam. 06.06.2016) (IIInd Sitting)
- 13.** The compound interest on a certain sum for 2 years at 10% per annum is Rs. 525 . The simple interest on the same sum for double the time at half the rate per cent per annum is :
 (1) Rs. 520 (2) Rs. 550
 (3) Rs. 500 (4) Rs. 515
 (SSC CGL Tier-I (CBE) Exam. 30.08.2016) (IIInd Sitting)
- 14.** A sum of money is invested at 20% compound interest (compounded annually). It would fetch Rs. 723 more in 2 years if interest is compounded half yearly. The sum is
 (1) Rs. 15,000 (2) Rs. 30,000
 (3) Rs. 20,000 (4) Rs. 7,500
 (SSC CGL Tier-II (CBE) Exam. 30.11.2016)
- TYPE-VI**
- 1.** A builder borrows ₹2550 to be paid back with compound interest at the rate of 4% per annum by the end of 2 years in two equal yearly instalments. How much will each instalment be ?
 (1) ₹1352 (2) ₹1377
 (3) ₹1275 (4) ₹1283
 (SSC CGL Prelim Exam. 27.02.2000)
 (First Sitting)
- 2.** A man buys a scooter on making a cash down payment of ₹16224 and promises to pay two more yearly instalments of equivalent amount in next two years. If the rate of interest is 4% per annum, compounded yearly, the cash value of the scooter, is
 (1) ₹40000 (2) ₹46824
 (3) ₹46000 (4) ₹50000
 (SSC CGL Prelim Exam. 04.02.2007)
 (Second Sitting)
- 3.** Kamal took ₹6800 as a loan which along with interest is to be repaid in two equal annual instalments. If the rate of interest is $12\frac{1}{2}\%$, compounded annually, then the value of each instalment is
 (1) ₹8100 (2) ₹4150
 (3) ₹4050 (4) ₹4000
 (SSC CGL Prelim Exam. 27.07.2008)
 (First Sitting)
- 4.** A loan of ₹12,300 at 5% per annum compound interest, is to be repaid in two equal annual instalments at the end of every year. Find the amount of each instalment.
 (1) ₹6,651 (2) ₹6,615
 (3) ₹6,516 (4) ₹6,156
 (SSC CPO S.I. Exam. 06.09.2009)
- 5.** A sum of ₹210 was taken as a loan. This is to be paid back in two equal instalments. If the rate of interest be 10% compounded annually, then the value of each instalment is
 (1) ₹127 (2) ₹121
 (3) ₹210 (4) ₹225
 (SSC CHSL DEO & LDC Exam. 9.11.2014)
- 6.** Rs. 16,820 is divided between two brothers of age 27 years and 25 years. They invested their money at 5% per annum compound interest in such a way that both will receive equal money at the age of 40 years. The share (in Rs.) of elder brother is
 (1) 8,280 (2) 8,410
 (3) 8,820 (4) 8,000
 (SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)
- 7.** A sum of money is paid back in two annual instalments of Rs. 17,640 each, allowing 5% compound interest compounded annually. The sum borrowed was
 (1) Rs. 32,800 (2) Rs. 32,200
 (3) Rs. 32,000 (4) Rs. 32,400
 (SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

COMPOUND INTEREST

8. Mr. Dutta desired to deposit his retirement benefit of Rs. 3 lacs partly to a post office and partly to a bank at 10% and 6% interests respectively. If his monthly interest income was Rs. 2000, then the difference of his deposits in the post office and in the bank was :

- (1) Rs. 50,000 (2) Rs. 40,000
 (3) Nil (4) Rs. 1,00,000
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)

9. The income of a company increases 20% per year. If the income is Rs. 26,64,000 in the year 2012, then its income in the year 2010 was :

- (1) Rs. 28,55,000 (2) Rs. 18,50,000
 (3) Rs. 28,20,000 (4) Rs. 21,20,000
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IIInd Sitting) TF No. 3441135)

TYPE-VII

1. A person deposited a sum of ₹ 6,000 in a bank at 5% per annum simple interest. Another person deposited ₹ 5,000 at 8% per annum compound interest. After two years, the difference of their interests will be
 (1) ₹ 230 (2) ₹ 232
 (3) ₹ 832 (4) ₹ 600
 (SSC CPO S.I. Exam. 03.09.2006)

2. A money-lender borrows money at 4% per annum and pays the interest at the end of the year. He lends it at 6% per annum compound interest compounded half yearly and receives the interest at the end of the year. In this way, he gains ₹ 104.50 a year. The amount of money he borrows, is
 (1) ₹ 6,000 (2) ₹ 5,500
 (3) ₹ 5,000 (4) ₹ 4,500
 (SSC CGL Prelim Exam. 04.02.2007 (First Sitting))

3. A sum of ₹ 13,360 was borrowed at $\frac{3}{4}\%$ per annum compound interest and paid back in two years in two equal annual instalments. What was the amount of each instalment ?
 (1) ₹ 5,769 (2) ₹ 7,569
 (3) ₹ 7,009 (4) ₹ 7,500
 (SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))

4. Sita deposited ₹ 5,000 at 10% simple interest for 2 years. How much more money will Sita have in her account at the end of two years, if it is compounded semi-annually.

- (1) ₹ 50 (2) ₹ 40
 (3) ₹ 77.50 (4) ₹ 85.50
 (SSC Graduate Level Tier-II Exam. 16.09.2012)

5. What does ₹ 250 amounts to in 2 years with compound interest at the rate of 4% in the 1st year and 8% in the second year ?

- (1) ₹ 280 (2) ₹ 280.80
 (3) ₹ 468 (4) ₹ 290.80
 (SSC Constable (GD) Exam. 12.05.2013 Ist Sitting)

6. A man gave 50% of his savings of ₹ 84,100 to his wife and divided the remaining sum among his two sons A and B of 15 and 13 years of age respectively. He divided it in such a way that each of his sons, when they attain the age of 18 years, would receive the same amount at 5% compound interest per annum. The share of B was

- (1) ₹ 20,000 (2) ₹ 20,050
 (3) ₹ 22,000 (4) ₹ 22,050
 (SSC CGL Tier-I Exam. 19.10.2014)

7. Find the rate percent per annum, if Rs. 2000 amounts to Rs. 2,315.25 in a year and a half, interest being compounded half yearly.

- (1) 11.5% (2) 10%
 (3) 5% (4) 20%
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 21.06.2015 IInd Sitting)

8. A sum of money placed at compound interest doubles itself in 5 years. It will amount to eight times of itself at the same rate of interest in

- (1) 20 years (2) 10 years
 (3) 12 years (4) 15 years
 (SSC CGL Tier-II Exam. 25.10.2015, TF No. 1099685)

9. The sum of money which when given on compound interest at 18% per annum would fetch Rs. 960 more when the interest is payable half yearly than when it was payable annually for 2 years is :

- (1) Rs. 60,000 (2) Rs. 30,000
 (3) Rs. 40,000 (4) Rs. 50,000
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (Ist Sitting) TF No. 6636838)

10. The amount on Rs. 25,000 in 2 years at annual compound interest, if the rates for the successive years be 4% and 5% per annum respectively is :

- (1) Rs. 30,000 (2) Rs. 26,800
 (3) Rs. 27,300 (4) Rs. 28,500
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (Ist Sitting) TF No. 6636838)

11. The amount of Rs. 10,000 after 2 years, compounded annually with the rate of interest being 10% per annum during the first year and 12% per annum during the second year, would be (in rupees)
 (1) 11,320 (2) 12,000
 (3) 12,320 (4) 12,500

(SSC CGL Tier-I (CBE) Exam. 02.09.2016) (Ist Sitting)

12. On a certain principal if the simple interest for two years is Rs. 1400 and compound interest for the two years is Rs. 1449, what is the rate of interest?

- (1) 7 per cent (2) 3.5 per cent
 (3) 14 per cent (4) 10.5 per cent
 (SSC CHSL (10+2) Tier-I (CBE) Exam. 15.01.2017) (IIInd Sitting)

13. A man borrowed some money and agreed to pay-off by paying Rs. 3150 at the end of the 1st year and Rs. 4410 at the end of the 2nd year. If the rate of compound interest is 5% per annum, then the sum is

- (1) Rs. 5000 (2) Rs. 6500
 (3) Rs. 7000 (4) Rs. 9200
 (SSC CGL Tier-II (CBE) Exam. 12.01.2017)

14. Rs. 260200 is divided between Ram and Shyam so that the amount that Ram receives in 4 years is the same as that Shyam receives in 6 years. If the interest is compounded annually at the rate of 4% per annum then Ram's share is

- (1) Rs. 125000 (2) Rs. 135200
 (3) Rs. 152000 (4) Rs. 108200
 (SSC CGL Tier-II (CBE) Exam. 12.01.2017)

15. B borrows ₹ 5,000 from A at 6% p.a. simple interest and lends it to C at compound interest of 10% p.a. If B collects the money back from C after 2 years and repays A, the profit made by B in the transaction is

- (1) ₹ 1,050 (2) ₹ 500
 (3) ₹ 450 (4) ₹ 600
 (SSC Multi-Tasking Staff Exam. 30.04.2017)

12

TIME AND WORK

Importance : In all level competitive examinations questions on Time and Work have been asked. Due to limited number of types you can ensure your marks with minimum efforts.

Scope of questions : In these questions, time taken by one/two persons or groups in doing certain works. required number of persons for any work are commonly asked. Comparison of male, female, children works, time taken after distribution/change and questions based on efficiency (per cent of ratio) are also asked.

Way to success : Note that 'time and work' and 'number of labour and work', have direct ratio while 'time and number of labour' have inverse ratio to solve these questions use ratio method to be it is noted that practice will ensure your accuracy and fast speed.

RULE 1 : If M_1 men can finish W_1 work in D_1 days and M_2 men can finish W_2 work in D_2 days then, Relation is

$$\frac{M_1 D_1}{W_1} = \frac{M_2 D_2}{W_2} \text{ and}$$

If M_1 men finish W_1 work in D_1 days, working T_1 time each day and M_2 men finish W_2 work in D_2 days, working T_2 time each day, then

$$\frac{M_1 D_1 T_1}{W_1} = \frac{M_2 D_2 T_2}{W_2}$$

RULE 2 : If A completes a piece of work in 'x' days, and B completes the same work in 'y' days, then,

$$\text{Work done by A in 1 day} = \frac{1}{x}, \text{ Work done by B in 1}$$

$$\text{day} = \frac{1}{y}$$

$$\therefore \text{Work done by A and B in 1 day} = \frac{1}{x} + \frac{1}{y} = \frac{x+y}{xy}$$

\therefore Total time taken to complete the work by A and B

$$\text{both} = \left(\frac{xy}{x+y} \right)$$

RULE 3 : If A can do a work in 'x' days, B can do the same work in 'y' days, C can do the same work in 'z' days then, total time taken by A, B and C to complete the work

$$\text{together} = \frac{1}{\frac{1}{x} + \frac{1}{y} + \frac{1}{z}} = \frac{xyz}{xy + yz + zx} \text{ and}$$

If workers are more than 3 then total time taken by A, B, C so on to complete the work together =

$$\frac{1}{\frac{1}{x} + \frac{1}{y} + \frac{1}{z} + \dots}$$

RULE 4 : If A alone can do a certain work in 'x' days and A and B together can do the same work in 'y' days, then B alone can do the same work in

$$\left(\frac{xy}{x-y} \right) \text{ days}$$

RULE 5 : If A and B can do a work in 'x' days, B and C can do the same work in 'y' days, C and A can do the same work in 'z' days. Then total time taken, when A, B and C

$$\text{work together} = \frac{2}{\left(\frac{1}{x} + \frac{1}{y} + \frac{1}{z} \right)} \text{ OR } \frac{2xyz}{xy + yz + zx} \text{ days}$$

RULE 6 : Work of one day = $\frac{\text{Total work}}{\text{Total no. of working days}}$

Total work = (work of one day) \times (total no. of working days)
Remaining work = 1 - (work done)

Work done by A = (Work done in 1 day by A) \times (total no. of days worked by A,

$$\text{B and C and so on} = \frac{1}{\left(\frac{1}{x} + \frac{1}{y} + \frac{1}{z} + \dots \right)}$$

where A can complete work in x days, B in y days, C in z days and so on....

RULE 7 : If A can finish $\frac{m}{n}$ part of the work in D days.

Then,

Total time taken to finish the work by

$$A = \frac{D}{\left(\frac{m}{n} \right)} = \frac{n}{m} \times D \text{ days}$$

RULE 8 : (i) If A can do a work in 'x' days and B can do the same work in 'y' days and when they started working together, B left the work 'm' days before completion then

$$\text{total time taken to complete work is } \frac{(y+m)x}{x+y}$$

(ii) A leaves the work 'm' days before its completion

$$\text{then total time taken to complete work is } \frac{(x+m)y}{x+y}$$

RULE 9 : If A and B together can finish a certain work in 'a' days. They worked together for 'b' days and then 'B' (or A) left the work. A (or B) finished the rest work in 'd' days, then

Total time taken by A (or B) alone to complete the work

$$= \frac{ad}{a-b} \text{ or } \frac{bd}{a-b} \text{ days}$$

RULE 10 : If food is available for 'a' days for 'A' men at a certain place and after 'b' days, 'B' men join, then the remaining food will serve total men for

$$\text{Required time} = \frac{A(a-b)}{(A+B)} \text{ days}$$

If food is available for 'a' days for 'A' men at a certain place, and after 'b' days 'B' men leave then the remaining food will serve remaining men for

$$\therefore \text{Required time} = \frac{A(a-b)}{(A-B)} \text{ days}$$

RULE 11 : If A_1 men and B_1 boys can do a certain work in D_1 days. Again, A_2 men and B_2 boys can do the same work in D_2 days, then, A_3 men and B_3 boys can do the same work in

Required time

$$= \frac{D_1 D_2 [A_1 B_2 - A_2 B_1]}{D_1 [A_1 B_3 - A_3 B_1] - D_2 [A_2 B_3 - A_3 B_2]} \text{ days}$$

RULE 12 : If A men or B boys can do a certain work in ' a ' days, then A_1 men and B_1 boys can do the same work in

$$\text{Time taken} = \frac{a}{\frac{A_1}{A} + \frac{B_1}{B}} = \frac{a(A.B)}{A_1 B + B_1 A} \text{ days}$$

RULE 13 : If A men or B boys or C women can do a certain work in ' a ' days, then A_1 men, B_1 boys and C_1 women can do the same work in

$$\text{Time taken} = \frac{a}{\frac{A_1}{A} + \frac{B_1}{B} + \frac{C_1}{C}}$$

RULE 14 : If ' A ' men can do a certain work in ' a ' days and ' B ' women can do the same work in ' b ' days, then the total time taken when A_1 men and B_1 women work together is

$$\text{Time taken} = \frac{1}{\left(\frac{A_1}{A.a} + \frac{B_1}{B.b} \right)}$$

If A men do a certain work in ' a ' days, B women do the same work in ' b ' days and C boys do the same work in ' c ' days then the total time taken when A_1 men, B_1 women and C_1 boys can work together is

$$\text{Total time taken} = \frac{1}{\left(\frac{A_1}{A.a} + \frac{B_1}{B.b} + \frac{C_1}{C.c} \right)}$$

RULE 15 : The comparison of rate of work done is called efficiency of doing work. Efficiency (E) $\propto \frac{1}{\text{No. of days}}$,

$$E_1 : E_2 : E_3 = \frac{1}{D_1} : \frac{1}{D_2} : \frac{1}{D_3}, \quad E = \frac{k}{D} \text{ or, } ED = k \text{ or, } E_1 D_1 = E_2 D_2$$

RULE 16 : If the efficiency to work of A is twice the efficiency to work of B , then, $A:B$ (efficiency) = $2x:x$ and $A:B$ (time) = $t:2t$

RULE 17 : If A can do a work in ' x ' days and B is $R%$ more efficient than A , then ' B ' alone will do the same work

$$\text{in } x \cdot \frac{100}{(100+R)} \text{ days}$$

RULE 18 : A , B and C can do a certain work together within ' x ' days. While, any two of them can do the same work separately in ' y ' and ' z ' days, then in how many days can 3 rd do the same work?

$$\text{Required time} = \frac{xyz}{yz - x(y+z)} \text{ days}$$

RULE 19 : A and B can do a work in ' x ' days, B and C can do the same work in ' y ' days. C and A can do the same work in ' z ' days. Then, all can do alone the work as following:

$$A \text{ alone can do in} = \frac{2xyz}{xy + yz - zx} \text{ days}$$

$$B \text{ alone can do in} = \frac{2xyz}{-xy + yz + zx} \text{ days}$$

$$C \text{ alone can do in} = \frac{2xyz}{-yz + xy + zx} \text{ days}$$

RULE 20 : A can do a certain work in ' m ' days and B can do the same work in ' n ' days. They worked together for ' P ' days and after this A left the work, then in how many days did B alone do the rest of work ?

$$\text{Required time} = \frac{mn - P(m+n)}{m} \text{ days}$$

when after ' P ' days B left the work, then in how many days did A alone do the rest of work?

$$\text{Required time} = \frac{mn - P(m+n)}{n} \text{ days}$$

RULE 21 : If a man can do a certain work in ' d_1 ' days working ' h_1 ' hours in a day, while another man can do the same work in ' d_2 ' days working ' h_2 ' hours in a day. When they work together everyday ' h ' hours, then in how many days work will complete?

$$\text{Required time} = \left[\frac{(h_1 d_1) \times (h_2 d_2)}{(h_1 d_1 + h_2 d_2)} \right] \frac{1}{h}$$

RULE 22 : The efficiency of A to work is ' n ' times more than that of B . Both start to work together and finish it in ' D ' days. Then, A and B will separately complete, the work in $\left(\frac{n+1}{n} \right) D$ and $(n+1) D$ days respectively.

RULE 23 : Some people finish a certain work in ' D ' days. If there were ' a ' less people, then the work would be completed in ' d ' days more, what was the number of people initially?

$$\therefore \text{Required number} = \frac{a(D-d)}{d} \text{ people}$$

RULE 24 : A can do a work in ' m ' days and B can do the same work in ' n ' days. If they work together and total wages is R , then,

$$\text{Part of } A = \frac{n}{(m+n)} \times R$$

$$\text{Part of } B = \frac{m}{(m+n)} \times R$$

RULE 25 : If A , B and C finish the work in m , n and p days respectively and they receive the total wages R , then

$$\text{the ratio of their wages is } \frac{1}{m} : \frac{1}{n} : \frac{1}{p}$$

RULE 26 : A and B can do a piece of work in x and y days, respectively. Both begin together but after some days, A leaves the job and B completed the remaining work in a days. After how many days did A leave?

$$\text{Required time, } t = \frac{(y-a)}{x+y} \times x$$

RULE 27 : If A men and B boys can complete a work in x days, while A_1 men and B_1 boys will complete the same work in y days, then

$$\frac{\text{One day work of } 1 \text{ man}}{\text{One day work of } 1 \text{ boy}} = \frac{(yB_1 - xB)}{(xA - yA_1)}$$



QUESTIONS ASKED IN PREVIOUS SSC EXAMS

TYPE-I

- 1.** A and B can do a work in 12 days, B and C in 15 days and C and A in 20 days. If A, B and C work together, they will complete the work in :

(1) 5 days (2) $7\frac{5}{6}$ days

(3) 10 days (4) $15\frac{2}{3}$ days

(SSC CGL Prelim Exam. 04.07.1999 (Ist Sitting) & (SSC CPO S.I. Exam. 07.09.2003 & 03.09.2006) & (SSC CGL Prelim Exam. 19.06.2011) (Ist Sitting) & (SSC GL Tier-I Exam. 19.05.2013) (Ist Sitting)

- 2.** A and B can do a piece of work in 72 days. B and C can do it in 120 days, A and C can do it in 90 days. In how many days all the three together can do the work ?

(1) 80 days (2) 100 days
(3) 60 days (4) 150 days

(SSC CGL Prelim Exam. 04.07.1999 (IIInd Sitting) & (SSC MTS (Non-Technical) Exam. 27.02.2011)

- 3.** A particular job can be completed by a team of 10 men in 12 days. The same job can be completed by a team of 10 women in 6 days. How many days are needed to complete the job if the two teams work together?

(1) 4 days (2) 6 days
(3) 9 days (4) 18 days

(SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))

- 4.** A can do a work in 6 days and B in 9 days. How many days will both take together to complete the work?

(1) 7.5 days (2) 5.4 days
(3) 3.6 days (4) 3 days

(SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))

- 5.** A and B can do a piece of work in 10 days, B and C in 15 days and C and A in 20 days. C alone can do the work in :

(1) 60 days (2) 120 days
(3) 80 days (4) 30 days

(SSC CGL Prelim Exam. 24.02.2002 (First Sitting))

- 6.** A can do a piece of work in 4 hours; B and C can do it in 3 hours. A and C can do it in 2 hours. How long will B alone take to do it ?

(1) 10 hours (2) 12 hours
(3) 8 hours (4) 24 hours

(SSC CGL Prelim Exam. 24.02.2002 (IIInd Sitting) & (SSC CGL Prelim Exam. 13.11.2005 (IIInd Sitting))

- 7.** A, B and C can complete a piece of work in 24, 6 and 12 days respectively. Working together, they will complete the same work in

(1) $\frac{1}{4}$ day (2) $\frac{7}{24}$ day

(3) $3\frac{3}{7}$ days (4) 4 days

(SSC CPO S.I. Exam. 12.01.2003)

- 8.** A and B together can do a piece of work in 10 days. A alone can do it in 30 days. The time in which B alone can do it is

(1) 10 days (2) 12 days
(3) 15 days (4) 20 days

(SSC CPO S.I. Exam. 05.09.2004)

- 9.** A and B together can complete a piece of work in 72 days, B and C together can complete it in 120 days, and A and C together in 90 days. In what time can A alone complete the work ?

(1) 80 days (2) 100 days
(3) 120 days (4) 150 days

(SSC CPO S.I. Exam. 26.05.2005)

- 10.** A and B together can do a work in 8 days, B and C together in 6 days while C and A together in 10 days, if they all work together, the work will be completed in :

(1) $3\frac{3}{4}$ days (2) $3\frac{3}{7}$ days

(3) $5\frac{5}{47}$ days (4) $4\frac{4}{9}$ days

(SSC CGL Prelim Exam. 13.11.2005 (First Sitting))

- 11.** A and B can do a piece of work in 12 days, B and C in 8 days and C and A in 6 days. How long would B take to do the same work alone ?

(1) 24 days (2) 32 days
(3) 40 days (4) 48 days

(SSC CGL Prelim Exam. 24.02.2002 (Middle Zone) & (SSC CGL Prelim Exam. 13.11.2005 (Ist Sitting))

- 12.** A and B can complete a piece of work in 30 days, B and C in 20 days, while C and A in 15 days. If all of them work together, the time taken in completing the work will be

(1) 10 days (2) 12 days

(3) $12\frac{2}{3}$ days (4) $13\frac{1}{3}$ days

(SSC CGL Prelim Exam. 13.11.2005 (Second Sitting))

- 13.** A and B together can complete a work in 8 days and B and C together in 12 days. All of the three together can complete the work in 6 days. In how much time will A and C together complete the work ?

(1) 8 days (2) 10 days
(3) 12 days (4) 20 days

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006 (IIInd Sitting) & (SSC CHSL DEO & LDC Exam. 11.12.2011) (Delhi))

- 14.** A alone can complete a work in 12 days. A and B together can complete it in 8 days. How long will B alone take to complete the work ?

(1) 24 days (2) 18 days
(3) 16 days (4) 20 days

(SSC CGL Prelim Exam. 04.02.2007 (Second Sitting))

- 15.** If A and B together can complete a work in 18 days, A and C together in 12 days and B and C together in 9 days, then B alone can do the work in

(1) 18 days (2) 24 days
(3) 30 days (4) 40 days

(SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (IIInd Sitting))

- 16.** While working 7 hours a day, A alone can complete a piece of work in 6 days and B alone in 8 days. In what time would they complete it together, working 8 hours a day ?

(1) 3 days (2) 4 days
(3) 2.5 days (4) 3.6 days

(SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))

TIME AND WORK

- 17.** A and B can do a piece of work in 10 days. B and C can do it in 12 days. C and A in 15 days. In how many days will C finish it alone ?
 (1) 24 days (2) 30 days
 (3) 40 days (4) 60 days
 (SSC CPO S.I. Exam. 06.09.2009)
- 18.** If A and B together can complete a piece of work in 15 days and B alone in 20 days, in how many days can A alone complete the work ?
 (1) 60 days (2) 45 days
 (3) 40 days (4) 30 days
 (SSC CGL Tier-I Exam. 16.05.2010
 (First Sitting))
- 19.** If A and B together can complete a work in 12 days, B and C together in 15 days and C and A together in 20 days, then B alone can complete the work in
 (1) 30 days (2) 25 days
 (3) 24 days (4) 20 days
 (SSC (South Zone) Investigator Exam 12.09.2010)
- 20.** A work can be completed by P and Q in 12 days, Q and R in 15 days, R and P in 20 days. In how many days P alone can finish the work?
 (1) 10 days (2) 20 days
 (3) 30 days (4) 60 days
 (SSC CGL Tier-1 Exam 19.06.2011
 (Second Sitting) & (SSC GL Tier-I Exam. 19.05.2013))
- 21.** A and B can complete a piece of work in 8 days, B and C can do it in 12 days, C and A can do it in 8 days. A, B and C together can complete it in
 (1) 4 days (2) 5 days
 (3) 6 days (4) 7 days
 (SSC CGL Tier-1 Exam 26.06.2011
 (First Sitting))
- 22.** A and B together can do a work in 10 days. B and C together can do the same work in 6 days. A and C together can do the work in 12 days. Then A, B and C together can do the work in
 (1) 28 days (2) 14 days
 (3) $5\frac{5}{7}$ days (4) $8\frac{2}{7}$ days
 (SSC CGL Tier-1 Exam 26.06.2011
 (Second Sitting))
- 23.** A and B working together; can do a piece of work in $4\frac{1}{2}$ hours. B and C working together can do it in 3 hours. C and A working together can do it in $2\frac{1}{4}$ hours.
 All of them begin the work at the same time. Find how much time they will take to finish the piece of work.
 (1) 3 hours (2) 2 hours
 (3) 2.5 hours (4) 3.25 hours
 (SSC CPO (SI, ASI & Intelligence Officer) Exam 28.08.2011 (Paper-I))
- 24.** A and B together can complete a piece of work in 18 days, B and C in 24 days and A and C in 36 days. In how many days, will all of them together complete the work ?
 (1) 16 days (2) 15 days
 (3) 12 days (4) 10 days
 (SSC CISF ASI Exam 29.08.2010 (Paper-1))
- 25.** A and B together can do a piece of work in 5 days and A alone can do it in 8 days. B alone can do the same piece of work in
 (1) $11\frac{1}{3}$ days (2) $12\frac{3}{5}$ days
 (3) $13\frac{1}{3}$ days (4) $16\frac{4}{5}$ days
 (SSC Data Entry Operator Exam. 31.08.2008)
- 26.** A, B and C together can complete a piece of work in 30 minutes. A and B together can complete the same work in 50 minutes. C alone can complete the work in
 (1) 60 minutes (2) 75 minutes
 (3) 80 minutes (4) 150 minutes
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (IIInd Sitting))
- 27.** A and B can do a piece of work in 8 days, B and C can do it in 24 days, while C and A can do it in $8\frac{4}{7}$ days. In how many days can C do it alone?
 (1) 60 days (2) 40 days
 (3) 30 days (4) 10 days
 (SSC Multi-Tasking (Non-Technical) Staff Exam. 20.02.2011)
- 28.** A and B can do a piece of work in 10 days. B and C can do it in 12 days. A and C can do it in 15 days. How long will A take to do it alone ?
 (1) 24 days (2) 20 days
 (3) 40 days (4) 30 days
 (SSC CHSL DEO & LDC Exam. 04.12.2011(IIInd Sitting (North Zone)))
- 29.** If A and B together can finish a piece of work in 20 days, B and C in 10 days and C and A in 12 days, then A, B, C jointly can finish the same work in
 (1) $4\frac{2}{7}$ days (2) 30 days
 (3) $8\frac{4}{7}$ days (4) $\frac{7}{60}$ days
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone)))
- 30.** A, B and C individually can do a work in 10 days, 12 days and 15 days respectively. If they start working together, then the number of days required to finish the work is
 (1) 16 days (2) 8 days
 (3) 4 days (4) 2 days
 (SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (IIInd Sitting))
- 31.** A and B together can do a piece of work in 12 days, while B alone can finish it in 30 days. A alone can finish the work in
 (1) 20 days (2) 25 days
 (3) 15 days (4) 18 days
 (SSC CHSL DEO & LDC Exam. 21.10.2012 (Ist Sitting))
- 32.** A, B and C can complete a piece of work in 12, 24 and 36 days respectively. In how many days will they together complete the same work ?
 (1) $5\frac{6}{11}$ days (2) 4 days
 (3) $6\frac{6}{11}$ days (4) 6 days
 (SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting))
- 33.** A and B can separately do a piece of work in 6 days and 12 days respectively. How long will they together take to do the work ?
 (1) 9 days (2) 18 days
 (3) 6 days (4) 4 days
 (SSC Graduate Level Tier-I Exam. 11.11.2012 (Ist Sitting))

TIME AND WORK

- 34.** A and B can do a piece of work in 36 days, B and C can do it in 60 days, A and C can do it in 45 days. C alone can do it in
 (1) 90 days (2) 180 days
 (3) 120 days (4) 150 days
 (SSC CHSL DEO & LDC Exam. 04.11.2012, IIInd Sitting)
- 35.** Ronald and Elan are working on an Assignment. Ronald takes 6 hours to type 32 pages on a computer, while Elan takes 5 hours to type 40 pages. How much time will they take working together on two different computers to type an assignment of 110 pages ?
 (1) 7 hrs. 30 min.
 (2) 8 hrs.
 (3) 8 hrs. 15 min.
 (4) 8 hrs. 25 min.
 (SSC Graduate Level Tier-I Exam. 21.04.2013)
- 36.** A can do a piece of work in 20 days and B can do the same piece of work in 30 days. Find in how many days both can do the work ?
 (1) 16 days (2) 14 days
 (3) 10 days (4) 12 days
 (SSC Constable (GD) Exam. 12.05.2013) & (SSCCHSL DEO & LDC Exam. 20.10.2013)
- 37.** A can do as much work as B and C together can do. A and B can together do a piece of work in 9 hours 36 minutes and C can do it in 48 hours. The time (in hours) that B needs to do the work alone, is :
 (1) 18 hrs (2) 24 hrs
 (3) 30 hrs (4) 12 hrs
 (SSC CAPFs SI & CISF ASI Exam. 23.06.2013)
- 38.** A can do a piece of work in 12 days and B in 15 days. They work together for 5 days and then B left. The days taken by A to finish the remaining work is
 (1) 3 (2) 5
 (3) 10 (4) 12
 (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)
- 39.** A and B together can dig a trench in 12 days, which A alone can dig in 28 days; B alone can dig it in
 (1) 20 days (2) 21 days
 (3) 22 days (4) 23 days
 (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))
- 40.** A can complete a work in ' m ' days and B can complete it in ' n ' days. How many days will it take to complete the work if both A and B work together ?
 (1) $(m + n)$ days
 (2) $\left(\frac{1}{m} \times \frac{1}{n}\right)$ days
 (3) $\left(\frac{m + n}{mn}\right)$ days
 (4) $\left(\frac{mn}{m + n}\right)$ days
 (SSC CGL Tier-I Exam. 19.10.2014 (Ist Sitting))
- 41.** Three men A, B and C working together can do a job in 6 hours less time than A alone, in 1 hour less time than B alone and in one half the time needed by C when working alone. Then A and B together can do the job in
 (1) $\frac{2}{3}$ hour (2) $\frac{3}{4}$ hour
 (3) $\frac{3}{2}$ hour (4) $\frac{4}{3}$ hour
 (SSC CGL Tier-I Exam. 19.10.2014)
- 42.** A takes three times as long as B and C together to do a job. B takes four times as long as A and C together to do the work. If all the three, working together can complete the job in 24 days, then the number of days, A alone will take to finish the job is
 (1) 100 (2) 96
 (3) 95 (4) 90
 (SSC CGL Tier-I Exam. 19.10.2014)
- 43.** A can do a piece of work in 4 days and B can do it in 12 days. In how many days will they finish the work, both working together ?
 (1) 4 days (2) 6 days
 (3) 2 days (4) 3 days
 (SSC CGL Tier-I Exam. 26.10.2014)
- 44.** A can do $\frac{1}{4}$ of a work in 10 days. B can do $\frac{1}{3}$ of the work in 20 days. In how many days can both A and B together do the work ?
 (1) 30 days (2) 32 days
 (3) 24 days (4) 25 days
 (SSC CGL Tier-I Exam. 26.10.2014)
- 45.** 15 men take 20 days to complete a job working 8 hours a day. The number of hours a day should 20 men take to complete the job in 12 days
 (1) 5 hours (2) 10 hours
 (3) 15 hours (4) 18 hours
 (SSC CGL Tier-II Exam. 21.09.2014)
- 46.** Raj and Ram working together do a piece of work in 10 days. Raj alone can do it in 12 days. Ram alone will do the work in
 (1) 20 days (2) 40 days
 (3) 50 days (4) 60 days
 (SSC CGL Tier-II Exam. 21.09.2014)
- 47.** A and B working separately can do a piece of work in 9 and 15 days respectively. If they work for a day alternately, with A beginning, then the work will be completed in
 (1) 10 days (2) 11 days
 (3) 9 days (4) 12 days
 (SSC CHSL DEO & LDC Exam. 9.11.2014)
- 48.** How many men need to be employed to complete a job in 5 days, if 15 men can complete $\frac{1}{3}$ of the job in 7 days ?
 (1) 20 (2) 21
 (3) 45 (4) 63
 (SSC CHSL DEO Exam. 02.11.2014 (Ist Sitting))
- 49.** If x can finish a job in 4 hours and y can finish the same job in 8 hours independently, then they together will finish the job in
 (1) 140 minutes
 (2) 160 minutes
 (3) 120 minutes
 (4) 150 minutes
 (SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)
- 50.** x can copy 80 pages in 20 hours, x and y together can copy 135 pages in 27 hours. Then y can copy 20 pages in
 (1) 20 hours (2) 3 hours
 (3) 24 hours (4) 12 hours
 (SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

TIME AND WORK

51. A and B can do a piece of work in 15 days. B and C can do a similar work in 12 days and C and A in 10 days. How many days will A take to do the work by himself?

- (1) 13 (2) 24
(3) 40 (4) 8

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region)
TF No. 789 TH 7)

52. A can do a piece of work in 25 days and B can do the same work in 30 days. They work together for 5 days, how much of work is left?

- (1) $\frac{11}{30}$ (2) $\frac{15}{30}$
(3) $\frac{19}{30}$ (4) $\frac{12}{30}$

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
IIInd Sitting)

53. A and B together can do a piece of work in 6 days. If A can alone do the work in 18 days, then the number of days required for B to finish the work is

- (1) 10 (2) 12
(3) 9 (4) 15

(SSC CGL Tier-I Exam, 09.08.2015
(Ist Sitting) TF No. 1443088)

54. A's 2 days' work is equal to B's 3 days' work. If A can complete the work in 8 days then to complete the work B will take

- (1) 14 days (2) 12 days
(3) 15 days (4) 16 days

(SSC CGL Tier-I Exam, 16.08.2015
(Ist Sitting) TF No. 3196279)

55. 16 men are able to complete a piece of work in 12 days working 14 hours a day. How long will 28 men, working 12 hours a day, take to complete the work?

- (1) 10 days (2) 7 days
(3) 8 days (4) 6 days

(SSC Constable (GD) Exam, 04.10.2015, Ist Sitting)

56. A and B can do a given piece of work in 8 days, B and C can do the same work in 12 days and A, B, C complete it in 6 days. Number of days required to finish the work by A and C is

- (1) 16 (2) 8
(3) 12 (4) 24

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

57. If 90 men can do a certain job in 16 days, working 12 hours per day, then the part of that work which can be completed by 70 men in 24 days, working 8 hours per day is

- (1) $\frac{1}{3}$ (2) $\frac{2}{3}$
(3) $\frac{7}{9}$ (4) $\frac{5}{8}$

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

58. A, B and C can do a work separately in 16, 32 and 48 days respectively. They started the work together but B left off 8 days and C six days before the completion of the work. In what time is the work finished?

- (1) 10 days (2) 9 days
(3) 12 days (4) 14 days

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

59. A and B can do a piece of work in 15 days. B and C can do the same work in 10 days and A and C can do the same in 12 days. Time taken by A, B and C together to do the job is

- (1) 4 days (2) 9 days
(3) 8 days (4) 5 days

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IIInd Sitting)

60. A, B and C can complete a work in 10, 12 and 15 days respectively. A left the work 5 days before the work was completed and B left 2 days after A had left. Number of days required to complete the whole work is:

- (1) $8\frac{2}{3}$ (2) $6\frac{2}{3}$
(3) 7 (4) 6

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015
(Ist Sitting) TF No. 6636838)

61. A, B and C can complete a piece of work in 24, 5 and 12 days respectively. Working together, they will complete the same work in :

- (1) $\frac{7}{24}$ days (2) $3\frac{1}{13}$ days
(3) 4 days (4) $\frac{1}{24}$ days

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015
(IIInd Sitting) TF No. 7203752)

62. If 20 women can lay a road of length 100m in 10 days. Then 10 women can lay the same road of length 50m in

- (1) 20 days (2) 15 days
(3) 5 days (4) 10 days

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015
(IIInd Sitting) TF No. 3441135)

63. A can do a piece of work in 9 days while B can do it in 12 days. A and B together can do the work in

- (1) $5\frac{1}{7}$ days (2) $5\frac{2}{7}$ days
(3) $6\frac{1}{7}$ days (4) $6\frac{2}{7}$ days

(SSC CGL Tier-I (CBE) Exam, 11.09.2016) (Ist Sitting)

64. A man can do a piece of work in 30 hours. If he works with his son then the same piece of work is finished in 20 hours. If the son works alone he can do the work in

- (1) 60 hours (2) 50 hours
(3) 25 hours (4) 10 hours

(SSC CGL Tier-II Online Exam, 01.12.2016)

65. A can do a piece of work in 12 days and B in 20 days. If they together work on it for 5 days, and remaining work is completed by C in 3 days, then in how many days can C do the same work alone?

- (1) 10 days (2) 9 days
(3) 12 days (4) 15 days

(SSC CPO SI, ASI Online Exam, 05.06.2016) (IIInd Sitting)

66. A can finish a work in 7 days. B can finish the same work in 9 days. The number of days required to finish the same work by both of them together is

TIME AND WORK

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| <p>(1) $1\frac{15}{16}$ (2) $2\frac{15}{16}$
 (3) $3\frac{15}{16}$ (4) $4\frac{15}{16}$
 <small>(SSC CHSL (10+2) Tier-I (CBE)
Exam. 08.09.2016) (Ist Sitting)</small></p> <p>67. A and B together can finish a job in 24 days, while A, B and C together can finish the same job in 8 days. C alone will finish the job in
 (1) 12 days (2) 14 days
 (3) 16 days (4) 24 days
 <small>(SSC CGL Tier-I (CBE)
Exam. 09.09.2016) (Ist Sitting)</small></p> <p>68. A can do a piece of work in 12 days and B in 24 days. If they work together, in how many days will they finish the work?
 (1) 12 days (2) 20 days
 (3) 15 days (4) 8 days
 <small>(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 20.03.2016)
(IIInd Sitting)</small></p> <p>69. A, B and C working separately can do a piece of work in 11 days, 20 days and 55 days respectively. In how many days, the work will be completed if A is assisted by B and C on alternate days ?
 (1) 2 (2) 6
 (3) 4 (4) 8
 <small>(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 20.03.2016)
(IIInd Sitting)</small></p> <p>70. A and B together can do a piece of work in 6 days and A alone can do it in 9 days. The number of days B will take to do it alone is
 (1) 18 days (2) 24 days
 (3) 9 days (4) 12 days
 <small>(SSC CGL Tier-I (CBE)
Exam. 27.08.2016) (Ist Sitting)</small></p> <p>71. A can do a piece of work in 18 days. He worked at it for 12 days and B finished the remaining work in 8 days. B alone can do the whole work in
 (1) 16 days (2) 24 days
 (3) 28 days (4) 29 days
 <small>(SSC CGL Tier-I (CBE)
Exam. 28.08.2016) (IIInd Sitting)</small></p> <p>72. A and B can do a work in 8 days, B and C can do the same work in 12 days. A, B and C together can finish it in 6 days. A and C together will do it in :</p> | <p>(1) 4 days (2) 6 days
 (3) 8 days (4) 12 days
 <small>(SSC CGL Tier-I (CBE)
Exam. 30.08.2016) (Ist Sitting)</small></p> <p>73. A and B together can do a piece of work in 9 days. If A does thrice the work of B in a given time, the time A alone will take to finish the work is
 (1) 4 days (2) 6 days
 (3) 8 days (4) 12 days
 <small>(SSC CGL Tier-I (CBE)
Exam. 31.08.2016) (Ist Sitting)</small></p> <p>74. If 100 cats kill 100 mice in 100 days, then 4 cats would kill 4 mice in how many days?
 (1) 4 days (2) 3 days
 (3) 40 days (4) 100 days
 <small>(SSC CGL Tier-I (CBE)
Exam. 03.09.2016) (IIInd Sitting)</small></p> <p>75. X can do a piece of work in 'p' days and Y can do the same work in 'q' days. Then the number of days in which X and Y can together do that work is
 (1) $\frac{p+q}{2}$ (2) $\frac{1}{p} + \frac{1}{q}$
 (3) $\frac{pq}{p+q}$ (4) pq
 <small>(SSC CGL Tier-I (CBE)
Exam. 04.09.2016) (Ist Sitting)</small></p> <p>76. A can do a piece of work in 8 days and B can do it in 10 days separately. How many days would it take for both A and B to finish the same work together ?
 (1) $\frac{33}{8}$ (2) $\frac{40}{9}$
 (3) $\frac{41}{10}$ (4) $\frac{42}{11}$
 <small>(SSC CGL Tier-I (CBE)
Exam. 06.09.2016) (Ist Sitting)</small></p> <p>77. A and B together can do a piece of work in 36 days, B and C together can do it in 24 days. A and C together can do it in 18 days. The three working together can finish the work in
 (1) 8 days (2) 16 days
 (3) 30 days (4) 32 days
 <small>(SSC CGL Tier-I (CBE)
Exam. 07.09.2016) (Ist Sitting)</small></p> <p>78. Koushik can do a piece of work in x days and Krishnu can do the same work in y days. If they work together, then they can do the work in</p> | <p>(1) $(x+y)$ days
 (2) $\frac{1}{(x+y)}$ days
 (3) $\frac{xy}{(x+y)}$ days
 (4) $\frac{(x+y)}{xy}$ days
 <small>(SSC CGL Tier-I (CBE)
Exam. 02.09.2016) (IIInd Sitting)</small></p> <p>79. A canal of a village can be cleaned by 24 villagers in 12 days. The number of days in which 36 villagers can clean the canal is
 (1) 18 (2) 8
 (3) 72 (4) 16
 <small>(SSC CGL Tier-II (CBE)
Exam. 30.11.2016)</small></p> <p>80. A and B can do a piece of work in 18 days, B and C in 24 days, A and C in 36 days. Working together they can do the work in
 (1) 12 days (2) 13 days
 (3) 16 days (4) 26 days
 <small>(SSC CGL Tier-II (CBE)
Exam. 30.11.2016)</small></p> <p>81. A can do as much work in 4 days as B can do in 5 days, and B can do as much work in 6 days as C in 7 days. In what time will C do a piece of work which A can do in a week ?
 (1) $10\frac{5}{24}$ days (2) $4\frac{4}{5}$ days
 (3) $6\frac{8}{15}$ days (4) $12\frac{6}{19}$ days
 <small>(SSC CGL Tier-II (CBE)
Exam. 30.11.2016)</small></p> <p>82. If 42 persons consume 144 kg of wheat in 15 days, then in how many days will 30 persons consume 45 kg of wheat ?
 (1) 8 days (2) 7 days
 (3) 12 days (4) 6 days
 <small>(SSC CPO SI & ASI, Online Exam. 06.06.2016) (IIInd Sitting)</small></p> <p>83. A father can do a job as fast as his two sons working together. If one son does the job in 3 hours and the other in 6 hours, the number of hours taken by the father, to do the job alone is
 (1) 1 (2) 2
 (3) 3 (4) 4
 <small>(SSC CGL Tier-I (CBE)
Exam. 28.08.2016 (Ist Sitting))</small></p> |
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TIME AND WORK

- 84.** A can do a piece of work in 10 days, B can do it in 12 days and C can do it in 15 days. In how many days will A, B and C finish it, working all together?

(1) 6 days (2) $5\frac{1}{4}$ days

(3) $4\frac{4}{11}$ days (4) 4 days

(SSC CGL Tier-I (CBE)
Exam. 30.08.2016 (IIIrd Sitting)

- 85.** If 5 persons together can make 5 mats in 5 hours, then 10 persons in 10 hours will make

(1) 20 mats (2) 10 mats
(3) 15 mats (4) 5 mats

(SSC CGL Tier-I (CBE)
Exam. 31.08.2016 (IIIrd Sitting)

- 86.** A and B together can do a piece of work in 12 days while A alone can do the same work in 30 days. B alone can do it in

(1) 18 days (2) 20 days
(3) 15 days (4) 22 days

(SSC CGL Tier-I (CBE)
Exam. 02.09.2016 (IIInd Sitting)

- 87.** Ganesh, Ram and Sohan together can complete a work in 16 days. If Ganesh and Ram together can complete the same work in 24 days, the number of days Sohan alone takes, to finish the work is

(1) 40 (2) 48
(3) 32 (4) 30

(SSC CGL Tier-I (CBE)
Exam. 03.09.2016 (IIIrd Sitting)

- 88.** A and B can do a piece of work in 72 days. B and C can do it in 120 days and A and C can do it in 90 days. A alone can do it in :

(1) 120 days (2) 130 days
(3) 150 days (4) 100 days

(SSC CGL Tier-I (CBE)
Exam. 09.09.2016 (IIIrd Sitting)

- 89.** If 35 men can finish a piece of work in 8 days, then the number of men who can do the same work in 10 days is :

(1) 38 (2) 28
(3) 19 (4) 17

(SSC CGL Tier-I (CBE)
Exam. 27.10.2016 (Ist Sitting)

- 90.** A can do a piece of work in 30 days while B can do it in 40 days. In how many days can A and B working together do it ?

(1) $42\frac{3}{4}$ days (2) $27\frac{1}{7}$ days

(3) $17\frac{1}{7}$ days (4) 70 days

(SSC Multi-Tasking Staff
Exam. 30.04.2017)

TYPE-II

- 1.** A and B can do a work in 18 and 24 days respectively. They worked together for 8 days and then A left. The remaining work was finished by B in :

(1) 5 days (2) $5\frac{1}{3}$ days

(3) 8 days (4) 10 days

(SSC CGL Prelim Exam. 04.07.1999
(First Sitting)

- 2.** A can do a piece of work in 12 days and B can do it in 18 days. They work together for 2 days and then A leaves. How long will B take to finish the remaining work ?

(1) 6 days (2) 8 days
(3) 10 days (4) 13 days

(SSC CGL Prelim Exam. 04.07.1999
(Second Sitting)

- 3.** A and B can do a job in 6 and 12 days respectively. They began the work together but A leaves after 3 days. Then the total number of days needed for the completion of the work is :

(1) 4 days (2) 5 days
(3) 6 days (4) 9 days

(SSC CGL Prelim Exam. 27.02.2000
(Second Sitting)

- 4.** A and B can do a piece of work in 30 days while B and C can do the same work in 24 days and C and A in 20 days. They all work together for 10 days when B and C leave. How many days more will A take to finish the work ?

(1) 18 days (2) 24 days
(3) 30 days (4) 36 days

(SSC CPO S.I. Exam. 12.01.2003)

- 5.** A and B can together finish a work in 30 days. They worked together for 20 days and then B left. After another 20 days, A finished the remaining work. In how many days A alone can finish the job ?

(1) 50 days (2) 60 days
(3) 48 days (4) 54 days

(SSC CGL Prelim Exam. 11.05.2003
(First Sitting) & (SSC DEO & LDC
Exam. 10.11.2013)

- 6.** 8 men can do a work in 12 days. After 6 days of work, 4 more men were engaged to finish the work. In how many days would the remaining work be completed?

(1) 2 (2) 3
(3) 4 (4) 5

(SSC CGL Prelim Exam. 11.05.2003
(First Sitting)

- 7.** A can finish a work in 24 days, B in 9 days and C in 12 days. B and C start the work but are forced to leave after 3 days. The remaining work was done by A in :

(1) 5 days (2) 6 days

(3) 10 days (4) $10\frac{1}{2}$ days

(SSC CGL Prelim Exam. 11.05.2003
(First Sitting)

- 8.** A certain number of persons can complete a piece of work in 55 days. If there were 6 persons more, the work could be finished in 11 days less. How many persons were originally there ?

(1) 17 (2) 24
(3) 30 (4) 22

(SSC CGL Prelim Exam. 11.05.2003
(Second Sitting)

- 9.** A and B working separately can do a piece of work in 10 days and 15 days respectively. If they work on alternate days beginning with A, in how many days will the work be completed ?

(1) 18 days (2) 13 days
(3) 12 days (4) 6 days

(SSC CPO S.I. Exam. 07.09.2003)

- 10.** A and B can do a piece of work in 28 and 35 days respectively. They began to work together but A leaves after sometime and B completed remaining work in 17 days. After how many days did A leave ?

(1) $14\frac{2}{5}$ days (2) 9 days

(3) 8 days (4) $7\frac{5}{9}$ days

(SSC CPO S.I. Exam. 07.09.2003)

- 11.** A and B can complete a work in 15 days and 10 days respectively. They started doing the work together but after 2 days, B had to leave and A alone completed the remaining work. The whole work was completed in :

(1) 10 days (2) 8 days
(3) 12 days (4) 15 days

(SSC CGL Prelim Exam. 08.02.2004
(First Sitting)

TIME AND WORK

- 12.** A and B can do a piece of work in 20 days and 12 days respectively. A started the work alone and then after 4 days B joined him till the completion of the work. How long did the work last ?
 (1) 10 days (2) 20 days
 (3) 15 days (4) 6 days
 (SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting)
- 13.** A and B can do a work in 45 days and 40 days respectively. They began the work together but A left after some time and B completed the remaining work in 23 days. After how many days of the start of the work did A leave ?
 (1) 10 days (2) 9 days
 (3) 8 days (4) 5 days
 (SSC CPO S.I. Exam. 05.09.2004)
- 14.** A man and a boy can complete a work together in 24 days. If for the last six days man alone does the work then it is completed in 26 days. How long the boy will take to complete the work alone ?
 (1) 72 days (2) 20 days
 (3) 24 days (4) 36 days
 (SSC Section Officer (Commercial Audit) Exam. 25.09.2005)
- 15.** A and B together can complete a work in 8 days. B alone can complete that work in 12 days. B alone worked for four days. After that how long will A alone take to complete the work ?
 (1) 15 days (2) 18 days
 (3) 16 days (4) 20 days
 (SSC Section Officer (Commercial Audit) Exam. 25.09.2005)
- 16.** A and B can complete a piece of work in 12 and 18 days respectively. A begins to do the work and they work alternatively one at a time for one day each. The whole work will be completed in
 (1) $14\frac{1}{3}$ days (2) $15\frac{2}{3}$ days
 (3) $16\frac{1}{3}$ days (4) $18\frac{2}{3}$ days
 (SSC CGL Prelim Exam. 04.02.2007
 (First Sitting))
- 17.** A, B and C can complete a work in 10, 12 and 15 days respectively. They started the work together. But A left the work before 5 days of its completion. B also left the work 2 days after A left. In how many days was the work completed?
 (1) 4 days (2) 5 days
 (3) 7 days (4) 8 days
 (SSC CGL Prelim Exam. 04.07.1999
 (1st Sitting) & (SSC MTS
 Exam. 17.03.2013 (1Ind Sitting))
- 18.** A can complete a piece of work in 10 days, B in 15 days and C in 20 days. A and C worked together for two days and then A was replaced by B. In how many days, altogether, was the work completed ?
 (1) 12 days (2) 10 days
 (3) 6 days (4) 8 days
 (SSC CGL Prelim Exam. 04.07.1999
 (First Sitting))
- 19.** 40 men can complete a work in 40 days. They started the work together. But at the end of each 10th day, 5 men left the job. The work would have been completed in
 (1) $56\frac{2}{3}$ days (2) $53\frac{1}{3}$ days
 (3) 52 days (4) 50 days
 (SSC CGL Prelim Exam. 27.07.2008
 (First Sitting))
- 20.** A can do a piece of work in 18 days and B in 12 days. They began the work together, but B left the work 3 days before its completion. In how many days, in all, was the work completed?
 (1) 12 days (2) 10 days
 (3) 9.6 days (4) 9 days
 (SSC CGL Prelim Exam. 27.07.2008
 (First Sitting))
- 21.** A and B can separately complete a piece of work in 20 days and 30 days respectively. They worked together for some time, then B left the work. If A completed the rest of the work in 10 days, then B worked for
 (1) 6 days (2) 8 days
 (3) 12 days (4) 16 days
 (SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting))
- 22.** A and B alone can complete work in 9 days and 18 days respectively. They worked together; however 3 days before the completion of the work A left. In how many days was the work completed ?
 (1) 13 days (2) 8 days
 (3) 6 days (4) 5 days
 (SSC CPO S.I. Exam. 09.11.2008)
- 23.** A can complete a piece of work in 18 days, B in 20 days and C in 30 days. B and C together start the work and are forced to leave after 2 days. The time taken by A alone to complete the remaining work is
 (1) 10 days (2) 12 days
 (3) 15 days (4) 16 days
 (SSC CGL Tier-I Exam. 16.05.2010
 (First Sitting))
- 24.** A alone can complete a work in 18 days and B alone in 15 days. B alone worked at it for 10 days and then left the work. In how many more days, will A alone complete the remaining work ?
 (1) 5 days (2) $5\frac{1}{2}$ days
 (3) 6 days (4) 8 days
 (SSC CPO S.I.
 Exam 12.12.2010 (Paper-I))
- 25.** A and B working separately can do a piece of work in 9 and 12 days respectively. If they work for a day alternately with A beginning, the work would be completed in
 (1) $10\frac{2}{3}$ days (2) $10\frac{1}{2}$ days
 (3) $10\frac{1}{4}$ days (4) $10\frac{1}{3}$ days
 (SSC SAS Exam. 26.06.2010) &
 (SSC CGL Tier-1 Exam 26.06.2011
 (Second Sitting))
- 26.** A and B together can complete a work in 12 days. A alone can complete in 20 days. If B does the work only half a day daily, then in how many days A and B together will complete the work ?
 (1) 10 days (2) 20 days
 (3) 11 days (4) 15 days
 FCI Assistant Grade-III
 Exam. 25.02.2012 (Paper-I)
 North Zone (1st Sitting))

TIME AND WORK

27. A and B can do a piece of work in 12 days and 15 days respectively. They began to work together but A left after 4 days. In how many more days would B alone complete the remaining work ?

- (1) $\frac{20}{3}$ days (2) $\frac{25}{3}$ days
 (3) 6 days (4) 5 days

(SSC Data Entry Operator Exam. 02.08.2009)

28. X alone can complete a piece of work in 40 days. He worked for 8 days and left. Y alone completed the remaining work in 16 days. How long would X and Y together take to complete the work ?

- (1) $13\frac{1}{3}$ days (2) 14 days
 (3) 15 days (4) $16\frac{2}{3}$ days

(SSC CHSL DEO & LDC Exam. 27.11.2010)

29. A, B and C can do a piece of work in 30, 20 and 10 days respectively. A is assisted by B on one day and by C on the next day, alternately. How long would the work take to finish ?

- (1) $9\frac{3}{8}$ days (2) $4\frac{8}{8}$ days
 (3) $8\frac{4}{13}$ days (4) $3\frac{9}{13}$ days

(SSC Graduate Level Tier-II Exam. 16.09.2012)

30. A can do a piece of work in 20 days which B can do in 12 days. B worked at it for 9 days. A can finish the remaining work in

- (1) 5 days (2) 7 days
 (3) 11 days (4) 3 days

(SSC CHSL DEO & LDC Exam. 04.11.2012 (Ist Sitting))

31. A can do a piece of work in 8 days which B can destroy in 3 days. A has worked for 6 days, during the last 2 of which B has been destroying; how many days must A now work alone to complete the work ?

- (1) 7 days (2) $7\frac{1}{3}$ days
 (3) $7\frac{2}{3}$ days (4) 8 days

(SSC Multi-Tasking Staff Exam. 10.03.2013, Ist Sitting : Patna)

32. A can finish a work in 18 days and B can do the same work in 5 days. B worked for 10 days and left the job. In how many days, A alone can finish the remaining work?

- (1) 6 days (2) $5\frac{1}{2}$ days
 (3) 5 days (4) 8 days

(SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting)

33. A and B together can do a piece of work in 12 days which B and C together can do in 16 days. After A has been working at it for 5 days and B for 7 days, C finishes it in 13 days. In how many days B could finish the work ?

- (1) 48 days (2) 24 days
 (3) 16 days (4) 12 days

(SSC Graduate Level Tier-I Exam. 21.04.2013 IIInd Sitting)

34. A, B and C can do a piece of work in 20, 30 and 60 days respectively. In how many days can A do the work if he is assisted by B and C on every third day ?

- (1) 10 days (2) 12 days
 (3) 15 days (4) 20 days

(SSC CPO S.I. Exam. 09.11.2008) &
 (SSC Graduate Level Tier-I Exam. 19.05.2013 (Ist Sitting))

35. A and B together can complete a work in 3 days. They start together. But, after 2 days, B left the work. If the work is completed after 2 more days, B alone could do the work in

- (1) 10 days (2) 4 days
 (3) 6 days (4) 8 days

(SSC CGL Prelim Exam. 04.02.2007 (Ist Sitting) & (SSC Graduate Level Tier-I Exam. 19.05.2013 (Ist Sitting)))

36. A can do a piece of work in 20 days and B in 30 days. They work together for 7 days and then both leave the work. Then C alone finishes the remaining work in 10 days. In how many days will C finish the full work ?

- (1) 25 days (2) 30 days
 (3) 24 days (4) 20 days

(SSC Graduate Level Tier-II Exam. 29.09.2013)

37. 45 men can complete a work in 16 days. Four days after they started working, 36 more men joined them. How many days will they now take to complete the remaining work ?

- (1) 6 days (2) 8 days

- (3) $6\frac{2}{3}$ days (4) $7\frac{3}{4}$ days

(SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (Ist Sitting))

38. A and B together can complete a job in 8 days. Both B and C, working alone can finish the same job in 12 days. A and B commence work on the job, and work for 4 days, where upon A leaves. B continues for 2 more days, and then he leaves too. C now starts working, and finishes the job. How many days did C require ?

- (1) 5 (2) 8
 (3) 3 (4) 4

(SSC CGL Tier-I

Re-Exam. (2013) 27.04.2014)

39. A and B can together finish a work in 30 days. They worked at it for 20 days and then B left. The remaining work was done by A alone in 20 more days. A alone can finish the work in

- (1) 60 days (2) 54 days
 (3) 48 days (4) 50 days

(SSC CGL Tier-I Exam. 26.10.2014)

40. A, B and C can do a job in 6 days, 12 days and 15 days re-

spectively. After $\frac{1}{8}$ of the work is completed, C leaves the job. Rest of the work is done by A and B together. Time taken to finish the work is

- (1) $5\frac{5}{6}$ days (2) $5\frac{1}{4}$ days
 (3) $3\frac{1}{2}$ days (4) $3\frac{3}{4}$ days

(SSC CGL Tier-II Exam. 21.09.2014)

41. 16 women take 12 days to complete a work which can be completed by 12 men in 8 days. 16 men started working and after 3 days 10 men left and 4 women joined them. How many days will it take them to complete the remaining work ?

- (1) 4 (2) 6
 (3) 8 (4) 10

(SSC CHSL GL DEO & LDC Exam. 02.11.2014 (IIInd Sitting))

TIME AND WORK

- 42.** 40 men can complete a work in 18 days. Eight days after they started working together, 10 more men joined them. How many days will they now take to complete the remaining work ?
 (1) 6 (2) 8
 (3) 10 (4) 12
 (SSC CHSL DEO & LDC Exam. 02.11.2014 (IInd Sitting))
- 43.** If 12 men or 24 boys can do a work in 66 days, the number of days in which 15 men and 6 boys can do it is
 (1) 44 (2) 33
 (3) 55 (4) 66
 (SSC CHSL DEO & LDC Exam. 16.11.2014)
- 44.** A, B and C together can do a piece of work in 40 days. After working with B and C for 16 days, A leaves and then B and C complete the remaining work in 40 days more. A alone could do the work in
 (1) 80 days (2) 90 days
 (3) 100 days (4) 120 days
 (SSC CGL Tier-I Exam. 19.10.2014 TF No. 022 MH 3)
- 45.** A certain number of men complete a piece of work in 60 days. If there were 8 men more, the work could be finished in 10 days less. The number of men originally was
 (1) 30 (2) 40
 (3) 32 (4) 36
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014 , Ist Sitting TF No. 333 LO 2)
- 46.** Some staff promised to do a job in 18 days, but 6 of them went on leave. So the remaining men took 20 days to complete the job. How many men were there originally ?
 (1) 55 (2) 62
 (3) 56 (4) 60
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IInd Sitting TF No. 545 QP 6)
- 47.** A certain number of men can do a piece of work in 40 days. If there were 45 men more the work could have been finished in 25 days. Find the original number of men employed in the work.
 (1) 70 (2) 85
 (3) 65 (4) 75
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting TF No. 545 QP 6)
- 48.** A and B can do a piece of work in 45 and 40 days respectively. They began the work together but A left after some days and B finished the remaining work in 23 days. A left after
 (1) 6 days (2) 9 days
 (3) 12 days (4) 5 days
 (SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)
- 49.** 20 men can do a piece of work in 18 days. They worked together for 3 days, then 5 men joined them. In how many more days is the work completed ?
 (1) 15 (2) 12
 (3) 14 (4) 13
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015 (1st Sitting) TF No. 8037731)
- 50.** A, B and C can do a piece of work in 24, 30 and 40 days respectively. They began the work together but C left 4 days before completion of the work. In how many days was the work done ?
 (1) 13 (2) 12
 (3) 14 (4) 11
 (SSC CGL Tier-I Exam, 09.08.2015 (IInd Sitting) TF No. 4239378)
- 51.** Raja can do a piece of work in 20 days while Ramesh can finish it in 25 days. Ramesh started working and Raja joined him after 10 days. The whole work is completed in
 (1) 18 days (2) $16\frac{2}{3}$ days
 (3) 20 days (4) 15 days
 (SSC Constable (GD) Exam, 04.10.2015, Ist Sitting)
- 52.** A certain number of men can do a work in 40 days. If there were 8 men more, it could be finished in 10 days less. How many men were there initially?
 (1) 20 (2) 24
 (3) 30 (4) 16
 (SSC Constable (GD) Exam, 04.10.2015, IIInd Sitting)
- 53.** X can do a piece of work in 24 days. When he had worked for 4 days, Y joined him. If complete work was finished in 16 days, Y can alone finish that work in:
 (1) 18 days (2) 27 days
 (3) 36 days (4) 42 days
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (1st Sitting) TF No. 6636838)
- 54.** 12 men can complete a work in 90 days. 30 days after they started work, 2 men left and 8 men joined. How many days will it take to complete the remaining work ?
 (1) 90 days (2) 60 days
 (3) 40 days (4) 50 days
 (SSC CPO Exam. 06.06.2016)
 (1st Sitting)
- 55.** A can do a job in 10 days and B can do the same job in 15 days. They start working together, but B leaves after 5 days. How many more days A want to finish the work ?
 (1) 2 days (2) $1\frac{2}{3}$ days
 (3) 3 days (4) $2\frac{2}{3}$ days
 (SSC CPO Exam. 06.06.2016)
 (1st Sitting)
- 56.** A and B together can finish a work in 30 days. They worked on it for 20 days and then B left the work. The remaining work was done by A alone in 20 days more. In how many days can A alone finish the work?
 (1) 48 days (2) 50 days
 (3) 54 days (4) 60 days
 (SSC CGL Tier-I (CBE) Exam. 01.09.2016) (1st Sitting)
- 57.** Ram and Hari can cut 12 kgs nuts in 2 days. After 5 days, Hari left the work. Ram took 8 more days to cut the rest of the nuts. If total of 58 kgs of nuts were cut, the time taken by Hari to cut 10 kgs of nuts is
 (1) 1 days (2) 2 days
 (3) 3 days (4) 4 days
 (SSC CGL Tier-I (CBE) Exam. 01.09.2016) (IInd Sitting)
- 58.** Ramesh and Rahman can do a work in 20 and 25 days respectively. After doing collectively for 10 days at the work, they leave the work due to illness and Suresh completes rest of the work in 3 days. How many days Suresh alone can take to complete the whole work ?
 (1) 32 days (2) 28 days
 (3) 29 days (4) 30 days
 (SSC CGL Tier-II (CBE) Exam. 30.11.2016)
- 59.** A can do a piece of work in 10 days and B can do it in 12 days. They work together for 3 days. Then B leaves and A alone continues. 2 days after that C joins and the work is completed in 2 days more. In how many days can C do it, if he works alone ?
 (1) 30 days (2) 50 days
 (3) 40 days (4) 60 days
 (SSC CGL Tier-II (CBE) Exam. 30.11.2016)

TIME AND WORK

60. A certain number of men can do a piece of work in 60 days. If there were 6 men more, the work can be finished 20 days earlier. The number of men working is :

- (1) 6 (2) 12
(3) 18 (4) 24

(SSC CGL Tier-I (CBE)

Exam. 06.09.2016 (IIIrd Sitting)

61. A can do a piece of work in 20 days and B in 15 days. With the help of C, they finish the work in 5 days. C can alone do the work in

- (1) 5 days (2) 6 days
(3) 10 days (4) 12 days

(SSC CGL Tier-I (CBE)

Exam. 07.09.2016 (IInd Sitting)

62. 15 men can finish a piece of work in 40 days. The number of days after which 5 men should leave the work so that the work is finished in 45 days altogether is :

- (1) 10 (2) 20
(3) 30 (4) 35

(SSC CGL Tier-I (CBE)

Exam. 27.10.2016 (Ist Sitting)

63. A and B together can complete a piece of work in 12 days. They worked together for 5 days and then A alone finished the rest of the work in 14 days. A alone can complete the work in

- (1) 24 days (2) 22 days
(3) 20 days (4) 18 days

(SSC CGL Tier-II (CBE)

Exam. 12.01.2017)

TYPE-III

1. If 6 men and 8 boys can do a piece of work in 10 days and 26 men and 48 boys can do the same in 2 days, then the time taken by 15 men and 20 boys to do the same type of work will be :

- (1) 5 days (2) 4 days
(3) 6 days (4) 7 days

(SSC CGL Prelim Exam. 04.07.1999
(First Sitting)

2. 5 men can do a piece of work in 6 days while 10 women can do it in 5 days. In how many days can 5 women and 3 men do it ?

- (1) 4 days (2) 5 days
(3) 6 days (4) 8 days

(SSC CGL Prelim Exam. 04.07.1999
(Second Sitting)

3. If 3 men or 6 women can do a piece of work in 16 days, in how many days can 12 men and 8 women do the same piece of work?

- (1) 4 days (2) 5 days
(3) 3 days (4) 2 days

(SSC CGL Prelim Exam. 27.02.2000
(First Sitting)

4. A man, a woman and a boy can complete a job in 3, 4 and 12 days respectively. How many boys must assist 1 man and 1 woman to complete the job in $\frac{1}{4}$ of a day?

- (1) 1 (2) 4
(3) 19 (4) 41

(SSC CGL Prelim Exam. 27.02.2000
(First Sitting)

5. If 16 men or 20 women can do a piece of work in 25 days. In what time will 28 men and 15 women do it?

- (1) $14\frac{2}{7}$ days (2) $33\frac{1}{3}$ days

- (3) $18\frac{3}{4}$ days (4) 10 days

(SSC CGL Prelim Exam. 27.02.2000
(Second Sitting)

6. If 5 men or 8 women can do a piece of work in 12 days, how many days will be taken by 2 men and 4 women to do the same work?

- (1) 15 days (2) $13\frac{1}{2}$ days

- (3) $13\frac{1}{3}$ days (4) 10 days

(SSC CGL Prelim Exam. 24.02.2002
(First Sitting)

7. If 3 men or 4 women can plough a field in 43 days, how long will 7 men and 5 women take to plough it ?

- (1) 10 days (2) 11 days
(3) 9 days (4) 12 days

(SSC CGL Prelim Exam. 11.05.2003
(First Sitting)

8. 6 men or 12 women can do a piece of work in 20 days. In how many days can 8 men and 16 women do twice as big as this work ?

- (1) 2 days (2) 5 days
(3) 15 days (4) 10 days

(SSC CGL Prelim Exam. 08.02.2004
(Second Sitting)

9. A man, a woman and a boy can together complete a piece of work in 3 days. If a man alone can do it in 6 days and a boy alone in 18 days, how long will a woman alone take to complete the work?

- (1) 9 days (2) 21 days
(3) 24 days (4) 27 days

(SSC CGL Prelim Exam. 13.11.2005
(Second Sitting)

10. 3 men or 5 women can do a work in 12 days. How long will 6 men and 5 women take to finish the work?

- (1) 20 days (2) 10 days
(3) 4 days (4) 15 days

(SSC CPO S.I. Exam. 03.09.2006) &
(SSC GL Tier-I Exam. 19.05.2013)

11. If 10 men or 20 boys can make 260 mats in 20 days, then how many mats will be made by 8 men and 4 boys in 20 days?

- (1) 260 (2) 240
(3) 280 (4) 520

(SSC CGL Prelim Exam. 04.07.1999
(First Sitting)

12. Three men can complete a piece of work in 6 days. Two days after they started the work, 3 more men joined them. How many days will they take to complete the remaining work ?

- (1) 1 days (2) 2 days
(3) 3 days (4) 4 days

(SSC CHSL DEO & LDC Exam.
10.11.2013, Ist Sitting)

13. One man and one woman together can complete a piece of work in 8 days. A man alone can complete the work in 10 days. In how many days can one woman alone complete the work ?

- (1) $\frac{140}{9}$ days (2) 30 days

- (3) 40 days (4) 42 days

(SSC CPO S.I. Exam 12.12.2010
(Paper-I)

14. 4 men and 6 women can complete a work in 8 days, while 3 men and 7 women can complete it in 10 days. In how many days will 10 women complete it ?

- (1) 50 days (2) 45 days
(3) 40 days (4) 35 days

(SSC CGL Prelim Exam. 08.02.2004
(First Sitting)

TIME AND WORK

- 15.** A man, a woman and a boy can complete a work in 20 days, 30 days and 60 days respectively. How many boys must assist 2 men and 8 women so as to complete the work in 2 days ?
 (1) 8 (2) 12
 (3) 4 (4) 6
 (SSC Data Entry Operator Exam. 02.08.2009)

16. If 1 man or 2 women or 3 boys can complete a piece of work in 88 days, then 1 man, 1 woman and 1 boy together will complete it in
 (1) 36 days (2) 42 days
 (3) 48 days (4) 54 days
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (Ist Sitting))

17. 6 men and 8 women can do a work in 10 days, Then 3 men and 4 women can do the same work in
 (1) 24 days (2) 20 days
 (3) 12 days (4) 18 days
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (East Zone)))

18. 3 men and 4 boys can complete a piece of work in 12 days. 4 men and 3 boys can do the same work in 10 days. Then 2 men and 3 boys can finish the work in
 (1) $17\frac{1}{2}$ days (2) $5\frac{5}{11}$ days
 (3) 8 days (4) 22 days
 (SSC Graduate Level Tier-I Exam. 11.11.2012, Ist Sitting)

19. If 10 men or 20 women or 40 children can do a piece of work in 7 months, then 5 men, 5 women and 5 children together can do half of the work in :
 (1) 6 months (2) 4 months
 (3) 5 months (4) 8 months
 (SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting)

20. If 8 men or 12 boys can do a piece of work in 16 days, the number of days required to complete the work by 20 men and 6 boys is
 (1) $5\frac{1}{3}$ days (2) $6\frac{1}{3}$ days
 (3) $8\frac{1}{3}$ days (4) $7\frac{1}{3}$ days
 (SSC Graduate Level Tier-I Exam. 21.04.2013 IIInd Sitting)

21. 2 men and 3 boys can do a piece of work in 10 days while 3 men and 2 boys can do the same work in 8 days. In how many days can 2 men and 1 boy do the work ?
 (1) 8 days (2) 7 days
 (3) $12\frac{1}{2}$ days (4) 2 days
 (SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

22. 2 men and 3 women can do a piece of work in 10 days while 3 men and 2 women can do the same work in 8 days. Then, 2 men and 1 woman can do the same work in
 (1) 12 days (2) $12\frac{1}{2}$ days.
 (3) 13 days (4) $13\frac{1}{2}$ days
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (North Zone)))

23. 3 men and 4 boys can complete a piece of work in 12 days. 4 men and 3 boys can do the same work in 10 days. Then 2 men and 3 boys can finish the work in number of days is
 (1) $17\frac{1}{2}$ days (2) $5\frac{5}{11}$ days
 (3) 8 days (4) 22 days
 (SSC Graduate Level Tier-I Exam. 11.11.2012 (Ist Sitting))

24. If 4 men or 6 women can do a piece of work in 12 days working 7 hours a day; how many days will it take to complete a work twice as large with 10 men and 3 women working together 8 hours a day?
 (1) 6 days (2) 7 days
 (3) 8 days (4) 10 days
 (SSC CHSL DEO & LDC Exam. 27.10.2013 IIInd Sitting)

25. A man, a woman and a boy together finish a piece of work in 6 days. If a man and a woman can do the work in 10 and 24 days respectively. The days taken by a boy to finish the work is
 (1) 30 (2) 35
 (3) 40 (4) 45
 (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

26. If 40 men or 60 women or 80 children can do a piece of work in 6 months, then 10 men, 10 women and 10 children together do half of the work in
 (1) $5\frac{6}{13}$ months

27. A man is twice as fast as a woman and a woman is twice as fast as a boy in doing a work. If all of them, a man, a woman and a boy can finish the work in 7 days, in how many days a boy will do it alone ?
 (1) 49 (2) 7
 (3) 6 (4) 42
 (SSC CGL Tier-II Exam. 21.09.2014)

28. One man or two women or three boys can do a piece of work in 88 days. One man, one woman and one boy will do it in
 (1) 44 days (2) 24 days
 (3) 48 days (4) 20 days
 (SSC CHSL DEO Exam. 16.11.2014 (Ist Sitting))

29. 3 men or 7 women can do a piece of work in 32 days. The number of days required by 7 men and 5 women to do a piece of work twice as large is
 (1) 19 (2) 21
 (3) 27 (4) 36
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014 , Ist Sitting TF No. 333 LO 2)

30. If 1 man or 2 women or 3 boys can do a piece of work in 44 days, then the same piece of work will be done by 1 man, 1 woman and 1 boy in
 (1) 21 days (2) 24 days
 (3) 26 days (4) 33 days
 (SSC CGL Tier-I Re-Exam, 30.08.2015)

31. 8 children and 12 men complete a certain piece of work in 9 days. Each child takes twice the time taken by a man to finish the work. In how many days will 12 men finish the same work ?
 (1) 9 days (2) 13 days
 (3) 12 days (4) 15 days
 (SSC Constable (GD) Exam, 04.10.2015, IIInd Sitting)

32. 12 men and 16 boys can do a piece of work in 5 days; 13 men and 24 boys can do it in 4 days, then the ratio of the daily work done by a man to that of a boy is
 (1) 2 : 1 (2) 3 : 1
 (3) 1 : 3 (4) 5 : 4
 (SSC CGL Tier-I (CBE) Exam. 27.08.2016) (IIInd Sitting)

TIME AND WORK

- 33.** Twenty women can do a work in sixteen days. Sixteen men can complete the same work in fifteen days. The ratio between the capacity of a man and a woman is
 (1) 3 : 4 (2) 4 : 3
 (3) 5 : 3 (4) 5 : 7

(SSC CGL Tier-I (CBE)

Exam. 29.08.2016 (Ist Sitting)

- 34.** 18 men or 36 boys working 6 hours a day can plough a field in 24 days. In how many days will 24 men and 24 boys working 9 hours a day plough the same field ?
 (1) 9 (2) 10
 (3) 6 (4) 8

(SSC CGL Tier-I (CBE)

Exam. 08.09.2016 (IIIRD Sitting)

- 35.** 3 men and 5 women can do a work in 14 days while 5 men can do it in 14 days. 5 men and 5 women can complete the work in
 (1) 13 days (2) 11 days
 (3) 10 days (4) 12 days

(SSC Multi-Tasking Staff Exam. 30.04.2017)

TYPE-IV

- 1.** A can do a work in 15 days and B in 20 days. If they together work on it for 4 days, then the fraction of the work that is left is:

- (1) $\frac{8}{15}$ (2) $\frac{7}{15}$
 (3) $\frac{1}{4}$ (4) $\frac{1}{10}$

(SSC CGL Prelim Exam. 27.02.2000 (First Sitting)

- 2.** A can cultivate $\frac{2}{5}$ th of a land in

6 days and B can cultivate $\frac{1}{3}$ rd of the same land in 10 days. Working together A and B can

cultivate $\frac{4}{5}$ th of the land in:

- (1) 4 days (2) 5 days
 (3) 8 days (4) 10 days

(SSC CGL Prelim Exam. 24.02.2002 (First Sitting))

- 3.** A does $\frac{4}{5}$ of a piece of work in 20 days; He then calls in B and they finish the remaining work in 3 days. How long B alone will take to do whole work ?

- (1) $37\frac{1}{2}$ days (2) 37 days

- (3) 40 days (4) 23 days

(SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))

- 4.** A can finish a work in 18 days and B can do the same work in half the time taken by A. Then working together what part of the same work they can finish in a day ?

- (1) $\frac{1}{6}$ (2) $\frac{2}{5}$

- (3) $\frac{1}{9}$ (4) $\frac{2}{7}$

(SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))

- 5.** A does $\frac{7}{10}$ part of work in 15

days. After that he completes the remaining work in 4 days with the help of B. In how many days will A and B together do the same work ?

- (1) $10\frac{1}{3}$ days (2) $12\frac{2}{3}$ days

- (3) $13\frac{1}{3}$ days (4) $8\frac{1}{4}$ days

(SSC CGL Prelim Exam. 24.02.2002 (Middle Zone) & (SSC CGL Prelim Exam. 13.11.2005 (Ist Sitting))

- 6.** A can complete a work in 6 days while B can complete the same work in 12 days. If they work together and complete it, the portion of the work done by A is

- (1) $\frac{1}{3}$ (2) $\frac{2}{3}$

- (3) $\frac{1}{4}$ (4) $\frac{1}{2}$

(SSC CPO S.I. Exam. 07.09.2003)

- 7.** A can do $\frac{1}{2}$ of a piece of work in

- 5 days, B can do $\frac{3}{5}$ of the same

- work in 9 days and C can do $\frac{2}{3}$

of that work in 8 days. In how many days can three of them together do the work ?

- (1) 3 days (2) 5 days

- (3) $4\frac{1}{2}$ days (4) 4 days

(SSC CPO S.I. Exam. 26.05.2005)

- 8.** If 28 men complete $\frac{7}{8}$ of a piece

of work in a week, then the number of men, who must be engaged to get the remaining work completed in another week, is

- (1) 5 (2) 6
 (3) 4 (4) 3

(SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))

- 9.** A can complete $\frac{1}{3}$ of a work in 5

- days and B, $\frac{2}{5}$ of the work in 10

days. In how many days both A and B together can complete the work ?

- (1) 10 days (2) $9\frac{3}{8}$ days

- (3) $8\frac{4}{5}$ days (4) $7\frac{1}{2}$ days

(SSC CGL Tier-I Exam. 16.05.2010 (Second Sitting))

- 10.** A can complete $\frac{2}{3}$ of a work in 4

- days and B can complete $\frac{3}{5}$ of

the work in 6 days. In how many days can both A and B together complete the work ?

- (1) 3 (2) 2

- (3) $3\frac{3}{4}$ (4) $2\frac{7}{8}$

(SSC CISF ASI Exam 29.08.2010

(Paper-1))

TIME AND WORK

11. A contractor undertook to complete a project in 90 days and employed 60 men on it. After 60

days, he found that $\frac{3}{4}$ of the work has already been completed. How many men can he discharge so that the project may be completed exactly on time?

- (1) 40 (2) 20
 (3) 30 (4) 15

(SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting)

12. P can complete $\frac{1}{4}$ of a work in

10 days, Q can complete 40% of the same work in 15 days, R

completes $\frac{1}{3}$ of the work in 13

days and S, $\frac{1}{6}$ of the work in 7 days. Who will be able to complete the work first?

- (1) P (2) Q
 (3) R (4) S

(SSC CHSL DEO & LDC Exam. 28.11.2010 (IInd Sitting)

13. A and B can do a piece of work in 72 days, B and C can do it in 120 days, and A and C can do it in 90 days. When A, B and C work together, how much work is finished by them in 3 days.

- (1) $\frac{1}{40}$ (2) $\frac{1}{30}$

- (3) $\frac{1}{20}$ (4) $\frac{1}{10}$

(SSC Multi-Tasking (Non-Technical) Staff Exam. 27.02.2011)

14. A can do $\frac{1}{6}$ of a work in 5 days

and B can do $\frac{2}{5}$ of the work in 8 days. In how many days, can both A and B together do the work?

- (1) 12 days (2) 13 days
 (3) 15 days (4) 20 days

(SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (IInd Sitting)

15. A can do a work in 20 days and B in 40 days. If they work on it together for 5 days, then the fraction of the work that is left is :

- (1) $\frac{5}{8}$ (2) $\frac{8}{15}$
 (3) $\frac{7}{15}$ (4) $\frac{1}{10}$

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting))

16. A alone can do a piece of work in 20 days and B alone in 30 days. They begin to work together. They will finish half of the work in :

- (1) 8 days (2) 9 days
 (3) 12 days (4) 6 days

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting))

17. A does half as much work as B in three-fourth of the time. If together they take 18 days to complete a work, how much time shall B take to do it alone?

- (1) 30 days (2) 35 days
 (3) 40 days (4) 45 days

(SSC CGL Tier-I Exam 26.06.2011 (Second Sitting))

18. A does half as much work as B in one-third of the time taken by B. If together they take 10 days to complete a work, then the time taken by B alone to do it would have been

- (1) 30 days (2) 25 days
 (3) 6 days (4) 12 days

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IInd Sitting (North Zone))

19. A can do one and a half as much of a work which B can do in one day. B alone can do a piece of work in 18 days. They together can finish that work in

- (1) $10\frac{1}{5}$ days (2) $11\frac{1}{5}$ days

- (3) $5\frac{1}{5}$ days (4) $7\frac{1}{5}$ days

(SSC Multi-Tasking Staff Exam. 17.03.2013, Ist Sitting)

20. A can do $\frac{7}{8}$ of work in 28 days,

B can do $\frac{5}{6}$ of the same work in 20 days. The number of days they will take to complete if they do it together is

- (1) $15\frac{3}{7}$ days (2) $17\frac{3}{5}$ days

- (3) $14\frac{5}{7}$ days (4) $13\frac{5}{7}$ days

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014
 TF No. 999 KPO)

21. Two workers A and B are engaged to do a piece of work. A working alone would take 8 hours more to complete the work than when work together. If B worked alone, would

take $4\frac{1}{2}$ hours more than when work together. The time required to finish the work together is

- (1) 5 hours (2) 4 hours
 (3) 8 hours (4) 6 hours

(SSC CGL Tier-II Exam. 12.04.2015
 TF No. 567 TL 9)

22. A company employed 200 workers to complete a certain work in 150 days. If only one-fourth of the work has been done in 50 days, then in order to complete the whole work in time, the number of additional workers to be employed was

- (1) 100 (2) 300
 (3) 600 (4) 200

(SSC CGL Tier-II Exam. 12.04.2015
 TF No. 567 TL 9)

23. x does $\frac{1}{4}$ of a job in 6 days. y completes rest of the job in 12 days. Then x and y could complete the job together in

- (1) 9 days (2) $9\frac{3}{5}$ days

- (3) $8\frac{1}{8}$ days (4) $7\frac{1}{3}$ days

(SSC CGL Tier-II Exam. 12.04.2015
 TF No. 567 TL 9)

24. A does half as much work as B in three-fourth of the time. If together they take 18 days to complete the work, how much time will B alone take to do it?

- (1) 40 days (2) 45 days
 (3) 50 days (4) 30 days

(SSC CGL Tier-II Exam. 2014 12.04.2015 (Kolkata Region)
 TF No. 789 TH 7)

TIME AND WORK

- 25.** A, B and C are employed to do a piece of work for Rs. 5,290. A and B together are supposed to do $\frac{19}{23}$ of the work and B

and C together $\frac{8}{23}$ of the work. Then A should be paid
 (1) Rs. 4,250 (2) Rs. 3,450
 (3) Rs. 1,950 (4) Rs. 2,290

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region TF No. 789 TH 7)

- 26.** A can do a work in 10 days and B in 20 days. If they together work on it for 5 days, then the fraction of the work that is left is

(1) $\frac{3}{4}$ (2) $\frac{4}{3}$
 (3) $\frac{3}{20}$ (4) $\frac{1}{4}$

(SSC CGL Tier-I Exam, 09.08.2015 (IInd Sitting) TF No. 4239378)

- 27.** 4 men and 6 women complete a work in 8 days. 2 men and 9 women also complete in 8 days in which. The number of days in which 18 women complete the work is :

(1) $4\frac{1}{3}$ days (2) $5\frac{1}{3}$ days
 (3) $4\frac{2}{3}$ days (4) $5\frac{2}{3}$ days

(SSC CGL Tier-I Exam, 16.08.2015 (Ist Sitting) TF No. 3196279)

- 28.** A can do in one day three times the work done by B in one day. They together finish $\frac{2}{5}$ of the work in 9 days. The number of days by which B can do the work alone is :
 (1) 90 days (2) 120 days
 (3) 100 days (4) 30 days

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IInd Sitting) TF No. 7203752)

- 29.** If 12 men working 8 hours a day complete the work in 10 days, how long would 16 men working $7\frac{1}{2}$ hours a day take to complete the same work?
 (1) 7 (2) 6
 (3) 10 (4) 8

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)

- 30.** A contractor was engaged to construct a road in 16 days. After working for 12 days with 20 labours it was found that

only $\frac{5}{8}$ th of the road had been constructed. To complete the work in stipulated time the number of extra labours required is :

(1) 18 (2) 10
 (3) 12 (4) 16

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IInd Sitting) TF No. 3441135)

- 31.** Janardan completes $\frac{2}{3}$ of his work in 10 days. Time he will take to complete $\frac{3}{5}$ of the same work, is

(1) 8 days (2) 6 days
 (3) 9 days (4) 4 days

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015 (Ist Sitting) TF No. 9692918)

- 32.** John does $\frac{1}{2}$ piece of work in 3 hours, Joe does $\frac{1}{4}$ of the remaining work in 1 hour and George finishes remaining work in 5 hours. How long would it have taken the three working together to do the work ?

(1) $2\frac{1}{7}$ hours (2) $3\frac{1}{7}$ hours
 (3) $3\frac{8}{11}$ hours (4) $2\frac{8}{11}$ hours

(SSC CGL Tier-II Online Exam.01.12.2016)

- 33.** A does $\frac{2}{5}$ of a work in 9 days. Then B joined him and they together completed the remaining work in 6 days. B alone can finish the whole work in

(1) $6\frac{12}{13}$ days (2) $8\frac{2}{11}$ days
 (3) 10 days (4) 18 days

(SSC CGL Tier-II Online Exam.01.12.2016)

- 34.** A and B work together to complete the rest of a job in 7 days.

However, $\frac{37}{100}$ of the job was already done. Also, the work done

by A in 5 days is equal to the work done by B in 4 days. How many days would be required by the fastest worker to complete the entire work?

(1) 20 (2) 25
 (3) 30 (4) 10

(SSC CPO SI, ASI Online Exam.05.06.2016) (IInd Sitting)

- 35.** Dhiru can dig $\frac{1}{a}$ of a field in 20

hours. What fraction of the same field can Kaku dig in 20 hours if the two of them can dig the field in 60 hours, working together at their respective rates ?

(1) $\frac{(a-3)}{a}$ (2) $\frac{1}{3a}$
 (3) $\frac{3a}{(a-3)}$ (4) $\frac{(a-3)}{3a}$

(SSC CPO SI & ASI, Online Exam. 06.06.2016) (IInd Sitting)

- 36.** A can do a certain job in 12 days. B is 60% more efficient than A. Then B can do the same piece of work in

(1) 8 days (2) $7\frac{1}{2}$ days
 (3) $6\frac{1}{4}$ days (4) 6 days

(SSC CGL Tier-I (CBE) Exam. 31.08.2016) (IInd Sitting)

- 37.** A and B together can complete a work in 24 days. B alone does

$\frac{1}{3}$ rd part of this work in 12 days. How many days will A alone take to complete the remaining work?

(1) 24 days (2) 36 days
 (3) 48 days (4) 72 days

(SSC CGL Tier-I (CBE) Exam. 07.09.2016 (IIIrd Sitting))

- 38.** A can do $\frac{1}{3}$ rd of a work in 5 days

and B can do $\frac{2}{5}$ th of this work in 10 days. Both A and B, together can do the work in

(1) $7\frac{3}{8}$ days (2) $8\frac{4}{5}$ days
 (3) $9\frac{3}{8}$ days (4) 10 days

(SSC CGL Tier-I (CBE) Exam. 09.09.2016 (IInd Sitting))

TIME AND WORK

39. A, B and C contract a work for Rs. 440. A and B together are to

do $\frac{9}{11}$ of the work. The share of

C should be :

- (1) Rs. 75 (2) Rs. 90

- (3) Rs. 100 (4) Rs. 80

(SSC CGL Tier-I (CBE)

Exam. 11.09.2016 (IIIrd Sitting)

40. P can do $\left(\frac{1}{4}\right)$ th of work in 10

days, Q can do 40% of work in

40 days and R can do $\left(\frac{1}{3}\right)$ rd of

work in 13 days. Who will complete the work first?

- (1) P (2) Q

- (3) R (4) Both P and R

(SSC CGL Tier-II (CBE)

Exam. 12.01.2017)

TYPE-V

1. A does half as much work as B in one sixth of the time. If together they take 10 days to complete a work, how much time shall B take to do it alone?

- (1) 70 days (2) 30 days

- (3) 40 days (4) 50 days

(SSC CGL Prelim Exam. 24.02.2002
(1st Sitting) & (SSC CGL Prelim
Exam. 13.11.2005 (IIInd Sitting))

2. Babu and Asha can do a job together in 7 days. Asha is $\frac{3}{4}$ times as efficient as Babu. The same job can be done by Asha alone in

- (1) $\frac{49}{4}$ days (2) $\frac{49}{3}$ days

- (3) 11 days (4) $\frac{28}{3}$ days

(SSC CGL Prelim Exam. 11.05.2003
(First Sitting))

3. Jyothi can do $\frac{3}{4}$ of a job in 12 days. Mala is twice as efficient as Jyothi. In how many days will Mala finish the job ?

- (1) 6 days (2) 8 days

- (3) 12 days (4) 16 days

(SSC CPO S.I. Exam. 06.09.2009)

4. A can do a piece of work in 70 days and B is 40% more efficient than A. The number of days taken by B to do the same work is

- (1) 40 days (2) 60 days

- (3) 50 days (4) 45 days

FCI Assistant Grade-III
Exam. 25.02.2012 (Paper-I)

North Zone (1st Sitting)

5. A 10 hectare field is reaped by 2 men, 3 women and 4 children together in 10 days. If working capabilities of a man, a woman and a child are in the ratio 5 : 4 : 2, then a 16 hectare field will be reaped by 6 men, 4 women and 7 children in

- (1) 5 days (2) 6 days

- (3) 7 days (4) 8 days

(SSC CPO S.I. Exam. 09.11.2008)

6. To complete a work, A takes 50% more time than B. If together they take 18 days to complete the work, how much time shall B take to do it ?

- (1) 30 days (2) 35 days

- (3) 40 days (4) 45 days

(SSC CGL Prelim Exam. 04.02.2007
(First Sitting))

7. A is twice as good a workman as B and B is twice as good a workman as C. If A and B can together finish a piece of work in 4 days, then C can do it by himself in

- (1) 6 days (2) 8 days

- (3) 24 days (4) 12 days

(SSC CPO S.I. Exam. 06.09.2009)

8. A and B together can complete a work in 15 days. A is 50% more efficient worker than B. How long will A take to complete the work alone ?

- (1) 20 days (2) 21 days

- (3) 21.4 days (4) 22.5 days

(SSC SAS Exam 26.06.2010
(Paper-I))

9. Tapas works twice as fast as Mihir. If both of them together complete a work in 12 days, Tapas alone can complete it in

- (1) 15 days (2) 18 days

- (3) 20 days (4) 24 days

(SSC CPO S.I.
Exam. 12.12.2010 (Paper-I))

10. A and B together can do a work in 12 days. B and C together do it in 15 days. If A's efficiency is twice that of C, then the days required for B alone to finish the work is

- (1) 60 days (2) 30 days

- (3) 20 days (4) 15 days

(SSC CGL Tier-1 Exam 19.06.2011
(First Sitting))

11. A is 50% as efficient as B. C does half of the work done by A and B together. If C alone does the work in 20 days, then A, B and C together can do the work in

- (1) $5\frac{2}{3}$ days (2) $6\frac{2}{3}$ days

- (3) 6 days (4) 7 days

(SSC CGL Tier-1 Exam 19.06.2011
(First Sitting))

12. A is thrice as good a workman as B and is, therefore, able to finish a piece of work in 60 days less than B. The time (in days) in which they can do it working together is

- (1) 22 days (2) $22\frac{1}{2}$ days

- (3) 23 days (4) $23\frac{1}{4}$ days

(SSC CGL Prelim Exam. 04.07.1999
(1st Sitting) & (SSC CPO S.I. Exam.
26.05.2005) & (SSC CGL Tier-1
Exam. 19.06.2011 (IIInd Sitting) &
(SSC CHSL DEO & LDC
Exam. 04.11.2012))

13. A does 20% less work than B. If A can complete a piece of work in

- $7\frac{1}{2}$ hours, then B can do it in

- (1) $6\frac{1}{2}$ hours (2) 6 hours

- (3) $5\frac{1}{2}$ hours (4) 5 hours

(SSC CPO S.I. Exam. 03.09.2006
& (SSC GL Tier-I
Exam. 19.05.2013 (1st Sitting)))

14. Kamal can do a work in 15 days. Bimal is 50 per cent more efficient than Kamal in doing the work. In how many days will Bimal do that work?

- (1) 14 days (2) 12 days

- (3) 10 days (4) $10\frac{1}{2}$ days

(SSC CGL Prelim Exam. 24.02.2002
(Middle Zone) & (SSC CPO S.I.
Exam.03.09.2006))

TIME AND WORK

- 15.** A takes twice as much time as B and thrice as much as C to complete a piece of work. They together complete the work in 1 day. In what time, will A alone complete the work.
 (1) 9 days (2) 5 days
 (3) 6 days (4) 4 days
 (SSC Data Entry Operator Exam. 31.08.2008)
- 16.** A is thrice as good a workman as B and therefore is able to finish a job in 40 days less than B. Working together, they can do it in
 (1) 14 days (2) 13 days
 (3) 20 days (4) 15 days
 (SSC Multi-Tasking (Non-Technical) Staff Exam. 20.02.2011) & (SSC CGL Tier-I Exam. 26.06.2011 (Ist Sitting))
- 17.** A is twice as good a workman as B and together they finish a piece of work in 14 days. The number of days taken by A alone to finish the work is
 (1) 11 days (2) 21 days
 (3) 28 days (4) 42 days
 (SSC Multi-Tasking (Non-Technical) Staff Exam. 27.02.2011)
- 18.** A can do a work in 21 days. B is 40% more efficient than A. The number of days required for B to finish the same work alone is
 (1) 10 days (2) 12 days
 (3) 15 days (4) 18 days
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting) (North Zone))
- 19.** A can do a work in 5 days less than the time taken by B to do it.
 If both of them together take $1\frac{1}{9}$ days, then the time taken by 'B' alone to do the same work (in days) is
 (1) 15 (2) 20
 (3) 25 (4) 30
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting) (East Zone))
- 20.** A takes 10 days less than the time taken by B to finish a piece of work. If both A and B can do it in 12 days, then the time taken by B alone to finish the work is
 (1) 30 days (2) 27 days
 (3) 20 days (4) 25 days
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting) (East Zone))
- 21.** A can do a work in 9 days, if B is 50% more efficient than A, then in how many days can B do the same work?
 (1) 13.5 days (2) 4.5 days
 (3) 6 days (4) 3 days
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting) (Delhi Zone))
- 22.** A is 30% more efficient than B, and can alone do a work in 23 days. The number of days, in which A and B, working together can finish the job is
 (1) 11 days (2) 13 days
 (3) 20 days (4) 21 days
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting) (East Zone))
- 23.** 5 men and 2 women working together can do four times as much work per hour as a man and a woman together. The work done by a man and a woman should be in the ratio :
 (1) 1 : 2 (2) 2 : 1
 (3) 1 : 3 (4) 4 : 1
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting) (East Zone))
- 24.** A can do a certain job in 12 days. B is 60% more efficient than A. To do the same job B alone would take :
 (1) $7\frac{1}{2}$ days (2) 8 days
 (3) 10 days (4) 7 days
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting) (Delhi Zone))
- 25.** A can do a certain work in 12 days. B is 60% more efficient than A. How many days will B and A together take to do the same job?
 (1) $\frac{80}{13}$ days (2) $\frac{70}{13}$ days
 (3) $\frac{75}{13}$ days (4) $\frac{60}{13}$ days
 (SSC Graduate Level Tier-II Exam. 16.09.2012)
- 26.** A and B can do a job together in 12 days. A is 2 times as efficient as B. In how many days can B alone complete the work ?
 (1) 18 days (2) 9 days
 (3) 36 days (4) 12 days
 (SSC CHSL DEO & LDC Exam. 21.10.2012 (Ist Sitting) & (SSC CGL Prelim Exam. 27.02.2000 (IIInd Sitting)))
- 27.** P is thrice as good a workman as Q and therefore able to finish a job in 48 days less than Q. Working together, they can do it in :
 (1) 18 days (2) 24 days
 (3) 30 days (4) 12 days
 (SSC CHSL DEO & LDC Exam. 21.10.2012 (IIInd Sitting))
- 28.** To do a certain work, B would take time thrice as long as A and C together and C twice as long as A and B together. The three men together complete the work in 10 days. The time taken by A to complete the work separately is
 (1) 22 days (2) 24 days
 (3) 30 days (4) 20 days
 (SSC Delhi Police S.I. (SI) Exam. 19.08.2012)
- 29.** A can do a piece of work in 6 days. B is 25% more efficient than A. How long would B alone take to finish this work?
 (1) $4\frac{4}{5}$ days (2) $3\frac{1}{3}$ days
 (3) $5\frac{1}{4}$ days (4) $2\frac{2}{3}$ days
 (SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)
- 30.** Two workers A and B working together completed a job in 5 days. If A worked twice as efficiently as he actually did and B worked $\frac{1}{3}$ as efficiently as he actually did, the work would have been completed in 3 days. To complete the job alone, A would require
 (1) $5\frac{1}{5}$ days (2) $6\frac{1}{4}$ days
 (3) $7\frac{1}{2}$ days (4) $8\frac{3}{4}$ days
 (SSC Graduate Level Tier-II Exam. 29.09.2013)
- 31.** Sunil completes a work in 4 days, whereas Dinesh completes the work in 6 days. Ramesh works $1\frac{1}{2}$ times as fast as Sunil. The three together can complete the work in
 (1) $1\frac{5}{12}$ days (2) $1\frac{5}{7}$ days
 (3) $1\frac{3}{8}$ days (4) $1\frac{5}{19}$ days
 (SSC Graduate Level Tier-II Exam. 29.09.2013)

TIME AND WORK

32. Pratibha is thrice as efficient as Sonia and is therefore able to finish a piece of work in 60 days less than Sonia. Pratibha and Sonia can individually complete the work respectively in

- (1) 30 days, 60 days
- (2) 60 days, 90 days
- (3) 30 days, 90 days
- (4) 40 days, 120 days

(SSC CGL Tier-I Exam. 19.10.2014
TF No. 022 MH 3)

33. If A, B and C can complete a work in 6 days. If A can work twice faster than B and thrice faster than C, then the number of days C alone can complete the work is :

- (1) 33 days (2) 44 days
- (3) 22 days (4) 11 days

(SSC CGL Tier-I Exam. 16.08.2015
(IInd Sitting) TF No. 2176783)

34. A is twice as good as B and together they finish a piece of work in 16 days. The number of days taken by A alone to finish the work is

- (1) 20 days (2) 21 days
- (3) 22 days (4) 24 days

(SSC CGL Tier-I (CBE)
Exam. 10.09.2016)

35. A man does double the work done by a boy in the same time. The number of days that 3 men and 4 boys will take to finish a work which can be done by 10 men in 8 days is

- (1) 4 (2) 16
- (3) $7\frac{3}{11}$ (4) $8\frac{4}{5}$

(SSC CGL Tier-II Online
Exam. 01.12.2016)

36. A works twice as fast as B. If B can complete a piece of work independently in 12 days, then what will be the number of days taken by A and B together to finish the work?

- (1) 4 (2) 6
- (3) 8 (4) 18

(SSC CGL Tier-I (CBE)
Exam. 02.09.2016) (IInd Sitting)

37. If 10 people can do a job in 20 days, then 20 people with twice the efficiency can do the same job in

- (1) 5 days (2) 10 days
- (3) 20 days (4) 40 days

(SSC CGL Tier-I (CBE)
Exam. 03.09.2016 (IInd Sitting)

38. Shashi can do a piece of work in 20 days. Tanya is 25% more efficient than Shashi. The number of days taken by Tanya to do the same piece of work is :

- (1) 15 (2) 16
- (3) 18 (4) 25

(SSC CGL Tier-I (CBE)
Exam. 08.09.2016 (IInd Sitting)

TYPE-VI

1. 39 persons can repair a road in 12 days working 5 hours a day. In how many days will 30 persons working 6 hours a day complete the work ?

- (1) 10 days (2) 13 days
- (3) 14 days (4) 15 days

(SSC CPO S.I. Exam. 12.01.2003)

2. If 72 men can build a wall of 280 m length in 21 days, how many men could take 18 days to build a similar type of wall of length 100 m?

- (1) 30 (2) 10
- (3) 18 (4) 28

(SSC CGL Prelim Exam. 11.05.2003
(First Sitting)

3. A wall of 100 metres can be built by 7 men or 10 women in 10 days. How many days will 14 men and 20 women take to build a wall of 600 metres ?

- (1) 15 (2) 20
- (3) 25 (4) 30

(SSC CGL Prelim Exam. 11.05.2003
(Second Sitting)

4. 5 persons can prepare an admission list in 8 days working 7 hours a day. If 2 persons join them so as to complete the work in 4 days, they need to work per day for :

- (1) 10 hours (2) 9 hours
- (3) 12 hours (4) 8 hours

(SSC CGL Prelim Exam. 08.02.2004
(First Sitting)

5. 4 mat-weavers can weave 4 mats in 4 days. At the same rate how many mats would be woven by 8 mat-weavers in 8 days ?

- (1) 4 (2) 8
- (3) 12 (4) 16

(SSC CGL Prelim Exam. 08.02.2004
(First Sitting)

6. 10 men working 6 hours a day can complete a work in 18 days. How many hours a day must 15 men work to complete the same work in 12 days ?

- (1) 6 days (2) 10 days
 - (3) 12 days (4) 15 days
- (SSC CGL Prelim Exam. 08.02.2004
(Second Sitting)

7. Two persons can complete a piece of work in 9 days. How many more persons are needed to complete double the work in 12 days?

- (1) 3 (2) 2
- (3) 4 (4) 1

(SSC CPO S.I. Exam. 03.09.2006)

8. If p men working p hours per day for p days produce p units of work, then the units of work produced by n men working n hours a day for n days is

$$(1) \frac{p^2}{n^2} \quad (2) \frac{p^3}{n^2}$$

$$(3) \frac{n^2}{p^2} \quad (4) \frac{n^3}{p^2}$$

(SSC CGL Prelim Exam. 27.07.2008
(Second Sitting)

9. If 10 men can do a piece of work in 12 days, the time taken by 12 men to do the same piece of work will be

- (1) 12 days (2) 10 days
- (3) 9 days (4) 8 days

(SSC CPO S.I. Exam. 09.11.2008)

10. 7 men can complete a piece of work in 12 days. How many additional men will be required to complete double the work in 8 days ?

- (1) 28 (2) 21
- (3) 14 (4) 7

(SSC CGL Tier-I Exam. 16.05.2010
(Second Sitting)

11. 'x' number of men can finish a piece of work in 30 days. If there were 6 men more, the work could be finished in 10 days less. The original number of men is

- (1) 6 (2) 10
- (3) 12 (4) 15

(SSC CGL Tier-I Exam. 19.06.2011
(Second Sitting)

12. Some carpenters promised to do a job in 9 days but 5 of them were absent and remaining men did the job in 12 days. The original number of carpenters was

- (1) 24 (2) 20
- (3) 16 (4) 18

FCI Assistant Grade-III
Exam. 25.02.2012 (Paper-I)
North Zone (Ist Sitting)

TIME AND WORK

- 13.** 2 men and 3 women together or 4 men together can complete a piece of work in 20 days. 3 men and 3 women will complete the same work in :

- (1) 12 days (2) 16 days
 (3) 18 days (4) 19 days

(SSC CHSL DEO & LDC Exam. 28.11.2010 (1st Sitting))

- 14.** Working 8 hours a day, Anu can copy a book in 18 days. How many hours a day should she work so as to finish the work in 12 days ?

- (1) 12 hours (2) 10 hours
 (3) 11 hours (4) 13 hours

(SSC CISF Constable (GD) Exam. 05.06.2011)

- 15.** Some persons can do a piece of work in 12 days. Two times the number of such persons will do half of the work in

- (1) 9 days (2) 6 days
 (3) 5 days (4) 3 days

(SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (1st Sitting))

- 16.** If the work done by $(x-1)$ men in $(x+1)$ days is to the work done by $(x+2)$ men in $(x-1)$ days are in the ratio 9 : 10, then the value of x is equal to :

- (1) 5 (2) 6
 (3) 7 (4) 8

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (East Zone)))

- 17.** If 80 persons can finish a work within 16 days by working 6 hours a day, the number of hours a day, should 64 persons work to finish that very job within 15 days is :

- (1) 5 hrs. (2) 7 hrs.
 (3) 8 hrs. (4) 6 hrs.

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting))

- 18.** 18 boys can do a piece of work in 24 days. In how many days can 27 boys do the same work ?

- (1) 16 days (2) 32 days
 (3) 23 days (4) 48 days

(SSC CHSL DEO & LDC Exam. 28.10.2012 (1st Sitting))

- 19.** One man, 3 women and 4 boys can do a piece of work in 96 hours, 2 men and 8 boys can do it in 80 hours, 2 men and 3 women can do it in 120 hours. 5 men and 12 boys can do it in

- (1) $39 \frac{1}{11}$ hours

- (2) $42 \frac{7}{11}$ hours

- (3) $43 \frac{7}{11}$ hours
 (4) 44 hours

(SSC Graduate Level Tier-I Exam. 21.04.2013)

- 20.** If x men can do a piece of work in x days, then the number of days in which y men can do the same work is

- (1) xy days (2) $\frac{y^2}{x}$ days
 (3) $\frac{x^2}{y}$ days (4) x^2y days

(SSC Graduate Level Tier-II Exam. 29.09.2013)

- 21.** 30 men can repair a road in 18 days. They are joined by 6 more workers. Now the road can be repaired in

- (1) 14 days (2) 15 days
 (3) 16 days (4) 17 days

(SSC CHSL DEO & LDC Exam. 28.10.2012 (1st Sitting))

- 22.** 20 men or 24 women can complete a piece of work in 20 days. If 30 men and 12 women undertake to complete the work, the work will be completed in

- (1) 10 days (2) 12 days
 (3) 15 days (4) 16 days

(SSC (South Zone) Investigator Exam 12.09.2010)

- 23.** Either 8 men or 17 women can paint a house in 33 days. The number of days required to paint three such houses by 12 men and 24 women working at the same rate is :

- (1) 44 days (2) 43 days
 (3) 34 days (4) 66 days

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (Delhi Zone)))

- 24.** 3 men and 7 women can do a job in 5 days, while 4 men and 6 women can do it in 4 days. The number of days required for a group of 10 women working together, at the same rate as before, to finish the same job is :

- (1) 30 days (2) 36 days
 (3) 40 days (4) 20 days

(SSC CAPFs SI & CISF ASI Exam. 23.06.2013)

- 25.** A contractor undertook to finish a work in 92 days and employed 110 men. After 48 days, he found

- that he had already done $\frac{3}{5}$ part

of the work, the number of men he can withdraw so that the work may still be finished in time is :

- (1) 45 (2) 40
 (3) 35 (4) 30

(SSC Multi-Tasking Staff Exam. 10.03.2013)

- 26.** A man undertakes to do a certain work in 150 days. He employs 200 men. He finds that only a quarter of the work is done in 50 days. The number of additional men that should be appointed so that the whole work will be finished in time is :

- (1) 75 (2) 100
 (3) 125 (4) 50

(SSC Graduate Level Tier-I Exam. 21.04.2013, 1st Sitting)

- 27.** A contractor undertook to finish a certain work in 124 days and employed 120 men. After 64 days, he found that he had

already done $\frac{2}{3}$ of the work.

How many men can be discharged now so that the work may finish in time ?

- (1) 48 (2) 56
 (3) 40 (4) 50

(SSC Graduate Level Tier-I Exam. 21.04.2013)

- 28.** If 7 men working 7 hrs a day for each of 7 days produce 7 units of work, then the units of work produced by 5 men working 5 hrs a day for each of 5 days is

- (1) $\frac{25}{343}$ (2) $\frac{125}{49}$

- (3) $\frac{49}{125}$ (4) $\frac{343}{25}$

(SSC CHSL DEO Exam. 02.11.2014 (Ist Sitting))

TIME AND WORK

29. Seventy-five men are employed to lay down a railway line in 3 months. Due to certain emergency conditions, the work was to be finished in 18 days. How many more men should be employed to complete the work in the desired time ?

- (1) 300 (2) 325
(3) 350 (4) 375

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014
TF No. 999 KPO)

30. If 4 men or 8 women can do a piece of work in 15 days, in how many days can 6 men and 12 women do the same piece of work ?

- (1) 20 days (2) 45 days
(3) 15 days (4) 30 days

(SSC CGL Tier-I Exam. 16.08.2015
(1st Sitting) TF No. 3196279)

31. 24 men can do a piece of work in 17 days. How many men will be able to do it in 51 days ?

- (1) 8 (2) 10
(3) 12 (4) 6

(SSC CGL Tier-I (CBE)
Exam. 06.09.2016 (IInd Sitting)

TYPE : VII

1. Suman can do a work in 3 days. Sumati can do the same work in 2 days. Both of them finish the work together and get ₹ 150. What is the share of Suman ?
(1) ₹ 30 (2) ₹ 60
(3) ₹ 70 (4) ₹ 75
(SSC CGL Prelim Exam. 04.07.1999
(Second Sitting)

2. The average wage of 500 workers was found to be ₹ 200. Later on, it was discovered that the wages of two workers were misread as 180 and 20 instead of 80 and 220. The correct average wage is :
(1) ₹ 200.10 (2) ₹ 200.20
(3) ₹ 200.50 (4) ₹ 201.00
(SSC CGL Prelim Exam. 27.02.2000
(Second Sitting)

3. A and B undertook to do a piece of work for ₹ 4500. A alone could do it in 8 days and B alone in 12 days. With the assistance of C they finished the work in 4 days. Then C's share of the money is
(1) ₹ 2250 (2) ₹ 1500
(3) ₹ 750 (4) ₹ 375
(SSC CGL Prelim Exam. 11.05.2003
(Second Sitting)

4. If 6 persons working 8 hours a day earn ₹ 8400 per week, then 9 persons working 6 hours a day will earn per week

- (1) ₹ 8400 (2) ₹ 16800
(3) ₹ 9450 (4) ₹ 16200

(SSC CGL Prelim Exam. 11.05.2003
(Second Sitting)

5. A alone can do a piece of work in 6 days and B alone in 8 days. A and B undertook to do it for ₹ 3200. With the help of C they completed the work in 3 days. How much is to be paid to C ?

- (1) ₹ 375 (2) ₹ 400
(3) ₹ 600 (4) ₹ 800

(SSC CGL Prelim Exam. 08.02.2004
(Second Sitting)

6. A and B can complete a piece of work in 15 days and 10 days respectively. They contracted to complete the work for ₹ 30,000. The share of A in the contracted money will be :

- (1) ₹ 18,000 (2) ₹ 16,500
(3) ₹ 12,500 (4) ₹ 12,000

(SSC CGL Prelim Exam. 08.02.2004
(Second Sitting)

7. A man and a boy received ₹ 800 as wages for 5 days for the work they did together. The man's efficiency in the work was three times that of the boy. What are the daily wages of the boy ?

- (1) ₹ 76 (2) ₹ 56
(3) ₹ 44 (4) ₹ 40

(SSC CGL Prelim Exam. 13.11.2005
(First Sitting)

8. A daily-wage labourer was engaged for a certain number of days for ₹ 5,750; but being absent on some of those days he was paid only ₹ 5,000. What was his maximum possible daily wage?

- (1) ₹ 125 (2) ₹ 250
(3) ₹ 375 (4) ₹ 500

(SSC CPO S.I. Exam. 03.09.2006)

9. A, B and C completed a work costing ₹ 1,800. A worked for 6 days, B for 4 days and C for 9 days. If their daily wages are in the ratio of 5 : 6 : 4, how much amount will be received by A?

- (1) ₹ 800 (2) ₹ 600
(3) ₹ 900 (4) ₹ 750

(SSC CGL Prelim Exam. 04.02.2007
(First Sitting)

10. A labourer was appointed by a contractor on the condition that he would be paid ₹ 75 for each day of his work but would be fined at the rate of ₹ 15 per day for his absence, apart from losing his wages. After 20 days, the contractor paid the labourer ₹ 1140. The number of days the labourer abstained from work was

- (1) 3 (2) 5
(3) 4 (4) 2

(SSC CGL Prelim Exam. 04.02.2007
(Second Sitting)

11. Two men undertook to do a job for ₹ 1400. One of them can do it alone in 7 days, and the other in 8 days. With the assistance of a boy they together completed the work in 3 days. How much money will the boy get ?

- (1) ₹ 300 (2) ₹ 325
(3) ₹ 275 (4) ₹ 250

(SSC CGL Prelim Exam. 04.02.2007
(Second Sitting)

12. If 5 men or 7 women can earn ₹ 5,250 per day, how much would 7 men and 13 women earn per day ?

- (1) ₹ 11,600 (2) ₹ 11,700
(3) ₹ 16,100 (4) ₹ 17,100

(SSC CGL Tier-I Exam. 16.05.2010
(First Sitting)

13. 2 men and 1 woman together can complete a piece of work in 14 days, while 4 women and 2 men together can do it in 8 days. If a man gets ₹ 600 per day, how much should a woman get per day?

- (1) ₹ 400 (2) ₹ 450
(3) ₹ 480 (4) ₹ 360

(SSC Data Entry Operator
Exam. 31.08.2008)

14. Two men undertake a job for ₹ 960. They can complete it in 16 days and 24 days respectively. They work along with a third man and take 8 days to complete it. Then the share of the third man should be

- (1) ₹ 155 (2) ₹ 165
(3) ₹ 160 (4) ₹ 150

(SSC CHSL DEO & LDC Exam.
04.11.2012, IInd Sitting)

TIME AND WORK

- 15.** If there is a reduction in the number of workers in a factory in the ratio 15 : 11 and an increment in their wages in the ratio 22 : 25, then the ratio by which the total wages of the workers should be decreased is
 (1) 6 : 5 (2) 5 : 6
 (3) 3 : 7 (4) 3 : 5
 (SSC CHSL DEO & LDC Exam. 04.11.2012, IIInd Sitting)
- 16.** Stanie and Paul take a piece of work for ₹ 28,800. One alone could do it in 36 days, the other in 48 days. With the assistance of an expert, they finish it in 12 days. How much remuneration the expert should get ?
 (1) ₹ 10000 (2) ₹ 18000
 (3) ₹ 16000 (4) ₹ 12000
 (SSC Multi-Tasking Staff Exam. 17.03.2013, Kolkata Region)
- 17.** A and B were assigned to do a job for an amount of ₹ 1,200. A alone can do it in 15 days, while B can do it in 12 days. With the help of C, they can finish in 5 days. The share of amount that C earns is
 (1) ₹ 300 (2) ₹ 400
 (3) ₹ 500 (4) ₹ 600
 (SSC Multi-Tasking Staff Exam. 24.03.2013, Ist Sitting)
- 18.** A sum of money is sufficient to pay A's wages for 21 days and B's wages for 28 days. The same money is sufficient to pay the wages of both for :
 (1) $12\frac{1}{4}$ days (2) 14 days
 (3) $24\frac{1}{2}$ days (4) 12 days
 (SSC Graduate Level Tier-I Exam. 21.04.2013)
- 19.** A can do a piece of work in 12 days while B alone can do it in 15 days. With the help of C they can finish it in 5 days. If they are paid ₹ 960 for the whole work how much money A gets ?
 (1) ₹ 480 (2) ₹ 240
 (3) ₹ 320 (4) ₹ 400
 (SSC Graduate Level Tier-I Exam. 21.04.2013)
- 20.** A, B and C together earn ₹ 150 per day while A and C together earn ₹ 94 and B and C together earn ₹ 76. The daily earning of 'C' is
 (1) ₹ 56 (2) ₹ 20
 (3) ₹ 34 (4) ₹ 75
 (SSC Constable (GD) Exam. 12.05.2013)
- 21.** Three persons undertake to complete a piece of work for ₹ 1,200. The first person can complete the work in 8 days, second person in 12 days and third person in 16 days. They complete the work with the help of a fourth person in 3 days. What does the fourth person get?
 (1) ₹ 180 (2) ₹ 200
 (3) ₹ 225 (4) ₹ 250
 (SSC Graduate Level Tier-II Exam. 29.09.2013)
- 22.** A can do a piece of work in 16 days and B in 24 days. They take the help of C and three together finish the work in 6 days. If the total remuneration for the work is ₹ 400. The amount (in rupees) each will receive, in proportion, to do the work is
 (1) A : 150, B : 100, C : 150
 (2) A : 100, B : 150, C : 150
 (3) A : 150, B : 150, C : 100
 (4) A : 100, B : 150, C : 100
 (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)
- 23.** A skilled, a half skilled and an unskilled labourer work for 7, 8 and 10 days respectively and they together get ₹ 369 for their work. If the ratio of their each day's work is $\frac{1}{3} : \frac{1}{4} : \frac{1}{6}$, then how much does the trained labourer get (in rupees)?
 (1) 164 (2) 102.50
 (3) 201.50 (4) 143.50
 (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))
- 24.** A, B and C are employed to do a piece of work for ₹ 575. A and C are supposed to finish $\frac{19}{23}$ of the work together. Amount shall be paid to B is
 (1) ₹ 210 (2) ₹ 100
 (3) ₹ 200 (4) ₹ 475
 (SSC CGL Tier-II Exam. 21.09.2014)
- 25.** If a man earns ₹ 2000 for his first 50 hours of work in a week and is then paid one and a half times his regular hourly rate for any additional hours, then the hours must he work to make ₹ 2300 in a week is
 (1) 6 hours (2) 4 hours
 (3) 7 hours (4) 5 hours
 (SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)
- 26.** 2 men and 1 woman can complete a piece of work in 14 days while 4 women and 2 men can do the same work in 8 days. If a man gets Rs. 180 per day, then a woman will get per day
 (1) Rs. 150 (2) Rs. 140
 (3) Rs. 120 (4) Rs. 160
 (SSC CGL Tier-II Exam. 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)
- 27.** The daily wages of A and B respectively are Rs. 3.50 and Rs. 2.50. When A finishes a certain work, he gets a total wage of Rs. 63. When B does the same work, he gets a total wage of Rs.75. If both of them do it together what is the cost of the work ?
 (1) Rs. 67.50 (2) Rs. 27.50
 (3) Rs. 60.50 (4) Rs. 70.50
 (SSC CGL Tier-II Online Exam.01.12.2016)
- 28.** A can do a work in 12 days while B can do it in 15 days. They undertake to complete it together for Rs. 450. what will be the share of A in this amount of money ?
 (1) Rs. 200 (2) Rs. 240
 (3) Rs. 250 (4) Rs. 300
 (SSC CGL Tier-I (CBE) Exam. 29.08.2016) (IIInd Sitting)
- 29.** A, B and C can work together for Rs. 550. A and B together are to do $\frac{7}{11}$ of the work. The share of C should be
 (1) Rs. 200 (2) Rs. 300
 (3) Rs. 400 (4) Rs. 450
 (SSC CGL Tier-I (CBE) Exam. 01.09.2016 (IIIrd Sitting))
- 30.** A and B undertake a piece of work for Rs. 250. A alone can do that work in 5 days and B alone can do that work in 15 days. With the help of C, they finish the work in 3 days. If every one gets paid in proportion to work done by them, the amount C will get is :
 (1) Rs. 50 (2) Rs. 100
 (3) Rs. 150 (4) Rs. 200
 (SSC CGL Tier-I (CBE) Exam. 10.09.2016 (IIIrd Sitting))

TIME AND WORK

37. A certain factory employed 600 men and 400 women and the average wage was ₹ 2.55 per day. If a woman got 50 paise less than a man, the daily wages of a man and a woman were
(1) Man ₹ 2.75, Woman ₹ 2.25
(2) Man ₹ 5.30, Woman ₹ 2.50
(3) Man ₹ 2.50, Woman ₹ 2.00
(4) Man ₹ 3.25, Woman ₹ 2.75
(SSC Multi-Tasking Staff Exam. 30.04.2017)

TYPE-VIII

1. A certain number of men can complete a job in 30 days. If there were 5 men more, it could be completed in 10 days less. How many men were in the beginning?
(1) 10 (2) 15
(3) 20 (4) 25
(SSC CGL Prelim Exam. 27.02.2000 (IInd Sitting))
2. If the expenditure of gas on burning 6 burners for 6 hours a day for 8 days is ₹ 450, then how many burners can be used for 10 days at 5 hours a day for ₹ 625 ?
(1) 12 (2) 16
(3) 4 (4) 8
(SSC CGL Prelim Exam. 24.02.2002 (Middle Zone))
3. A can do a piece of work in 60 days. He works for 15 days and then B alone finishes the remaining work in 30 days. The two together can finish the work in
(1) 24 days (2) 25 days
(3) 30 days (4) 32 days
(SSC CGL Prelim Exam. 11.05.2003 (Second Sitting))
4. A can do a certain work in the same time in which B and C together can do it. If A and B together could do it in 10 days and C alone in 50 days, then B alone could do the work in
(1) 15 days (2) 20 days
(3) 25 days (4) 30 days
(SSC CGL Prelim Exam. 11.05.2003 (Second Sitting))
5. A man can do a piece of work in 5 days, but with the help of his son, he can do it in 3 days. In what time can the son do it alone ?
(1) 7 days (2) 8 days
(3) $7\frac{1}{2}$ days (4) $6\frac{1}{2}$ days
(SSC CGL Prelim Exam. 08.02.2004 (First Sitting))

6. A certain number of men can do a work in 60 days. If there were eight more men, it could be completed in 10 days less. How many men were there in the beginning?
(1) 70 (2) 55
(3) 45 (4) 40
(SSC CGL Prelim Exam. 08.02.2004 (Second Sitting))
7. 12 persons can do a piece of work in 4 days. How many persons are required to complete 8 times the work in half the time ?
(1) 192 (2) 190
(3) 180 (4) 144
(SSC CPO S.I. Exam. 05.09.2004)
8. A work could be completed in 100 days by some workers. However, due to the absence of 10 workers, it was completed in 110 days. The original number of workers was :
(1) 100 (2) 110
(3) 55 (4) 50
(SSC CGL Prelim Exam. 13.11.2005 (First Sitting))
9. A job can be completed by 12 men in 12 days. How many extra days will be needed to complete the job if 6 men leave after working for 6 days ?
(1) 3 days (2) 6 days
(3) 12 days (4) 24 days
(SSC CGL Prelim Exam. 13.11.2005 (Second Sitting))
10. 60 men could complete a work in 250 days. They worked together for 200 days. After that the work had to be stopped for 10 days due to bad weather. How many more men should be engaged to complete the work in time ?
(1) 10 (2) 15
(3) 18 (4) 20
(SSC CGL Prelim Exam. 04.02.2007 (Second Sitting))
11. Working 5 hours a day, A can complete a work in 8 days and working 6 hours a day, B can complete the same work in 10 days. Working 8 hours a day, they can jointly complete the work in
(1) 3 days (2) 4 days
(3) 4.5 days (4) 5.4 days
(SSC CGL Prelim Exam. 27.07.2008 (First Sitting))
12. If two persons, with equal abilities, can do two jobs in two days, then 100 persons with equal abilities can do 100 similar jobs in
(1) 100 days (2) 10 days
(3) 5 days (4) 2 days
(SSC CGL Prelim Exam. 27.07.2008 (First Sitting))
13. Ganga and Saraswati, working separately can mow a field in 8 and 12 hours respectively. If they work in stretches of one hour alternately, Ganga beginning at 9 a.m., when will the moving be completed ?
(1) 6 p.m. (2) 6.30 p.m.
(3) 5 p.m. (4) 5.30 p.m.
(SSC CGL Prelim Exam. 27.07.2008 (First Sitting))
14. A road of 5 km length will be constructed in 100 days. So 280 workers were employed. But after 80 days it was found that only $\frac{1}{2}$ km road was completed.
Now how many more people were needed to finish the work in the specified time ?
(1) 480 (2) 80
(3) 200 (4) 100
(SSC CPO S.I. Exam. 06.09.2009)
15. A can do a work in 12 days. When he had worked for 3 days, B joined him. If they complete the work in 3 more days, in how many days can B alone finish the work?
(1) 6 days (2) 12 days
(3) 4 days (4) 8 days
(SSC CGL Tier-I Exam 26.06.2011 (First Sitting))
16. Working efficiencies of P and Q for completing a piece of work are in the ratio 3 : 4. The number of days to be taken by them to complete the work will be in the ratio
(1) 3 : 2 (2) 2 : 3
(3) 3 : 4 (4) 4 : 3
(SSC CISF ASI Exam 29.08.2010 (Paper-1))

TIME AND WORK

- 17.** A contractor undertakes to make a road in 40 days and employs 25 men. After 24 days, he finds that only one-third of the road is made. How many extra men should he employ so that he is able to complete the work 4 days earlier?
- (1) 100 (2) 60
 (3) 75 (4) None of these
 (SSC CGL Prelim Exam. 27.02.2000 (First Sitting))
- 18.** Twenty women together can complete a work in 16 days. 16 men together can complete the same work in 15 days. The ratio of the working capacity of a man to that of a woman is :
- (1) 3 : 4 (2) 4 : 3
 (3) 5 : 3 (4) 4 : 5
 (SSC CHSL DEO & LDC Exam. 27.11.2010)
- 19.** A man and a woman working together can do a certain work in 18 days. Their skills in doing the work are in the ratio 3 : 2. How many days will the woman take to finish the work alone?
- (1) 45 days (2) 36 days
 (3) 27 days (4) 30 days
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (IInd Sitting (East Zone)))
- 20.** Two men can do a piece of work in x days. But y women can do that in 3 days. Then the ratio of the work done by 1 man and 1 woman is
- (1) $3y : 2x$ (2) $2x : 3y$
 (3) $x : y$ (4) $2y : 3x$
 (SSC FCI Assistant Grade-III Main Exam. 07.04.2013)
- 21.** A farmer can plough a field working 6 hours per day in 18 days. The worker has to work how many hours per day to finish the same work in 12 days ?
- (1) 7 hrs (2) 9 hrs
 (3) 11 hrs (4) 13 hrs
 (SSC Graduate Level Tier-II Exam. 29.09.2013)
- 22.** If 12 carpenters working 6 hours a day can make 460 chairs in 240 days, then the number of chairs made by 18 carpenters in 36 days each working 8 hours a day is
- (1) 92 (2) 132
 (3) 138 (4) 126
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 21.06.2015 (IInd Sitting))
- 23.** 8 workers can build a wall 18 m long, 2 m broad and 12 m high in 10 days, working 9 hours a day. Find how many workers will be able to build a wall 32 m long, 3 m broad and 9 m high in 8 days working 6 hours a day ?
- (1) 16 (2) 20
 (3) 30 (4) 10
 (SSC CGL Tier-I Re-Exam, 30.08.2015)
- 24.** P and Q together can do a job in 6 days. Q and R can finish the same job in $\frac{60}{7}$ days. P started the work and worked for 3 days. Q and R continued for 6 days. Then the difference of days in which R and P can complete the job is
- (1) 15 (2) 10
 (3) 8 (4) 12
 (SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)
- 25.** 150 workers were engaged to finish a piece of work in a certain number of days. Four workers dropped on the second day, four more workers dropped on third day and so on. It takes 8 more days to finish the work now. Find the number of days in which the work was completed?
- (1) 28 (2) 24
 (3) 25 (4) 30
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)
- 26.** Work done by $(x + 4)$ men in $(x + 5)$ days is equal to the work done by $(x - 5)$ men in $(x + 20)$ days. Then the value of x is
- (1) 20 (2) 25
 (3) 30 (4) 15
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015 (Ist Sitting) TF No. 9692918)
- 27.** A group of workers can complete a piece of work in 50 days, when they are working individually. On the first day one person works, on the second day another person joins him, on the third day one more person joins them and this process continues till the work is completed. How many approximate days are needed to complete the work?
- (1) 8 days (2) 9 days
 (3) 10 days (4) 11 days
 (SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016 (Ist Sitting))
- 28.** 20 men working 8 hours per day can complete a piece of work in 21 days. How many hours per day must 48 men work to complete the same job in 7 days?
- (1) 12 (2) 20
 (3) 10 (4) 15
 (SSC CGL Tier-I (CBE) Exam. 02.09.2016) (Ist Sitting)
- 29.** The four walls and ceiling of a room of length 25 m, breadth 12 m and height 10 m are to be painted. Painter A can paint 200 m² in 5 days, Painter B can paint 250 m² in 2 days. If A and B work together, they will finish the job in
- (1) 6 days (2) $6 \frac{10}{33}$ days
 (3) $7 \frac{10}{33}$ days (4) 8 days
 (SSC CGL Tier-II (CBE) Exam. 30.11.2016)
- 30.** 36 men together can build a wall 140 m long in 21 days. The number of men working at the same rate required to build the same wall in 14 days is
- (1) 54 (2) 48
 (3) 36 (4) 18
 (SSC CGL Tier-I (CBE) Exam. 30.08.2016) (IInd Sitting)
- 31.** A canteen requires 56 kgs of rice for seven days. The quantity of rice required for the months of April and May together is :
- (1) 468 kg. (2) 488 kg.
 (3) 498 kg. (4) 508 kg.
 (SSC CGL Tier-I (CBE) Exam. 04.09.2016) (IIInd Sitting)
- 32.** A school has 8 periods of 45 minutes each, everyday. How long will each period be if the school has to have 9 periods everyday, assuming the working hours to be the same?
- (1) 40 minutes (2) 35 minutes
 (3) 30 minutes (4) 45 minutes
 (SSC CGL Tier-I (CBE) Exam. 07.09.2016) (IIIrd Sitting)
- 33.** If 7 spiders make 7 webs in 7 days, then 1 spider will make 1 web in how many days ?
- (1) 1 (2) $\frac{7}{2}$
 (3) 7 (4) 49
 (SSC CGL Tier-I (CBE) Exam. 11.09.2016) (IInd Sitting)

13

PIPE AND CISTERNS

Importance : One or two questions are always asked on 'Tap and Tank' chapter. Most importantly, there is less variation in types of questions and hence you can ensure your marks very easily.

Scope of questions : Most questions are based on two or more inlet/outlet/both pipes. You need to find out time of filling/emptying of tank, part of tank filled/emptied after certain time.

Way to success : Mostly Time and Work concepts are useful to solve Tap & Tank questions. In Emptied Filled tanks calculations are important and practice tricks to improve speed.

There are two types of taps:

Tap  to fill the water (efficiency +) (inlet)
Tap  to release the water (efficiency -) (outlet)

The same follows on the formulae of time and work.

RULE 1 : Two taps 'A' and 'B' can fill a tank in 'x' hours and 'y' hours respectively. If both the taps are opened together, then how much time it will take to fill the tank?

$$\text{Required time} = \left(\frac{xy}{x+y} \right) \text{ hrs}$$

RULE 2 : If x, y, z, all taps are opened together then, the time required to fill/empty the tank will be:

$$\frac{1}{x} \pm \frac{1}{y} \pm \frac{1}{z} \pm \dots = \frac{1}{T}$$

where T, is the required time

Note: Positive result shows that the tank is filling and Negative result shows that the tank is getting empty.

RULE 3 : Two taps can fill a tank in 'x' and 'y' hours respectively. If both the taps are opened together and 1st tap is closed before 'm' hours of filling the tank, then in how much time the tank will be filled?

$$\text{Required time} = \frac{(x+m)y}{(x+y)} \text{ hrs}$$

If 2nd tap is closed before 'm' hours then,

$$\text{Required time} = \frac{(y+m)x}{(x+y)} \text{ hrs}$$

RULE 4 : If a pipe fills a tank in 'x' hours but it takes 't' more hours to fill it due to leakage in tank. If tank is filled completely, then in how many hours it will be empty? [due to leakage outlet]

$$\text{Required time} = \frac{x(x+t)}{t}$$

RULE 5 : Amount of water released or filled = Rate \times time.

RULE 6 : Two taps 'A' and 'B' can empty a tank in 'x' hours and 'y' hours respectively. If both the taps are opened together, then time taken to empty the tank will be

$$\text{time} = \left(\frac{xy}{x+y} \right) \text{ hrs}$$

RULE 7 : A tap 'A' can fill a tank in 'x' hours and 'B' can empty the tank in 'y' hours. Then (a) time taken to fill the tank

$$\text{when both are opened} = \left(\frac{xy}{x-y} \right) : x > y$$

(b) time taken to empty the tank

$$\text{when both are opened} = \left(\frac{xy}{y-x} \right) : y > x$$

RULE 8 : Two taps A and B can fill a tank in x hours and y hours respectively. If both the pipes are opened together, then the time after which pipe B should be closed so that the tank is full in t hours

$$\text{Required time} = \left[y \left(1 - \frac{t}{x} \right) \right] \text{ hours}$$

RULE 9 : If pipes A & B can fill a tank in time x, B & C in time y and C & A in time z, then the time required/taken to fill the tank by

$$(i) (A + B + C) \text{ together} = \frac{2xyz}{xy + yz + zx}$$

$$(ii) A \text{ alone} = \frac{2xyz}{xy + yz - zx}$$

$$(iii) B \text{ alone} = \frac{2xyz}{yz + zx - xy}$$

$$(iv) C \text{ alone} = \frac{2xyz}{zx + xy - yz}$$



QUESTIONS ASKED IN PREVIOUS SSC EXAMS

TYPE-I

1. Two pipes A and B can fill a tank in 20 minutes and 30 minutes respectively. If both pipes are opened together, the time taken to fill the tank is :
 (1) 50 minutes (2) 12 minutes
 (3) 25 minutes (4) 15 minutes
 (SSC CGL Prelim Exam. 04.07.1999 (1st Sitting) & (SSC CPO S.I. Exam. 07.09.2003)
2. A tap can empty a tank in one hour. A second tap can empty it in 30 minutes. If both the taps operate simultaneously, how much time is needed to empty the tank?
 (1) 20 minutes (2) 30 minutes
 (3) 40 minutes (4) 45 minutes
 (SSC CGL Prelim Exam. 27.02.2000 (First Sitting))
3. A cistern can be filled with water by a pipe in 5 hours and it can be emptied by a second pipe in 4 hours. If both the pipes are opened when the cistern is full, the time in which it will be emptied is :
 (1) 9 hours (2) 18 hours
 (3) 20 hours (4) $20\frac{1}{2}$ hours
 (SSC CGL Prelim Exam. 24.02.2002 (First Sitting))
4. Two pipes A and B can separately fill a cistern in 60 minutes and 75 minutes respectively. There is a third pipe in the bottom of the cistern to empty it. If all the three pipes are simultaneously opened, then the cistern is full in 50 minutes. In how much time the third pipe alone can empty the cistern?
 (1) 110 minutes (2) 100 minutes
 (3) 120 minutes (4) 90 minutes
 (SSC CGL Prelim Exam. 11.05.2003 (First Sitting))
5. Two pipes can fill a cistern in 3 hours and 4 hours respectively and a waste pipe can empty it in 2 hours. If all the three pipes are kept open, then the cistern will be filled in :
 (1) 5 hours (2) 8 hours
 (3) 10 hours (4) 12 hours
 (SSC CGL Prelim Exam. 08.02.2004 (First Sitting))

6. Two pipes can fill a tank in 15 hours and 20 hours respectively, while the third can empty it in 30 hours. If all the pipes are opened simultaneously, the empty tank will be filled in
 (1) 10 hours (2) 12 hours
 (3) 15 hours (4) $15\frac{1}{2}$ hours
 (SSC CPO S.I. Exam. 05.09.2004)
7. A tap can fill a cistern in 8 hours and another tap can empty it in 16 hours. If both the taps are open, the time (in hours) taken to fill the tank will be :
 (1) 8 (2) 10
 (3) 16 (4) 24
 (SSC CPO S.I. Exam. 26.05.2005)
8. A pipe can fill a tank in ' x ' hours and another pipe can empty it in ' y ' ($y > x$) hours. If both the pipes are open, in how many hours will the tank be filled ?
 (1) $(x - y)$ hours
 (2) $(y - x)$ hours
 (3) $\frac{xy}{x - y}$ hours
 (4) $\frac{xy}{y - x}$ hours
 (SSC CGL Prelim Exam. 04.02.2007 (First Sitting))
9. 12 pumps working 6 hours a day can empty a completely filled reservoir in 15 days. How many such pumps working 9 hours a day will empty the same reservoir in 12 days ?
 (1) 15 (2) 9
 (3) 10 (4) 12
 (SSC CGL Prelim Exam. 04.02.2007 (Second Sitting))
10. Three pipes P, Q and R can separately fill a cistern in 4, 8 and 12 hours respectively. Another pipe S can empty the completely filled cistern in 10 hours. Which of the following arrangements will fill the empty cistern in less time than others ?
 (1) Q alone is open.
 (2) P and S are open.
 (3) P, R and S are open.
 (4) P, Q and S are open.
 (SSC CPO S.I. Exam. 09.11.2008)
11. Two pipes can fill a cistern separately in 10 hours and 15 hours. They can together fill the cistern in
 (1) 6 hours (2) 7 hours
 (3) 8 hours (4) 9 hours
 (SSC Data Entry Operator Exam. 02.08.2009)
12. Three taps A, B and C together can fill an empty cistern in 10 minutes. The tap A alone can fill it in 30 minutes and the tap B alone in 40 minutes. How long will the tap C alone take to fill it ?
 (1) 16 minutes (2) 24 minutes
 (3) 32 minutes (4) 40 minutes
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (1st Sitting))
13. One tap can fill a water tank in 40 minutes and another tap can make the filled tank empty in 60 minutes. If both the taps are open, in how many hours will the empty tank be filled ?
 (1) 2 hours (2) 2.5 hours
 (3) 3 hours (4) 3.5 hours
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (1Ind Sitting))
14. A tank can be filled by pipe A in 2 hours and pipe B in 6 hours. At 10 A.M. pipe A was opened. At what time will the tank be filled if pipe B is opened at 11 A.M.?
 (1) 12.45 A.M. (2) 5 P.M.
 (3) 11.45 A.M. (4) 12 P.M.
 (SSC Graduate Level Tier-II Exam. 16.09.2012)
15. Two pipes, P and Q, together can fill a cistern in 20 minutes and P alone can in 30 minutes. Then Q alone can fill the cistern in
 (1) 62 minutes (2) 60 minutes
 (3) 61 minutes (4) 51 minutes
 (SSC Multi-Tasking Staff Exam. 10.03.2013, Ist Sitting : Patna)
16. Two pipes A and B can fill a cistern in 3 hours and 5 hours respectively. Pipe C can empty in 2 hours. If all the three pipes are open, in how many hours the cistern will be full?
 (1) can't be filled
 (2) 10 hours
 (3) 15 hours
 (4) 30 hours
 (SSC FCI Assistant Grade-III Main Exam. 07.04.2013)

PIPE AND CISTERNS

- 17.** Three taps A, B, C can fill an overhead tank in 4, 6 and 12 hours respectively. How long would the three taps take to fill the tank if all of them are opened together ?
 (1) 2 hrs. (2) 4 hrs.
 (3) 3 hrs. (4) 5 hrs.
 (SSC Constable (GD) Exam. 12.05.2013 Ist Sitting)
- 18.** If two pipes function simultaneously, a tank is filled in 12 hours. One pipe fills the tank 10 hours faster than the other. How many hours does the faster pipe alone take to fill the tank?
 (1) 20 hrs (2) 18 hrs
 (3) 15 hrs (4) 12 hrs
 (SSC CHSL DEO & LDC Exam. 27.10.2013 IIInd Sitting)
- 19.** Two pipes X and Y can fill a cistern in 24 minutes and 32 minutes respectively. If both the pipes are opened together, then after how much time (in minutes) should Y be closed so that the tank is full in 18 minutes ?
 (1) 10 (2) 8
 (3) 6 (4) 5
 (SSC CHSL DEO & LDC Exam. 10.11.2013 (Ist Sitting))
- 20.** A cistern is provided with two pipes A and B. A can fill it in 20 minutes and B can empty it in 30 minutes. If A and B be kept open alternately for one minute each, how soon will the cistern be filled ?
 (1) 121 minutes (2) 110 minutes
 (3) 115 minutes (4) 120 minutes
 (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IIInd Sitting))
- 21.** A water tank can be filled by a tap in 30 minutes and another tap can fill it in 60 minutes. If both the taps are kept open for 5 minutes and then the first tap is closed, how long will it take for the tank to be full ?
 (1) 20 minutes (2) 25 minutes
 (3) 30 minutes (4) 45 minutes
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)
- 22.** Two pipes A and B can fill a tank in 36 minutes and 45 minutes respectively. Another pipe C can empty the tank in 30 minutes. First A and B are opened. After 7 minutes, C is also opened. The tank is filled up in
 (1) 39 minutes (2) 46 minutes
 (3) 40 minutes (4) 45 minutes
 (SSC CHSL DEO & LDC Exam. 9.11.2014)
- 23.** Two pipes A and B can separately fill a tank in 2 hours and 3 hours respectively. If both the pipes are opened simultaneously in the empty tank, then the tank will be filled in
 (1) 1 hour 12 minutes
 (2) 2 hours 30 minutes
 (3) 1 hour 15 minutes
 (4) 1 hour 20 minutes
 (SSC CHSL DEO Exam. 16.11.2014 (Ist Sitting))
- 24.** A pipe can fill a tank in x hours and another can empty it in y hours. They can together fill it in ($y > x$)
 (1) $\frac{xy}{y-x}$ hours (2) $x-y$ hours
 (3) $y-x$ hours (4) $\frac{xy}{x-y}$ hours
 (SSC CGL Tier-I Exam. 09.08.2015 (Ist Sitting) TF No. 1443088)
- 25.** Pipe A can fill an empty tank in 6 hours and pipe B in 8 hours. If both the pipes are opened and after 2 hours pipe A is closed, how much time B will take to fill the remaining tank?
 (1) $7\frac{1}{2}$ hours (2) $2\frac{2}{5}$ hours
 (3) $2\frac{1}{3}$ hours (4) $3\frac{1}{3}$ hours
 (SSC CGL Tier-II Exam. 25.10.2015, TF No. 1099685)
- TYPE-II**
- 1.** If $\frac{1}{3}$ of a tank holds 80 litres of water, then the quantity of water that $\frac{1}{2}$ tank holds is :
 (1) 240 litres (2) 120 litres
 (3) $\frac{80}{3}$ litres (4) 100 litres
 (SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))
- 2.** A cistern has two pipes. One can fill it with water in 8 hours and other can empty it in 5 hours. In how many hours will the cistern be emptied if both the pipes are opened together when $\frac{3}{4}$ of the cistern is already full of water ?
 (1) $\frac{9}{10}$ (2) $\frac{1}{10}$
 (3) $\frac{2}{5}$ (4) $\frac{1}{5}$
 (SSC Multi-Tasking Staff Exam. 10.03.2013)
- 3.** $\frac{3}{4}$ part of a tank is full of water. When 30 litres of water is taken out, the tank becomes empty. The capacity of the tank is
 (1) 36 litres (2) 42 litres
 (3) 40 litres (4) 38 litres
 (SSC CGL Prelim Exam. 13.11.2005 (Second Sitting))
- 4.** A tap can fill an empty tank in 12 hours and another tap can empty half the tank in 10 hours. If both the taps are opened simultaneously, how long would it take for the empty tank to be filled to half its capacity ?
 (1) 30 hours (2) 20 hours
 (3) 15 hours (4) 12 hours
 (SSC (South Zone) Investigator Exam. 12.09.2010)
- 5.** Pipes P and Q can fill a tank in 10 and 12 hours respectively and C can empty it in 6 hours. If all the three are opened at 7 a.m., at what time will one-fourth of the tank be filled ?
 (1) 10 a.m. (2) 10 p.m.
 (3) 11 p.m. (4) 11 a.m.
 (SSC CPO (SI, ASI & Intelligence Officer) Exam. 28.08.2011 (Paper-I))
- 6.** If $\frac{3}{5}$ th of a cistern is filled in 1 minute, the time needed to fill the rest is
 (1) 40 sec (2) 30 sec
 (3) 36 sec (4) 24 sec
 (SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting))
- 7.** There are two pumps to fill a tank with water. First pump can fill the empty tank in 8 hours, while the second in 10 hours. If both the pumps are opened at the same time and kept open for 4 hours, the part of tank that will be filled up is :
 (1) $\frac{9}{10}$ (2) $\frac{1}{10}$
 (3) $\frac{2}{5}$ (4) $\frac{1}{5}$
 (SSC Multi-Tasking Staff Exam. 10.03.2013)

PIPE AND CISTERN

- 8.** Three pipes A, B and C can fill a tank in 6 hours, 9 hours and 12 hours respectively. B and C are opened for half an hour, then A is also opened. The time taken by the three pipes together to fill the remaining part of the tank is

(1) 3 hours (2) 2 hours

(3) $2\frac{1}{2}$ hours (4) $3\frac{1}{2}$ hours

(SSC Multi-Tasking Staff Exam. 17.03.2013 (Kolkata Region)

TYPE-III

- 1.** Three taps A, B and C can fill a tank in 12, 15 and 20 hours respectively. If A is open all the time and B and C are open for one hour each alternatively, the tank will be full in :

(1) 6 hours (2) $6\frac{1}{2}$ hours

(3) 7 hours (4) $7\frac{1}{2}$ hours

(SSC CGL Prelim Exam. 04.07.1999 (Second Sitting)

- 2.** A pump can fill a tank with water in 2 hours. Because of a leak

in the tank it was taking $2\frac{1}{3}$ hours to fill the tank. The leak can drain all the water off the tank in :

(1) 8 hours (2) 7 hours

(3) $4\frac{1}{3}$ hours (4) 14 hours

(SSC CGL Prelim Exam. 24.02.2002 (IInd Sitting) & (SSC CPO S.I. Exam. 03.09.2006)

- 3.** A pipe can fill a tank with water in 3 hours. Due to leakage in

bottom, it takes $3\frac{1}{2}$ hours to fill it. In what time the leak will empty the fully filled tank ?

(1) 12 hours (2) 21 hours

(3) $6\frac{1}{2}$ hours (4) $10\frac{1}{2}$ hours

(SSC CGL Prelim Exam. 24.02.2002 (Middle Zone)

- 4.** A tap can fill a tank in 6 hours. After half the tank is filled, three more similar taps are opened. What is the total time taken to fill the tank completely ?

(1) 4 hours
(2) 4 hours 15 minutes
(3) 3 hours 15 minutes
(4) 3 hours 45 minutes

(SSC CGL Prelim Exam. 11.05.2003 (Second Sitting)

- 5.** Two pipes A and B can fill a cistern in $37\frac{1}{2}$ minutes and 45

minutes respectively. Both pipes are opened. The cistern will be filled just in half an hour, if the pipe B is turned off after :
(1) 15 minutes (2) 10 minutes
(3) 5 minutes (4) 9 minutes

(SSC CGL Prelim Exam. 08.02.2004 (Second Sitting)

- 6.** A tank is fitted with two taps. The first tap can fill the tank completely in 45 minutes and the second tap can empty the full tank in one hour. If both the taps are opened alternately for one minute, then in how many hours the empty tank will be filled completely ?

(1) 2 hours 55 minutes
(2) 3 hours 40 minutes
(3) 4 hours 48 minutes
(4) 5 hours 53 minutes

(SSC Section Officer (Commercial Audit) Exam. 25.09.2005)

- 7.** A tank can be filled by two pipes in 20 minutes and 30 minutes respectively. When the tank was empty, the two pipes were opened. After some time, the first pipe was stopped and the tank was filled in 18 minutes. After how much time of the start was the first pipe stopped?
(1) 5 minutes (2) 8 minutes
(3) 10 minutes (4) 12 minutes

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006 (IInd Sitting) & (SSC MTS Exam. 17.03.2013) (1st Sitting)

- 8.** A tap takes 36 hours extra to fill a tank due to a leakage equivalent to half of its inflow. The inflow can fill the tank in how many hours ?

(1) 36 hrs (2) 24 hrs
(3) 30 hrs (4) 18 hrs

(SSC CGL Prelim Exam. 04.02.2007 (Second Sitting)

- 9.** A tank can be filled with water by two pipes A and B together in 36 minutes. If the pipe B was stopped after 30 minutes, the tank is filled in 40 minutes. The pipe B can alone fill the tank in
(1) 45 minutes (2) 60 minutes
(3) 75 minutes (4) 90 minutes

(SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (Second Sitting)

- 10.** A tank has a leak which would empty the completely filled tank in 10 hours. If the tank is full of water and a tap is opened which admits 4 litres of water per minute in the tank, the leak takes 15 hours to empty the tank. How many litres of water does the tank hold ?
(1) 2400 l (2) 4500 l
(3) 1200 l (4) 7200 l

(SSC CGL Prelim Exam. 27.07.2008 (First Sitting)

- 11.** An empty tank can be filled by pipe A in 4 hours and by pipe B in 6 hours. If the two pipes are opened for 1 hour each alternately with first opening pipe A, then the tank will be filled in

(1) $1\frac{3}{4}$ hours (2) $2\frac{3}{5}$ hours
(3) $4\frac{2}{3}$ hours (4) $5\frac{1}{2}$ hours

(SSC CGL Prelim Exam. 27.07.2008 (IInd Sitting) & (SSC MTS Exam. 17.03.2013)

- 12.** Three pipes A, B and C can fill a cistern in 6 hours. After working at it together for 2 hours, C is closed and A and B fill it in 7 hours more. The time taken by C alone to fill the cistern is
(1) 14 hours (2) 15 hours
(3) 16 hours (4) 17 hours

(SSC CPO S.I. Exam. 06.09.2009)

- 13.** A tap can fill a cistern in 40 minutes and a second tap can empty the filled cistern in 60 minutes. By mistake without closing the second tap, the first tap was opened. In how many minutes will the empty cistern be filled ?
(1) 72 (2) 84
(3) 108 (4) 120

(SSC CISF ASI Exam. 29.08.2010 (Paper-1))

PIPE AND CISTERNS

- 14.** Two pipes, P and Q can fill a cistern in 12 and 15 minutes respectively. Both are opened together, but at the end of 3 minutes, P is turned off. In how many more minutes will Q fill the cistern ?
- (1) 7 minutes (2) $7\frac{1}{2}$ minutes
 (3) 8 minutes (4) $8\frac{1}{4}$ minutes
- (SSC CPO S.I. Exam. 12.12.2010 (Paper-I) & (SSC GL Tier-I Exam. 21.04.2013)
- 15.** A cistern is normally filled in 8 hours but takes another 2 hours longer to fill because of a leak in its bottom. If the cistern is full, the leak will empty it in :
- (1) 16 hours (2) 20 hours
 (3) 25 hours (4) 40 hours
- (SSC SAS Exam. 26.06.2010 (Paper-I) & (FCI Assistant Grade-III Exam. 05.02.2012 (Paper-I) East Zone (IIInd Sitting))
- 16.** Pipe A can fill a cistern in 6 hours and pipe B can fill it in 8 hours. Both the pipes are opened simultaneously, but after two hours, pipe A is closed. How many hours will B take to fill the remaining part of the cistern ?
- (1) 2 hrs (2) $3\frac{1}{3}$ hrs
 (3) $2\frac{2}{3}$ hrs (4) 4 hrs
- (SSC CHSL DEO & LDC Exam. 27.11.2010)
- 17.** Two pipes A and B can fill a tank in 6 hours and 8 hours respectively. If both the pipes are opened together, then after how many hours should B be closed so that the tank is full in 4 hours?
- (1) $\frac{2}{3}$ hrs (2) 1 hrs
 (3) 2 hrs (4) $\frac{8}{3}$ hrs
- (SSC Delhi Police S.I. (SI) Exam. 19.08.2012)
- 18.** Three pipes A, B and C can fill a tank in 6 hours. After working together for 2 hours, C is closed and A and B fill the tank in 8 hours. The time (in hours) in which the tank can be filled by pipe C alone is
- (1) 10 (2) 12
 (3) 8 (4) 9
- (SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting)
- 19.** A pipe can fill a cistern in 9 hours. Due to a leak in its bottom, the cistern fills up in 10 hours. If the cistern is full, in how much time will it be emptied by the leak ?
- (1) 70 hours (2) 80 hours
 (3) 90 hours (4) 100 hours
- (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))
- 20.** Three pipes A, B and C can fill a tank in 6 hours. After working together for 2 hours, C is closed and A and B can fill the remaining part in 7 hours. The number of hours taken by C alone to fill the tank is
- (1) 10 (2) 12
 (3) 14 (4) 16
- (SSC CGL Tier-I Exam. 19.10.2014 TF No. 022 MH 3)
- 21.** A tank has two pipes. The first pipe can fill it in 4 hours and the second can empty it in 16 hours. If two pipes be opened together at a time, then the tank will be filled in
- (1) $5\frac{1}{2}$ hours (2) 10 hours
 (3) 6 hours (4) $5\frac{1}{3}$ hours
- (SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)
- 22.** Pipe A can fill a tank in 4 hours and pipe B can fill it in 6 hours. If they are opened on alternate hours and if pipe A is opened first, in how many hours, the tank shall be full ?
- (1) $4\frac{1}{2}$ (2) $3\frac{1}{2}$
 (3) $3\frac{1}{4}$ (4) $4\frac{2}{3}$
- (SSC CGL Tier-I Exam. 09.08.2015 (IIInd Sitting) TF No. 4239378)
- 23.** Two pipes A and B can fill a tank with water in 30 minutes and 45 minutes respectively. The water pipe C can empty the tank in 36 minutes. First A and B are opened. After 12 minutes C is opened. Total time (in minutes) in which the tank will be filled up is :
- (1) 30 (2) 12
 (3) 36 (4) 24
- (SSC CGL Tier-I Exam. 16.08.2015 (IIInd Sitting) TF No. 2176783)
- 24.** A leak in the bottom of a tank can empty the full tank in 6 hours. An inlet pipe fills water at the rate of 4 litres a minute. When the tank is full, the inlet is opened and due to the leak the tank is empty in 8 hours. Find the capacity of the tank.
- (1) 5760 litres (2) 96 litres
 (3) 10 litres (4) 24 litres
- (SSC CGL Tier-I Re-Exam. 30.08.2015)
- 25.** A pipe can fill a tank in 24 hrs. Due to a leakage in the bottom, it is filled in 36 hrs. If the tank is half full, how much time will the leak take to empty the tank?
- (1) 48 hrs (2) 72 hrs
 (3) 36 hrs (4) 24 hrs
- (SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 01.11.2015, IIInd Sitting)
- 26.** A water tap fills a tub in ' p ' hours and a sink at the bottom empties it in ' q ' hours. If $p < q$ and both tap and sink are open, the tank is filled in ' r ' hours; then
- (1) $\frac{1}{r} = \frac{1}{p} + \frac{1}{q}$
 (2) $\frac{1}{r} = \frac{1}{p} - \frac{1}{q}$
 (3) $r = p + q$
 (4) $r = p - q$
- (SSC CGL Tier-II Online Exam. 01.12.2016)

TYPE-IV

- 1.** One pipe can fill a tank three times as fast as another pipe. If together the two pipes can fill the tank in 36 minutes, the slower pipe alone will be able to fill the tank in
- (1) 81 minutes (2) 108 minutes
 (3) 144 minutes (4) 192 minutes
- (SSC CPO S.I. Exam. 12.01.2003) & (SSC CGL Tier-I Exam. 16.05.2010) (IIInd Sitting)
- 2.** A pipe can empty a tank in 40 minutes. A second pipe with diameter twice as much as that of the first is also attached with the tank to empty it. The two together can empty the tank in :
- (1) 8 minutes (2) $13\frac{1}{3}$ minutes
 (3) 30 minutes (4) 38 minutes
- (SSC CPO S.I. Exam. 26.05.2005)

PIPE AND CISTERN

- 3.** Two pipes can fill a tank with water in 15 and 12 hours respectively and a third pipe can empty it in 4 hours. If the pipes be opened in order at 8, 9 and 11 a.m. respectively, the tank will be emptied at
 (1) 11 : 40 a.m. (2) 12 : 40 p.m.
 (3) 1 : 40 p.m. (4) 2 : 40 p.m.
 (SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting)
- 4.** A Boy and girl together fill a cistern with water. The boy pours 4 litres of water every 3 minutes and the girl pours 3 litres every 4 minutes. How much time will it take to fill 100 litres of water in the cistern ?
 (1) 36 minutes (2) 42 minutes
 (3) 48 minutes (4) 44 minutes
 (SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting))
- 5.** A pipe of diameter d can drain a certain water tank in 40 minutes. The time taken by a pipe of diameter $2d$ for doing the same job is :
 (1) 5 minutes (2) 10 minutes
 (3) 20 minutes (4) 80 minutes
 (SSC CGL Prelim Exam. 27.02.2000
 (First Sitting))
- 6.** Two pipes A and B can fill a water tank in 20 and 24 minutes respectively and a third pipe C can empty at the rate of 3 gallons per minute. If A, B and C are opened together to fill the tank in 15 minutes, the capacity (in gallons) of the tank is :
 (1) 180 (2) 150
 (3) 120 (4) 60
 (SSC CPO S.I. Exam. 16.12.2007)
- 7.** A swimming pool has 3 drain pipes. The first two pipes A and B, operating simultaneously, can empty the pool in half the time that C, the 3rd pipe, alone takes to empty it. Pipe A, working alone, takes half the time taken by pipe B. Together they take 6 hours 40 minutes to empty the pool. Time taken by pipe A to empty the pool, (in hours) is
 (1) 15 (2) 10
 (3) 30 (4) 7
 (SSC Graduate Level Tier-II Exam. 16.09.2012)
- 8.** Which of these pipes will empty a pool the fastest?
 (i) One pipe of diameter 60 cm
 (ii) Two pipes of diameter 30 cm each

(iii) Three pipes of diameter 20 cm each

- (1) (i) (2) (iii)
 (3) (ii) (4) None of these
 (SSC Multi-Tasking Staff Exam. 24.03.2013, Ist Sitting)

- 9.** A tap drips at a rate of one drop/sec. 600 drops make 100ml. The number of litres wasted in 300 days is
 (1) 4320000 (2) 432000
 (3) 43200 (4) 4320
 (SSC CGL Tier-I Exam. 19.10.2014 (Ist Sitting))

- 10.** Having the same capacity 9 taps fill up a water tank in 20 minutes. How many taps of the same capacity are required to fill up the same water tank in 15 minutes ?
 (1) 10 (2) 12
 (3) 15 (4) 18
 (SSC CGL Tier-II Exam. 21.09.2014)

- 11.** A tap can empty a tank in 30 minutes. A second tap can empty it in 45 minutes. If both the taps operate simultaneously, how much time is needed to empty the tank ?

- (1) 30 minutes (2) 18 minutes
 (3) 14 minutes (4) 15 minutes
 (SSC CGL Tier-I Exam. 09.08.2015
 (Ist Sitting) TF No. 1443088)

- 12.** Two pipes can independently fill a bucket in 20 minutes and 25 minutes. Both are opened together for 5 minutes after which the second pipe is turned off. What is the time taken by the first pipe alone to fill the remaining portion of the bucket?
 (1) 11 minutes (2) 16 minutes
 (3) 20 minutes (4) 15 minutes
 (SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016)
 (Ist Sitting)

■ SHORT ANSWERS ■

TYPE-I

1. (2)	2. (1)	3. (3)	4. (2)
5. (4)	6. (2)	7. (3)	8. (4)
9. (3)	10. (4)	11. (1)	12. (2)
13. (1)	14. (3)	15. (2)	16. (4)
17. (1)	18. (1)	19. (2)	20. (3)
21. (4)	22. (2)	23. (1)	24. (1)
25. (4)			

TYPE-II

1. (2)	2. (2)	3. (3)	4. (1)
5. (2)	6. (1)	7. (1)	8. (3)

TYPE-III

1. (3)	2. (4)	3. (2)	4. (4)
5. (4)	6. (4)	7. (2)	8. (4)
9. (4)	10. (4)	11. (3)	12. (1)
13. (4)	14. (4)	15. (4)	16. (2)
17. (4)	18. (2)	19. (3)	20. (3)
21. (4)	22. (4)	23. (4)	24. (1)
25. (3)	26. (2)		

TYPE-IV

1. (3)	2. (1)	3. (1)	4. (3)
5. (2)	6. (3)	7. (1)	8. (1)
9. (4)	10. (2)	11. (2)	12. (1)

■ EXPLANATIONS ■

TYPE-I

- 1.** (2) Part of the tank filled by both pipes in one minute

$$= \frac{1}{20} + \frac{1}{30}$$

$$\text{Required time} = \frac{1}{\frac{1}{20} + \frac{1}{30}} = \frac{20 \times 30}{50} = 12 \text{ minutes}$$

Aliter : Using Rule 1,

Here, $x = 20$, $y = 30$

Required time

$$= \left(\frac{xy}{x+y} \right) \text{ minutes}$$

$$= \left(\frac{20 \times 30}{20+30} \right) \text{ minutes}$$

= 12 minutes.

- 2.** (1) 1 hour = 60 minutes.

Rate of emptying the tank by the two taps are $\frac{1}{60}$ and $\frac{1}{30}$ of the

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TIME AND DISTANCE

Importance : Normally 1 or 2 questions on Time and distance are always asked in different competitive exams.

Scope of questions : In such questions, average distance, time/average time taken to cover any distance, ratio between speeds or taken times by two persons/things are asked. Other questions include questions based on – reaching at some place before or after scheduled time, covering a part of distance on foot or on different coveyances.

Way to success : In such questions concentrate on basic concepts – make ‘Mind Map’ and some time used ‘Tricks’ as explained.

RULE 1 : Distance = Speed × Time

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}, \text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

$$1 \text{ m/s} = \frac{18}{5} \text{ km/h}, 1 \text{ km/h} = \frac{5}{18} \text{ m/s}$$

RULE 2 : If a man travels different distances d_1, d_2, d_3, \dots and so on in different time t_1, t_2, t_3 , respectively then,

Average speed

$$= \frac{\text{total travelled distance}}{\text{total time taken in travelling distance}}$$

$$= \frac{d_1 + d_2 + d_3 + \dots}{t_1 + t_2 + t_3 + \dots}$$

RULE 3 : If a man travels different distances d_1, d_2, d_3, \dots and so on with different speeds s_1, s_2, s_3, \dots , respectively then,

$$\text{Average speed} = \frac{\frac{(d_1 + d_2 + d_3 + \dots)}{(s_1 + s_2 + s_3 + \dots)}}{s_1 + s_2 + s_3 + \dots}$$

RULE 4 : If a distance is divided into n equal parts each travelled with different speeds, then, Average speed

$$= \left(\frac{1}{s_1} + \frac{1}{s_2} + \frac{1}{s_3} + \frac{1}{s_4} \right)^{-1} \text{ where } n = \text{number of equal parts}$$

$s_1, s_2, s_3, \dots, s_n$ are speeds.

RULE 5 : If a bus travels from A to B with the speed x km/h and returns from B to A with the speed y km/h,

$$\text{then the average speed will be } \left(\frac{2xy}{x+y} \right)$$

RULE 6 : If d_1 distance is travelled in t_1 time and d_2 distance is travelled in t_2 time then,

$$d_1 t_2 = d_2 t_1 \text{ or } \frac{d_1}{t_1} = \frac{d_2}{t_2}$$

\Rightarrow Distance \propto time [provided speed is constant]

RULE 7 : If an object increases/decreases its speed from x km/hr to y km/hr. to cover a distance in t_2 hours in place of t_1 hours then [Here $(t_2 - t_1)$ will be given].

$$\text{Distance} = \frac{xy}{(\text{Difference of } x \text{ and } y)} \times (\text{Change in time})$$

or, Distance

$$= \left(\frac{\text{Product of Speeds}}{\text{Difference in Speeds}} \right) \times (\text{Change in time})$$

RULE 8 : If an object travels certain distance with the speed of $\frac{A}{B}$ of its original speed and reaches its destination ‘ t ’ hours before or after, then the taken time by object travelling at original speed is

$$\text{Time} = \frac{A}{(\text{Difference of } A \text{ and } B)} \times \text{time (in hour)}$$

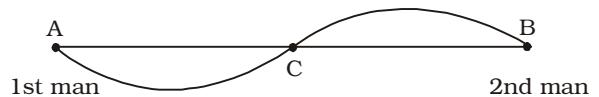
$$\text{RULE 9 : Speed (s)} \propto \frac{1}{\text{time (t)}} \Rightarrow s \propto \frac{1}{t}$$

$$\therefore \boxed{s_1 t_1 = s_2 t_2} \text{ (Provided distance is constant)}$$

RULE 10 : If a man travels at the speed of s_1 , he reaches his destination t_1 late while he reaches t_2 before when he travels at s_2 speed, then the distance between the

$$\text{two places is } D = \frac{(s_1 \times s_2) \times (t_1 + t_2)}{s_2 - s_1}$$

RULE 11 :



Time taken by 1st man to reach B after meeting 2nd man at C is ' t_1 ' and time taken by 2nd man to reach A after meeting 1st man at C is ' t_2 ', then:

$$\frac{\text{Speed of 1st man}(s_1)}{\text{Speed of 2nd man}(s_2)} = \sqrt{\frac{t_2}{t_1}}$$

$$\therefore \text{Distance from A to B} = s_1 t_1 + s_2 t_2$$

TIME AND DISTANCE

RULE 12 : If both objects run in opposite direction then, Relative speed = Sum of speeds.

If both objects run in the same direction then, Relative speed = Difference of Speeds.

$$\text{Time taken in meeting} = \frac{\text{Distance between them}}{\text{Relative Speed}}$$

RULE 13 : Let a man take 't' hours to travel 'x' km. If he travels some distance on foot with the speed u km/h and remaining distance by cycle with the speed v km/h, then time taken to travel on foot.

$$\text{Time} = \frac{(vt - x)}{(v - u)}$$

$$\text{Distance travelled on foot} = \text{Time} \times u$$

RULE 14 : Formula to calculate the no. of rounds.

$$\text{Circular Distance} = (\text{circumference}) \times \text{No of rounds},$$

$$D = 2\pi r \times n$$

RULE 15 : If any one overtakes or follows another, then time taken to catch

$$= \frac{\text{distance between them}}{\text{Relative speed}}$$

$$\text{or meet} = \frac{(\text{Speed of 1st traveller}) \times \text{time}}{(\text{Difference of speeds})}$$

Total travelled distance to catch the thief

$$= \frac{(\text{Product of speeds}) \times \text{time}}{(\text{Difference of speeds})}$$

RULE 16 : Formula to calculate the no. of poles,

$$\text{Distance} = (n - 1)x$$

where n = No. of poles.

x = distance between consecutive two poles.

RULE 17 : If in a certain time, ' d_1 ' distance is travelled with ' s_1 ' speed and ' d_2 ' distance is travelled with ' s_2 ' speed

$$\text{then, } \frac{d_1}{s_1} = \frac{d_2}{s_2}$$

RULE 18 : If a man covers $\frac{1}{x}$ part of Journey at

u km/h, $\frac{1}{y}$ part at v km/h and $\frac{1}{z}$ part at w km/hr and so on, then his average speed for the whole journey will be

$$\frac{1}{\frac{1}{xu} + \frac{1}{yv} + \frac{1}{zw} + \dots}$$

THEOREMS OF TRAINS

Importance : Question based Theorems of Trains are asked in almost all competitive exams.

Scope of Questions : In how much time. the train will cross a person/platform/other, train or what will be length of train/platform or relative speed of two trains or speed of a train – kind of questions are asked. Some another type of questions like change in speeds, distance in way or other special situations are also asked.

Key to Success: Most of the questions can be solved with the help of basic formulae on time and distance. Regular practice of different type of question will ensure your success.

RULE 1 : If a train crosses an electric pole, a sitting/standing man, km or mile stone etc. then distance = Length of train. Then,

$$\text{Length of train} = \text{Speed} \times \text{Time}$$

$$\text{And Time} = \frac{\text{Length of train}}{\text{Speed}} \text{ and}$$

$$\text{Speed} = \frac{\text{Length of train}}{\text{Time}}$$

IMPORTANT POINTS

Time taken in crossing 'b' metre length (i.e. platform, bridge, tunnel, standing train etc) by 'a' metre length train = total time taken in travelling $(a + b)$ metre by the train.

Let a train is travelling with the speed x km/h and in the same direction, another train is travelling on parallel path with the speed y km/h, then, relative speed of the faster train = $(x - y)$ km/h.

Suppose that a train is travelling with the speed 'x' km/h and from the opposite direction another train is coming on parallel path with the speed 'y' km/h, then

$$\text{Relative speed of the train} = (x + y) \text{ km/h.}$$

RULE 2 : Let 'a' metre long train is going with the speed 'x' m/s and 'b' metre long train is also going with the speed 'y' m/s in the same direction on parallel path, then total time taken by the faster train to cross the slower train

$$= \frac{a + b}{x - y} \text{ seconds}$$

TIME AND DISTANCE

RULE 3 : Let 'a' metre long train is travelling with the speed 'x' m/s and 'b' metre long train is travelling with the speed 'y' m/s in the opposite direction on parallel path. Then, time taken by the trains to cross each other

$$= \left(\frac{a+b}{x+y} \right) \text{ seconds.}$$

RULE 4 : If a train crosses a standing man/a pole in ' t_1 ' sec time and crosses 'P' meter long platform in ' t_2 ' sec.

time, then length of the train = $\frac{P \times t_1}{(t_2 - t_1)}$

RULE 5 : Let 'a' metre long train is running with the speed 'x' m/s. A man is running in same direction and with the speed 'y' m/s, then time taken by the train to cross the

$$\text{man} = \frac{a}{(x-y)} \text{ seconds. And } a = (x-y)t$$

RULE 6 : Let 'a' metre long train is running with the speed 'x' m/s. A man is running in the opposite direction of train with the speed of 'y' m/s. Then, time taken by the

$$\text{train to cross the man} = \left(\frac{a}{(x+y)} \right) \text{seconds.}$$

RULE 7 : A train crosses two men in t_1 seconds and t_2 seconds running in the same direction with the speed s_1

and s_2 , then the speed of train is $= \frac{t_1 s_1 - t_2 s_2}{t_1 - t_2}$ and length

$$\text{of train is } l = (s_1 - s_2) \left(\frac{t_1 - t_2}{t_1 - t_2} \right)$$

RULE 8 : If two trains of (same lengths) are coming from same direction and cross a man in t_1 and t_2 seconds, then time taken by both the trains to cross each other =

$$\frac{2 \times \text{Product of time}}{\text{Difference of time}}$$

RULE 9 : If two trains of same length are coming from opposite directions and cross a man in t_1 seconds and t_2 seconds then time taken by both trains to cross each other

$$= \frac{2 \times \text{Product of time}}{\text{Sum of time}}$$

RULE 10 : If a train of length x m crosses a platform/tunnel/bridge of length y m with the speed u m/s in

$$t \text{ seconds, then, } t = \frac{x+y}{u}$$

RULE 11 : Two trains A and B, run from stations X to Y and from Y to X with the speed ' S_A ' and ' S_B ' respectively.

After meeting with each other. A reached at Y after ' t_A ' time and B reached at X after ' t_B ' time. Then Ratio of speeds of trains,

$$\frac{S_A}{S_B} = \sqrt{\frac{t_B}{t_A}}$$

RULE 12 : If a train of length l m passes a bridge/platform of 'x' m in t_1 sec, then the time taken by the same train to cross another bridge/platform of length 'y' m is,

$$\text{Time taken} = \left(\frac{l+y}{l+x} \right) t_1$$

RULE 13 : From stations A and B, two trains start travelling towards each other at speeds a and b, respectively. When they meet each other, it was found that one train covers distance d more than that of another train. The distance between stations A and B is given as

$$\left(\frac{a+b}{a-b} \right) \times d$$

RULE 14 : The distance between two places A and B is x km. A train starts from A towards B at a speed of a km/hr and after a gap of t hours another train with speed b km/hr starts from B towards A, then both the trains will meet at a certain point after time T. Then, we have.

$$T = \left(\frac{x \pm tb}{a+b} \right)$$

t is taken as positive if second train starts after first train and t is taken as negative if second train starts before the first train.

RULE 15 : Excluding stoppage, the average speed of a train is u and with stoppage its average speed is v. Then, the stoppage time per hour

$$= \frac{\text{Difference between their average speed}}{\text{Speed without stoppage}}$$

$$= \frac{u-v}{u}$$

With $u > v$ and $u, v \neq 0$

RULE 16 : A train covers a distance between stations A and B in time t_1 . If the speed is changed by S, then the time taken to cover the same distance is t_2 . Then the distance (D) between A and B is given by

$$D = S \left(\frac{t_1 t_2}{t_1 - t_2} \right) \text{ or } \left(\frac{S'}{t'} \right) t_1 t_2$$

Where t' : change in the time taken



QUESTIONS ASKED IN PREVIOUS SSC EXAMS

TYPE-I

- 1.** A train is travelling at the rate of 45km/hr. How many seconds it will take to cover a distance of

$$\frac{4}{5} \text{ km}$$

(1) 36 sec. (2) 64 sec.

(3) 90 sec. (4) 120 sec.

(SSC CGL Prelim Exam. 04.07.1999
(Second Sitting)

- 2.** An aeroplane covers a certain distance at a speed of 240 km hour in 5 hours. To cover the

same distance in $\frac{2}{3}$ hours, it

must travel at a speed of :

- (1) 300 km./hr. (2) 360 km./hr.
(3) 600 km./hr. (4) 720 km./hr.

(SSC CGL Prelim Exam. 04.07.1999
(Second Sitting)

- 3.** A man walking at the rate of 5 km/hr. crosses a bridge in 15 minutes. The length of the bridge (in metres) is :

- (1) 600 (2) 750
(3) 1000 (4) 1250

(SSC CGL Prelim Exam. 27.02.2000
(First Sitting)

- 4.** A man crosses a road 250 metres wide in 75 seconds. His speed in km/hr is :

- (1) 10 (2) 12
(3) 12.5 (4) 15

(SSC CGL Prelim Exam. 27.02.2000
(Second Sitting)

- 5.** An athlete runs 200 metres race in 24 seconds. His speed (in km/hr) is :

- (1) 20 (2) 24
(3) 28.5 (4) 30

(SSC CGL Prelim Exam. 24.02.2002
(First Sitting)

- 6.** A car goes 10 metres in a second. Find its speed in km/hour.

- (1) 40 (2) 32
(3) 48 (4) 36

(SSC CGL Prelim Exam. 24.02.2002
(Second Sitting)

- 7.** A car travelling at a speed of 40 km/hour can complete a journey in 9 hours. How long will it take to travel the same distance at 60 km/hour ?

- (1) 6 hours (2) 3 hours

- (3) 4 hours (4) $4\frac{1}{2}$ hours

(SSC CGL Prelim Exam. 11.05.2003
(Second Sitting)

- 8.** A man travelled a certain distance by train at the rate of 25 kmph. and walked back at the rate of 4 kmph. If the whole journey took 5 hours 48 minutes, the distance was

- (1) 25 km (2) 30 km
(3) 20 km (4) 15 km

(SSC CGL Prelim Exam. 08.02.2004
(First Sitting)

- 9.** A boy goes to his school from his house at a speed of 3 km/hr and returns at a speed of 2 km/hr. If he takes 5 hours in going and coming, the distance between his house and school is :

- (1) 6 km (2) 5 km
(3) 5.5 km (4) 6.5 km

(SSC CGL Prelim Exam. 08.02.2004
(Second Sitting)

- 10.** A boy runs 20 km in 2.5 hours. How long will he take to run 32 km at double the previous speed ?

- (1) 2 hours (2) $2\frac{1}{2}$ hours

- (3) $4\frac{1}{2}$ hours (4) 5 hours

(SSC CPO S.I. Exam. 26.05.2005)

- 11.** A train is moving with the speed of 180 km/hr. Its speed (in metres per second) is :

- (1) 5 (2) 40
(3) 30 (4) 50

(SSC CGL Prelim Exam. 13.11.2005
(First Sitting)

- 12.** A man riding his bicycle covers 150 metres in 25 seconds. What is his speed in km per hour ?

- (1) 25 (2) 21.6
(3) 23 (4) 20

(SSC CGL Prelims Exam. 24.02.2002
(Middle Zone) & (SSC CGL Prelim
Exam. 13.11.2005 (IInd Sitting)

- 13.** A and B travel the same distance at speed of 9 km/hr and 10 km/hr respectively. If A takes 36 minutes more than B, the distance travelled by each is

- (1) 48 km (2) 54 km

- (3) 60 km (4) 66 km

(SSC SAS Exam. 26.06.2010

(Paper-1)

- 14.** A person started his journey in the morning. At 11 a.m. he cov-

ered $\frac{3}{8}$ of the journey and on the same day at 4.30 p.m. he

covered $\frac{5}{6}$ of the journey. He started his journey at

- (1) 6.00 a.m. (2) 3.30 a.m.
(3) 7.00 a.m. (4) 6.30 a.m.

(SSC CGL Prelim Exam. 04.02.2007
(Second Sitting)

- 15.** The speed of a bus is 72 km/hr. The distance covered by the bus in 5 seconds is

- (1) 100 m (2) 60 m
(3) 50 m (4) 74.5 m

(SSC CHSL DEO & LDC
Exam. 21.10.2012 (Ist Sitting)

- 16.** Two men start together to walk a certain distance, one at 4 km/h and another at 3 km/h. The former arrives half an hour before the latter. Find the distance.

- (1) 8 km (2) 7 km
(3) 6 km (4) 9 km

(SSC CHSL DEO & LDC
Exam. 21.10.2012 (Ist Sitting)

- 17.** A train starts from a place A at 6 a.m. and arrives at another place B at 4.30 p.m. on the same day. If the speed of the train is 40 km per hour, find the distance travelled by the train ?

- (1) 420 km (2) 230 km
(3) 320 km (4) 400 km

(SSC CHSL DEO & LDC
Exam. 28.10.2012 (Ist Sitting)

TIME AND DISTANCE

18. Walking at the rate of 4 km an hour, a man covers a certain distance in 3 hours 45 minutes. If he covers the same distance on cycle, cycling at the rate of 16.5 km/hour, the time taken by him is

- (1) 55.45 minutes
 - (2) 54.55 minutes
 - (3) 55.44 minutes
 - (4) 45.55 minutes
- (SSC Multi-Tasking (Non-Technical) Staff Exam. 22.02.2011)

19. A train covers a distance of 10 km in 12 minutes. If its speed is decreased by 5 km/hr, the time taken by it to cover the same distance will be :

- (1) 10 minutes
 - (2) 13 minutes 20 sec
 - (3) 13 minutes
 - (4) 11 minutes 20 sec
- (SSC CHSL DEO & LDC Exam. 21.10.2012, IInd Sitting)

20. A man walks ' a ' km in ' b ' hours. The time taken to walk 200 metres is

$$(1) \frac{200b}{a} \text{ hours} \quad (2) \frac{b}{5a} \text{ hours}$$

$$(3) \frac{b}{a} \text{ hours} \quad (4) \frac{ab}{200} \text{ hours}$$

(SSC CHSL DEO & LDC Exam. 04.11.2012, Ist Sitting)

21. The speed $3\frac{1}{3}$ m/sec when expressed in km/hour becomes

- (1) 8
 - (2) 9
 - (3) 10
 - (4) 12
- (SSC Graduate Level Tier-I Exam. 11.11.2012, Ist Sitting)

22. A bullock cart has to cover a distance of 120 km. in 15 hours. If it covers half of the journey in

$\frac{3}{5}$ th time, the speed to cover the remaining distance in the time left has to be

- (1) 6.4 km/hr
 - (2) 6.67 km/hr
 - (3) 10 km/hr
 - (4) 15 km/hr
- (SSC Multi-Tasking Staff Exam. 10.03.2013, Ist Sitting : Patna)

23. A train covers a certain distance in 210 minutes at a speed of 60 kmph. The time taken by the train, to cover the same distance at a speed of 80 kmph is :

- (1) $3\frac{5}{8}$ hours
- (2) $2\frac{5}{8}$ hours

- (3) $4\frac{5}{8}$ hours
- (4) 3 hours

(SSC Multi-Tasking Staff Exam. 10.03.2013)

24. A man rides at the rate of 18 km/hr, but stops for 6 mins. to change horses at the end of every 7th km. The time that he will take to cover a distance of 90 km is

- (1) 6 hrs.
- (2) 6 hrs. 12 min.
- (3) 6 hrs. 18 min.
- (4) 6 hrs. 24 min.

(SSC Graduate Level Tier-I Exam. 21.04.2013)

25. A speed of 30.6 km./hr is the same as

- (1) 8.5 m/sec.
- (2) 10 m/sec.
- (3) 12 m/sec.
- (4) 15.5 m/sec.

(SSC Constable (GD) Exam. 12.05.2013)

26. A man covers $\frac{2}{15}$ of the total

journey by train, $\frac{9}{20}$ by bus and the remaining 10 km on foot. His total journey (in km) is

- (1) 15.6
- (2) 24
- (3) 16.4
- (4) 12.8

(SSC Graduate Level Tier-I Exam. 19.05.2013)

27. You arrive at your school 5 minutes late if you walk with a speed of 4 km/h, but you arrive 10 minutes before the scheduled time if you walk with a speed of 5 km/h. The distance of your school from your house (in km) is

- (1) 4
- (2) 5
- (3) 10
- (4) 2

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

28. Sarita and Julie start walking from the same place in the opposite directions. If Julie walks at a

speed of $2\frac{1}{2}$ km/hr and Sarita at a speed of 2 km/hr, in how much time will they be 18 km apart?

- (1) 4.0 hrs
- (2) 4.5 hrs
- (3) 5.0 hrs
- (4) 4.8 hrs

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))

29. A man travelled a distance of 80 km in 7 hrs partly on foot at the rate of 8 km per hour and partly on bicycle at 16km per hour. The distance travelled on the foot is

- (1) 32 km
- (2) 48 km
- (3) 36 km
- (4) 44 km

(SSC CGL Tier-II Exam. 21.09.2014)

30. A car driver leaves Bangalore at 8.30 A.M. and expects to reach a place 300 km from Bangalore at 12.30 P.M. At 10.30 he finds that he has covered only 40% of the distance. By how much he has to increase the speed of the car in order to keep up his schedule?

- (1) 45 km/hr
- (2) 40 km/hr
- (3) 35 km/hr
- (4) 30 km/hr

(SSC CGL Tier-II Exam. 21.09.2014)

31. A man is walking at a speed of 10 kmph. After every km, he takes a rest for 5 minutes. How much time will he take to cover a distance of 5 km?

- (1) 60 minutes
- (2) 50 minutes
- (3) 40 minutes
- (4) 70 minutes

(SSC CGL Tier-II Exam. 21.09.2014)

32. A train covers a distance of 10 km in 12 minutes. If its speed is decreased by 5 km/hr, the time taken by it to cover the same distance is equal to

- (1) 40 minutes
- (2) $\frac{40}{3}$ minutes
- (3) 20 minutes
- (4) 15 minutes

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

33. Motor-cyclist P started his journey at a speed of 30 km/hr. After 30 minutes, motor-cyclist Q started from the same place but with a speed of 40 km/hr. How much time (in hours) will Q take to overtake P ?

- (1) 1
- (2) $\frac{3}{2}$

- (3) $\frac{3}{8}$
- (4) 2

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

34. A is twice as fast as B and B is thrice as fast as C is. The journey covered by C in $1\frac{1}{2}$ hours

will be covered by A in

- (1) 15 minutes
- (2) 20 minutes
- (3) 30 minutes
- (4) 1 hour

(SSC CHSL DEO & LDC Exam. 9.11.2014)

TIME AND DISTANCE

35. A truck travels at 90 km/hr for the first $1\frac{1}{2}$ hours. After that it travels at 70 km/hr. Find the time taken by the truck to travel 310 kilometres.

- (1) 2.5 hrs (2) 3 hrs
 (3) 3.5 hrs (4) 4 hrs
 (SSC CHSL DEO Exam. 02.11.2014
 (Ist Sitting)

36. A car travels at a speed of 60 km/hr and covers a particular distance in one hour. How long will it take for another car to cover the same distance at 40 km/hr?

- (1) $\frac{5}{2}$ hours (2) 2 hours
 (3) $\frac{3}{2}$ hours (4) 1 hour
 (SSC CHSL DEO Exam. 16.11.2014
 (Ist Sitting)

37. A student goes to school at the rate of $\frac{5}{2}$ km/hr and reaches 6 minutes late. If he travels at the speed of 3 km/hr, he reaches 10 minutes earlier. The distance of the school is

- (1) 45 km (2) 20 km
 (3) 10 km (4) 4 km
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014
 TF No. 999 KPO)

38. Sriya with her family travelled from Bolpur to Suri by car at a speed of 40 km/hr and returned to Bolpur at a speed of 50 km/hr. The average speed for the whole journey is

- (1) $44\frac{4}{9}$ km/hr
 (2) 45 km/hr
 (3) $45\frac{1}{2}$ km/hr
 (4) 44.78 km/hr
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014 , Ist Sitting
 TF No. 333 LO 2)

39. A journey takes 4 hours 30 minutes at a speed of 60 km/hr. If the speed is 15 m/s, then the journey will take

- (1) 5 hours
 (2) 5 hours 30 minutes

- (3) 6 hours
 (4) 6 hours 15 minutes
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014 , Ist Sitting
 TF No. 333 LO 2)

40. The distance between 2 places R and S is 42 km. Anita starts from R with a uniform speed of 4 km/h towards S and at the same time Romita starts from S towards R also with some uniform speed. They meet each other after 6 hours. The speed of Romita is

- (1) 18 km/hour (2) 6 km/hour
 (3) 20 km/hour (4) 8 km/hour
 (SSC CGL Tier-II Exam. 12.04.2015
 TF No. 567 TL 9)

41. A farmer travelled a distance of 61 km in 9 hours. He travelled partly on foot at the rate 4 kmph and partly on bicycle at the rate 9 kmph. The distance travelled on foot is

- (1) 16 km (2) 14 km
 (3) 17 km (4) 15 km
 (SSC CGL Tier-II Exam. 12.04.2015
 TF No. 567 TL 9) & SSC CGL Tier-I Exam. 09.08.2015 Ist Sitting
 TF No. 1443088)

42. A bus moving at 40 km per hour covers a distance in 6 hours 15 minutes. If it travels the same distance at 50 km per hour how long will it take to cover the distance ?

- (1) 2 hrs. (2) 6 hrs.
 (3) 4 hrs. (4) 5 hrs.

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 21.06.2015
 (Ist Sitting) TF No. 8037731)

43. A student starting from his house walks at a speed of $2\frac{1}{2}$ km/hour and reaches his school 6 minutes late. Next day starting at the same time he increases his speed by 1 km/hour and reaches 6 minutes early. The distance between the school and his house is

- (1) 4 km (2) $3\frac{1}{2}$ km
 (3) $1\frac{3}{4}$ km (4) 6 km
 (SSC Constable (GD) Exam, 04.10.2015, Ist Sitting)

44. A man starts from a place P and reaches the place Q in 7 hours.

- He travels $\frac{1}{4}$ th of the distance at 10 km/hour and the remaining distance at 12 km/hour. The distance between P and Q is

- (1) 72 km (2) 90 km
 (3) 80 km (4) 70 km
 (SSC CGL Tier-II Exam. 25.10.2015, TF No. 1099685)

45. A student goes to school at the rate of $2\frac{1}{2}$ km/hr and reaches 6 minutes late. If he travels at the speed of 3 km/hr, he is 10 minutes early. What is the distance to the school?

- (1) 4 km (2) $3\frac{1}{2}$ km
 (3) 1 km (4) $3\frac{1}{4}$ km
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IInd Sitting)

46. A man travels for 5 hours 15 minutes. If he covers the first half of the journey at 60 km/h and rest at 45 km/h. Find the total distance travelled by him.

- (1) $1028\frac{6}{7}$ km. (2) 189 km.
 (3) 378 km. (4) 270 km.
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015
 (IInd Sitting) TF No. 7203752)

47. A car can finish a certain journey in 10 hours at the speed of 42 kmph. In order to cover the same distance in 7 hours, the speed of the car (km/h) must be increased by :

- (1) 12 (2) 15
 (3) 18 (4) 24
 (SSC CGL Tier-II Online Exam.01.12.2016)

48. A man cycles at the speed of 8km/hr and reaches office at 11 am and when he cycles at the speed of 12 km/hr he reaches office at 9 am. At what speed should he cycle so that he reaches his office at 10 am?

- (1) 9.6 kmph.
 (2) 10 kmph.
 (3) 11.2 kmph.
 (4) Cannot be determined
 (SSC CPO SI, ASI Online Exam.05.06.2016) (IInd Sitting)

TIME AND DISTANCE

49. A bus travels at the speed of 36 km/hr, then the distance covered by it in one second is

- (1) 10 metre (2) 15 metre
- (3) 12.5 metre (4) 13.5 metre

(SSC CGL Tier-I (CBE)
Exam. 09.09.2016) (Ist Sitting)

50. Two buses travel to a place at 45 km./hr. and 60 km./hr. respectively. If the second bus takes

$\frac{5}{2}$ hours less than the first for the journey, the length of the journey is :

- (1) 900 km. (2) 945 km.
- (3) 990 km. (4) 1350 km.

(SSC CGL Tier-I (CBE)
Exam. 31.08.2016) (IIInd Sitting)

51. A train is running at a speed of 116 km/hr. The distance covered by the train in metres in 18 seconds is :

- (1) 900 metre (2) 1160 metre
- (3) 508 metre (4) 580 metre

(SSC CGL Tier-I (CBE)
Exam. 04.09.2016 (IIInd Sitting)

52. A man travels $\frac{3}{4}$ th of the dis-

tance of his journey by bus, $\frac{1}{6}$ th by rickshaw and 2 km on foot. The total distance travelled by the man is :

- (1) 12 km (2) 18 km
- (3) 20 km (4) 24 km

(SSC CGL Tier-I (CBE)
Exam. 08.09.2016 (IIInd Sitting)

53. To cover a certain distance with a speed of 60 km/hr, a train takes 15 hours. If it covers the same distance in 12 hours, what will be its speed?

- (1) 65 km/h (2) 70 km/h
- (3) 75 km/h (4) 80 km/h

(SSC CGL Tier-I (CBE)
Exam. 09.09.2016 (IIIrd Sitting)

54. Sound travels at 330 metre per second. The distance (in kilometre) of a thunder cloud when its sound follows the flash after 10 seconds is :

- (1) 0.33 km. (2) 3.3 km.
- (3) 33 km. (4) 33.3 km.

(SSC CGL Tier-I (CBE)
Exam. 10.09.2016 (IIInd Sitting)

55. A man travels some distance at a speed of 12 km/hr and returns at a speed of 9 km/hr. If the total time taken by him is 2 hrs 20 minutes the distance is

- (1) 35 km. (2) 21 km.
- (3) 9 km. (4) 12 km.

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

TYPE-II

1. The length of a train and that of a platform are equal. If with a speed of 90 km/hr the train crosses the platform in one minute, then the length of the train (in metres) is :

- (1) 500 (2) 600
- (3) 750 (4) 900

(SSC CGL Prelim Exam. 27.02.2000
(Second Sitting)

2. A train passes two bridges of lengths 800 m and 400 m in 100 seconds and 60 seconds respectively. The length of the train is :

- (1) 80 m (2) 90 m
- (3) 200 m (4) 150 m

(SSC CGL Prelim Exam. 24.02.2002 (Ist
Sitting) & (SSC CGL Prelim
Exam. 13.11.2005 (Ist Sitting)

3. A train 300 metres long is running at a speed of 25 metres per second. It will cross a bridge of 200 metres in

- (1) 5 seconds (2) 10 seconds
- (3) 20 seconds (4) 25 seconds

(SSC CPO S.I. Exam. 12.01.2003)

4. A train 800 metres long is running at the speed of 78 km/hr. If it crosses a tunnel in 1 minute, then the length of the tunnel (in metres) is :

- (1) 77200 (2) 500
- (3) 1300 (4) 13

(SSC CGL Prelim Exam. 11.05.2003
(First Sitting)

5. A train is moving at a speed of 132 km/hour. If the length of the train is 110 metres, how long will it take to cross a railway platform 165 metres long?

- (1) 5 seconds (2) 7.5 seconds
- (3) 10 seconds (4) 15 seconds

(SSC Section Officer (Commercial
Audit) Exam. 16.11.2003)

6. A train takes 18 seconds to pass through a platform 162 m long and 15 seconds to pass through another platform 120 m long. The length of the train (in m) is :

- (1) 70 (2) 80
- (3) 90 (4) 105

(SSC CPO S.I. Exam. 26.05.2005)

7. A train, 150 m long, takes 30 seconds to cross a bridge 500 m long. How much time will the train take to cross a platform 370 m long?

- (1) 36 secs (2) 30 secs
- (3) 24 secs (4) 18 secs

(SSC CGL Prelim Exam. 24.02.2002
(Middle Zone) & (SSC CGL Prelim
Exam. 13.11.2005 (Ist Sitting)

8. A 120 metre long train is running at a speed of 90 km per hour. It will cross a railway platform 230 m long in :

- (1) $4\frac{4}{5}$ seconds (2) $9\frac{1}{5}$ seconds

- (3) 7 seconds (4) 14 seconds

(SSC CGL Prelim Exam. 13.11.2005
(First Sitting)

9. A train travelling at a speed of 30 m/sec crosses a platform, 600 metres long, in 30 seconds. The length (in metres) of train is

- (1) 120 (2) 150
- (3) 200 (4) 300

(SSC CGL Prelim Exam. 04.02.2007
(First Sitting)

10. A train with a uniform speed passes a platform, 122 metres long, in 17 seconds and a bridge, 210 metres long, in 25 seconds. The speed of the train is

- (1) 46.5 km/hour
- (2) 37.5 km/hour
- (3) 37.6 km/hour
- (4) 39.6 km/hour

(SSC CPO S.I. Exam. 09.11.2008)

11. A train, with a uniform speed, crosses a platform, 162 metres long, in 18 seconds and another platform, 120 metres long, in 15 seconds. The speed of the train is

- (1) 14 km/hr (2) 42 km/hr
- (3) 50.4 km/hr (4) 67.2 km/hr

(SSC Data Entry Operator
Exam. 02.08.2009)

12. A train travelling with uniform speed crosses two bridges of lengths 300 m and 240 m in 21 seconds and 18 seconds respectively. The speed of the train is :

- (1) 72 km/hr (2) 68 km/hr
- (3) 65 km/hr (4) 60 km/hr

(SSC CHSL DEO & LDC
Exam. 27.11.2010)

TIME AND DISTANCE

- 13.** A train, 110m long , is running at a speed of 60km/hr. How many seconds does it take to cross another train, 170 m long, standing on parallel track ?

(1) 15.6 sec (2) 16.8 sec
 (3) 17.2 sec (4) 18 sec

(SSC CHSL DEO & LDC Exam. 28.11.2010 (Ist Sitting)

- 14.** A train of length 500 feet crosses a platform of length 700 feet in 10 seconds. The speed of the train is

(1) 70 ft/second
 (2) 85 ft/second
 (3) 100 ft/second
 (4) 120 ft/second

(SSC CISF Constable (GD) Exam. 05.06.2011)

- 15.** A train 200 m long running at 36 kmph takes 55 seconds to cross a bridge. The length of the bridge is

(1) 375 m. (2) 300 m.
 (3) 350 m. (4) 325 m.

(SSC Constable (GD) Exam. 12.05.2013)

- 16.** A train 270 metres long is running at a speed of 36 km per hour, then it will cross a bridge of length 180 metres in :

(1) 40 sec (2) 45 sec
 (3) 50 sec (4) 35 sec

(SSC CAPFs SI & CISF ASI Exam. 23.06.2013)

- 17.** A train 50 metres long passes a platform of length 100 metres in 10 seconds. The speed of the train in metre/second is

(1) 50 (2) 10
 (3) 15 (4) 20

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

- 18.** A train 50 metre long passes a platform 100 metre long in 10 seconds. The speed of the train in km/hr is

(1) 10 (2) 54
 (3) 15 (4) 100

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014 TF No. 999 KPO)

- 19.** How many seconds will a train 120 metre long running at the rate of 36 km/hr take to cross a bridge of 360 metres in length ?

(1) 48 sec (2) 40 sec
 (3) 46 sec (4) 36 sec

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 21.06.2015 (Ist Sitting) TF No. 8037731)

- 20.** If a man running at 15 kmph crosses a bridge in 5 minutes, the length of the bridge is

(1) 1000 metres
 (2) 500 metres
 (3) 750 metres
 (4) 1250 metres

(SSC CGL Tier-I Re-Exam, 30.08.2015)

- 21.** A 200 metre long train is running at a speed of 72 km/hr. How long will it take to cross 800metre long bridge ?

(1) 50 seconds (2) 40 seconds
 (3) 60 seconds (4) 30 seconds

(SSC Constable (GD)

Exam. 04.10.2015, IIInd Sitting)

- 22.** A train passes two bridges of lengths 500 m and 250 m in 100 seconds and 60 seconds respectively. The length of the train is :

(1) 152 m (2) 125 m
 (3) 250 m (4) 120 m

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 15.11.2015 (Ist Sitting) TF No. 6636838)

- 23.** A train 150 metre long takes 20 seconds to cross a platform 450 metre long. The speed of the train in, km per hour, is :

(1) 108 (2) 100
 (3) 106 (4) 104

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 20.03.2016 (IIInd Sitting))

- 24.** A moving train passes a platform 50 metre long in 14 seconds and a lamp post in 10 seconds. The speed of the train (in km/h) is :

(1) 24 (2) 36
 (3) 40 (4) 45

(SSC CGL Tier-I (CBE) Exam. 29.08.2016) (IIInd Sitting)

- 25.** The lengths of a train and that of a platform are equal. If with a speed of 90 km/hr the train crosses the platform in one minute, then the length of the train (in metres) is

(1) 500 (2) 600
 (3) 750 (4) 900

(SSC CGL Tier-I (CBE) Exam. 30.08.2016) (Ist Sitting)

- 26.** A train, 500 metre long, running at a uniform speed, passes a station in 35 seconds. If the length of the platform is 221 metre, the speed of the train in km/hr is

(1) $72 \frac{1}{35}$ (2) 74.16

(3) 24.76 (4) 78.54

(SSC CGL Tier-I (CBE) Exam. 04.09.2016) (Ist Sitting)

- 27.** A train, 200 metre long, is running at a speed of 54 km/hr. The time in seconds that will be taken by train to cross a 175 metre long bridge is :

(1) 12.5 (2) 20
 (3) 25 (4) 10

(SSC CGL Tier-I (CBE) Exam. 11.09.2016 (IIIrd Sitting))

TYPE-III

- 1.** A train 180 m long moving at the speed of 20 m/sec. over-takes a man moving at a speed of 10m/sec in the same direction. The train passes the man in :

(1) 6 sec (2) 9 sec
 (3) 18 sec (4) 27 sec

(SSC CGL Prelim Exam. 04.07.1999 (First Sitting))

- 2.** A train 100m long is running at the speed of 30 km/hr. The time (in second) in which it will pass a man standing near the railway line is :

(1) 10 (2) 11
 (3) 12 (4) 15

(SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))

- 3.** How many seconds will a 500 metre long train take to cross a man walking with a speed of 3 km/hr. in the direction of the moving train if the speed of the train is 63 km/hr ?

(1) 25 sec (2) 30 sec
 (3) 40 sec (4) 45 sec

(SSC CGL Prelim Exam. 27.02.2000 (First Sitting))

- 4.** A train is 125 m long. If the train takes 30 seconds to cross a tree by the railway line, then the speed of the train is :

(1) 14 km/hr (2) 15 km/hr
 (3) 16 km/hr (4) 12 km/hr

(SSC CGL Prelim Exam. 24.02.2002 (First Sitting))

- 5.** A 120 m long train takes 10 seconds to cross a man standing on a platform. What is the speed of the train ?

(1) 12 m/sec. (2) 10 m/sec.
 (3) 15 m/sec. (4) 20 m/sec.

(SSC CGL Prelim Exam. 24.02.2002 (IIInd Sitting) & (SSC CPO S.I. Exam. 03.09.2006))

TIME AND DISTANCE

- 6.** A 75 metre long train is moving at 20 kmph. It will cross a man standing on the platform in
 (1) 12 seconds
 (2) 14 seconds
 (3) 13.5 seconds
 (4) 15.5 seconds
 (SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone)
- 7.** In what time will a train 100 metres long cross an electric pole, if its speed be 144 km/hour ?
 (1) 2.5 seconds
 (2) 5 seconds
 (3) 12.5 seconds
 (4) $3\frac{5}{4}$ seconds
 (SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting)
- 8.** A man observed that a train 120 m long crossed him in 9 seconds. The speed (in km/hr) of the train was
 (1) 42 (2) 45
 (3) 48 (4) 55
 (SSC CPO S.I. Exam. 07.09.2003)
- 9.** If a train, with a speed of 60 km/hr, crosses a pole in 30 seconds, the length of the train (in metres) is :
 (1) 1000 (2) 900
 (3) 750 (4) 500
 (SSC CGL Prelim Exam. 13.11.2005
 (First Sitting)
- 10.** A train passes two persons walking in the same direction at a speed of 3 km/hour and 5km/hour respectively in 10 seconds and 11 seconds respectively. The speed of the train is
 (1) 28 km/hour (2) 27 km/hour
 (3) 25 km/hour (4) 24 km/hour
 (SSC CPO S.I. Exam. 03.09.2006)
- 11.** A passenger train 150m long is travelling with a speed of 36 km/hr. If a man is cycling in the direction of train at 9 km/hr., the time taken by the train to pass the man is
 (1) 10 sec (2) 15 sec
 (3) 18 sec (4) 20 sec
 (SSC CPO S.I. Exam. 06.09.2009)
- 12.** Buses start from a bus terminal with a speed of 20 km/hr at intervals of 10 minutes. What is the speed of a man coming from the opposite direction towards the bus terminal if he meets the buses at intervals of 8 minutes?
 (1) 3 km/hr (2) 4 km/hr
 (3) 5 km/hr (4) 7 km/hr
 (SSC CGL Tier-I Exam. 16.05.2010
 (First Sitting)
- 13.** A train, 300m long, passed a man, walking along the line in the same direction at the rate of 3 km/hr in 33 seconds. The speed of the train is
 (1) 30 km/h (2) 32 km/h
 (3) $32\frac{8}{11}$ km/h (4) $35\frac{8}{11}$ km/h
 (SSC CGL Tier-I Exam. 16.05.2010
 (First Sitting)
- 14.** A train, 240 m long crosses a man walking along the line in opposite direction at the rate of 3 kmph in 10 seconds. The speed of the train is
 (1) 63 kmph (2) 75 kmph
 (3) 83.4 kmph (4) 86.4 kmph
 (SSC CGL Tier-I Exam. 16.05.2010
 (Second Sitting)
- 15.** A train is running at 36 km/hr. If it crosses a pole in 25 seconds, its length is
 (1) 248 m (2) 250 m
 (3) 255 m (4) 260 m
 (SSC (South Zone) Investigator Exam 12.09.2010)
- 16.** A train is running at a speed of 90 km/hr. If it crosses a signal in 10 sec., the length of the train (in metres) is
 (1) 150 (2) 324
 (3) 900 (4) 250
 (SSC CHSL DEO & LDC Exam. 04.11.2012 (IIInd Sitting)
- 17.** A train 100 metres long meets a man going in opposite direction at 5 km/hr and passes him in $7\frac{1}{5}$ seconds. What is the speed of the train (in km/hr) ?
 (1) 45 km/hr (2) 60 km/hr
 (3) 55 km/hr (4) 50 km/hr
 (SSC CHSL DEO & LDC Exam. 04.11.2012, Ist Sitting)
- 18.** A train, 120 m long, takes 6 seconds to pass a telegraph post; the speed of train is
 (1) 72 km/hr (2) 62 km/hr
 (3) 55 km/hr (4) 85 km/hr
 (SSC CGL Prelim Exam. 04.02.2007
 (IInd Sitting) & (SSC Constable (GD)
 Exam. 12.05.2013 (Ist Sitting)
- 19.** A train 300 m long is running with a speed of 54 km/hr. In what time will it cross a telephone pole?
 (1) 20 seconds (2) 15 seconds
 (3) 17 seconds (4) 18 seconds
 (SSC CGL Tier-II Exam. 21.09.2014)
- 20.** A train 180 metres long is running at a speed of 90 km/h. How long will it take to pass a post ?
 (1) 8.2 secs (2) 7.8 secs
 (3) 8 secs (4) 7.2 secs
 (SSC CGL Tier-I Exam, 16.08.2015
 (Ist Sitting) TF No. 3196279)
- 21.** If a man walks at the rate of 5 km/hour, he misses a train by 7 minutes. However if he walks at the rate of 6 km/hour, he reaches the station 5 minutes before the arrival of the train. The distance covered by him to reach the station is
 (1) 6 km (2) 7 km
 (3) 6.25 km (4) 4 km
 (SSC CGL Tier-II Exam,
 25.10.2015, TF No. 1099685)
- 22.** A train passes an electrical pole in 20 seconds and passes a platform 250 m long in 45 seconds. Find the length of the train.
 (1) 400m (2) 200m
 (3) 300m (4) 250m
 (SSC CHSL (10+2) LDC, DEO & PA/SA
 Exam, 01.11.2015, IInd Sitting)
- 23.** A train is 250m long. If the train takes 50 seconds to cross a tree by the railway line, then the speed of the train in km/hr is :
 (1) 10 (2) 9
 (3) 5 (4) 18
 (SSC CHSL (10+2) LDC, DEO
 & PA/SA Exam, 06.12.2015
 (Ist Sitting) TF No. 1375232)
- 24.** A train 150m long passes a km stone in 30 seconds and another train of the same length travelling in opposite direction in 10 seconds. The speed of the second train is :
 (1) 90 km/hr (2) 125 km/hr
 (3) 25 km/hr (4) 75 km/hr
 (SSC CHSL (10+2) LDC, DEO
 & PA/SA Exam, 06.12.2015
 (IInd Sitting) TF No. 3441135)

TIME AND DISTANCE

- 25.** The time taken by a train 160 m long, running at 72 km/hr, in crossing an electric pole is
 (1) 8 seconds (2) 9 seconds
 (3) 6 seconds (4) 4 seconds

(SSC CGL Tier-I (CBE)
 Exam. 28.08.2016) (IIInd Sitting)

- 26.** In what time will a 100 metre long train running with a speed of 50 km/hr cross a pillar ?
 (1) 7.0 seconds (2) 72 seconds
 (3) 7.2 seconds (4) 70 seconds

(SSC CGL Tier-I (CBE)
 Exam. 31.08.2016) (Ist Sitting)

- 27.** A train 150m long passes a telegraphic post in 12 seconds. Find the speed of the train.(in km/hr)
 (1) 50 (2) 12.5
 (3) 25 (4) 45

(SSC CGL Tier-I (CBE)
 Exam. 02.09.2016) (IIInd Sitting)

- 28.** In what time will a train, 60 metre long, running at the rate of 36 km/hr pass a telegraph post ?
 (1) 9 seconds (2) 8 seconds
 (3) 7 seconds (4) 6 seconds

(SSC CGL Tier-I (CBE)
 Exam. 06.09.2016) (Ist Sitting)

- 29.** A train 240 metres in length crosses a telegraph post in 16 seconds. The speed of the train is
 (1) 50 km/hr (2) 52 km/hr
 (3) 54 km/hr (4) 56 km/hr

(SSC CGL Tier-I (CBE)
 Exam. 01.09.2016 (IIIrd Sitting)

- 30.** How long does a train, 75 metre long, moving at 60 km/hr take to pass a certain telegraph post?
 (1) 3.5 seconds (2) 4.5 seconds
 (3) 5 seconds (4) 5.4 seconds

(SSC CGL Tier-I (CBE)
 Exam. 02.09.2016 (IIInd Sitting)

- 31.** A train 100 metre long is running at a speed of 120 km/hr. The time taken to pass a person standing near the line is
 (1) 1 second (2) 3 seconds
 (3) 5 seconds (4) 7 seconds

(SSC CGL Tier-I (CBE)
 Exam. 07.09.2016 (IIInd Sitting)

TYPE-IV

- 1.** The distance between two cities A and B is 330 km. A train starts from A at 8 a.m. and travels towards B at 60 km/hr. Another train starts from B at 9 a.m. and travels towards A at 75 km/hr. At what time do they meet?
 (1) 10 a.m. (2) 10 : 30 a.m.
 (3) 11 a.m. (4) 11 : 30 a.m.

(SSC CGL Prelim Exam. 04.07.1999
 (First Sitting)

- 2.** Two men are standing on opposite ends of a bridge 1200 metres long. If they walk towards each other at the rate of 5m/minute and 10m/minute respectively, in how much time will they meet each other ?

(1) 60 minutes (2) 80 minutes
 (3) 85 minutes (4) 90 minutes

(SSC CGL Prelim Exam. 04.07.1999
 (Second Sitting)

- 3.** Two trains, one 160 m and the other 140 m long are running in opposite directions on parallel rails, the first at 77 km an hour and the other at 67 km an hour. How long will they take to cross each other?

(1) 7 seconds (2) $7\frac{1}{2}$ seconds

(3) 6 seconds (4) 10 seconds

(SSC CGL Prelim Exam. 11.05.2003
 (First Sitting)

- 4.** Two trains are running in opposite direction with the same speed. If the length of each train is 120 metres and they cross each other in 12 seconds, the speed of each train (in km/hour) is

(1) 72 (2) 10
 (3) 36 (4) 18

(SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting)

- 5.** Two trains 140 m and 160 m long run at the speed of 60 km/hour and 40 km/hour respectively in opposite directions on parallel tracks. The time (in seconds) which they take to cross each other, is :

(1) 10 sec. (2) 10.8 sec.
 (3) 9 sec. (4) 9.6 sec.

(SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting)

- 6.** Two trains start from stations A and B and travel towards each other at speed of 50 km/hour and 60 km/hour respectively. At the time of their meeting, the second train has travelled 120 km more than the first. The distance between A and B is :
 (1) 990 km (2) 1200 km
 (3) 1320 km (4) 1440 km

(SSC CPO S.I. Exam. 26.05.2005)

- 7.** Two trains are moving on two parallel tracks but in opposite directions. A person sitting in the train moving at the speed of 80 km/hr passes the second train in 18 seconds. If the length of the second train is 1000 m, its speed is
 (1) 100 km/hr (2) 120 km/hr
 (3) 140 km/hr (4) 150 km/hr

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006
 (Second Sitting)

- 8.** Two trains 105 metres and 90 metres long, runs at the speed of 45 km/hr and 72 km/hr respectively, in opposite directions on parallel tracks. The time which they take to cross each other, is
 (1) 8 seconds (2) 6 seconds
 (3) 7 seconds (4) 5 seconds

(SSC CGL Prelim Exam. 04.02.2007
 (First Sitting)

- 9.** Two trains of equal length, running in opposite directions, pass a pole in 18 and 12 seconds. The trains will cross each other in
 (1) 14.4 seconds
 (2) 15.5 seconds
 (3) 18.8 seconds
 (4) 20.2 seconds

(SSC CGL Prelim Exam. 27.07.2008
 (First Sitting)

- 10.** A train, 150m long, passes a pole in 15 seconds and another train of the same length travelling in the opposite direction in 12 seconds. The speed of the second train is
 (1) 45 km./hr (2) 48 km./hr
 (3) 52 km./hr (4) 54 km./hr

(SSC CGL Prelim Exam. 27.07.2008 (IIInd Sitting) & (SSC GL Tier-I Exam. 19.05.2013)

TIME AND DISTANCE

- 11.** A train travelling at 48 km/hr crosses another train, having half its length and travelling in opposite direction at 42 km/hr, in 12 seconds. It also passes a railway platform in 45 seconds. The length of the railway platform is
 (1) 200 m (2) 300 m
 (3) 350 m (4) 400 m
 (SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting)
- 12.** Two towns A and B are 500 km. apart. A train starts at 8 AM from A towards B at a speed of 70 km/hr. At 10 AM, another train starts from B towards A at a speed of 110 km/hr. When will the two trains meet ?
 (1) 1 PM (2) 12 Noon
 (3) 12.30 PM (4) 1.30 PM
 (SSC CPO S.I. Exam. 06.09.2009)
- 13.** Two trains of length 70 m and 80 m are running at speed of 68 km/hr and 40 km/hr respectively on parallel tracks in opposite directions. In how many seconds will they pass each other ?
 (1) 10 sec (2) 8 sec
 (3) 5 sec (4) 3 sec
 (SSC CISF ASI Exam. 29.08.2010
 (Paper-1))
- 14.** Two trains of equal length take 10 seconds and 15 seconds respectively to cross a telegraph post. If the length of each train be 120 metres, in what time (in seconds) will they cross each other travelling in opposite direction ?
 (1) 16 (2) 15
 (3) 12 (4) 10
 (SSC CGL Prelim Exam. 08.02.2004
 (First Sitting))
- 15.** Two trains of length 137 metre and 163 metre are running with speed of 42 km/hr and 48 km/hr respectively towards each other on parallel tracks. In how many seconds will they cross each other?
 (1) 30 sec (2) 24 sec
 (3) 12 sec (4) 10 sec
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (IIInd Sitting))
- 16.** Two trains 150 m and 120 m long respectively moving from opposite directions cross each other in 10 secs. If the speed of the second train is 43.2 km/hr, then the speed of the first train is
 (1) 54 km/hr (2) 50 km/hr
 (3) 52 km/hr (4) 51 km/hr
 (SSC Multi-Tasking Staff Exam. 10.03.2013, Ist Sitting : Patna)
- 17.** Two trains start from station A and B and travel towards each other at speed of 16 miles/ hour and 21 miles/ hour respectively. At the time of their meeting, the second train has travelled 60 miles more than the first. The distance between A and B (in miles) is :
 (1) 444 (2) 496
 (3) 333 (4) 540
 (SSC Multi-Tasking Staff Exam. 10.03.2013)
- 18.** Two trains 108 m and 112 m in length are running towards each other on the parallel lines at a speed of 45 km/hr and 54 km/hr respectively. To cross each other after they meet, it will take
 (1) 12 sec (2) 9 sec
 (3) 8 sec (4) 10 sec
 (SSC Multi-Tasking Staff Exam. 17.03.2013, IIInd Sitting))
- 19.** A man standing on a platform finds that a train takes 3 seconds to pass him and another train of the same length moving in the opposite direction, takes 4 seconds. The time taken by the trains to pass each other will be
 (1) $2\frac{3}{7}$ seconds (2) $3\frac{3}{7}$ seconds
 (3) $4\frac{3}{7}$ seconds (4) $5\frac{3}{7}$ seconds
 (SSC CPO S.I. Exam. 03.09.2006)
- 20.** Two trains, each of length 125 metre, are running in parallel tracks in opposite directions. One train is running at a speed 65 km/hour and they cross each other in 6 seconds. The speed of the other train is
 (1) 75 km/hour (2) 85 km/hour
 (3) 95 km/hour (4) 105 km/hour
 (SSC CHSL DEO & LDC Exam. 27.10.2013 IIInd Sitting))
- 21.** A train running at the speed of 84 km/hr passes a man walking in opposite direction at the speed of 6 km/hr in 4 seconds. What is the length of train (in metre) ?
 (1) 150 (2) 120
 (3) 100 (4) 90
 (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)
- 22.** Two trains X and Y start from Jodhpur to Jaipur and from Jaipur to Jodhpur respectively. After passing each other they take 4 hours 48 minutes and 3 hours 20 minutes to reach Jaipur and Jodhpur respectively. If X is moving at 45 km/hr, the speed of Y is
 (1) 60 km/hr (2) 58 km/hr
 (3) 54 km/hr (4) 64.8 km/hr
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting TF No. 545 QP 6)
- 23.** P and Q starting simultaneously from two different places proceed towards each other at a speed of 20 km/hour and 30 km/hour respectively. By the time they meet each other, Q has covered 36 km more than that of P. The distance (in km.) between the two places is
 (1) 144 (2) 162
 (3) 180 (4) 108
 (SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)
- 24.** Two places P and Q are 162 km apart. A train leaves P for Q and simultaneously another train leaves Q for P. They meet at the end of 6 hours. If the former train travels 8 km/hour faster than the other, then speed of train from Q is
 (1) $12\frac{5}{6}$ km/hour
 (2) $10\frac{5}{6}$ km/hour
 (3) $9\frac{1}{2}$ km/hour
 (4) $8\frac{1}{2}$ km/hour
 (SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

TIME AND DISTANCE

25. Two trains start at the same time from A and B and proceed toward each other at the speed of 75 km/hr and 50 km/hr respectively. When both meet at a point in between, one train was found to have travelled 175 km more than the other. Find the distance between A and B.

- (1) 875 km. (2) 785 km.

- (3) 758 km. (4) 857 km.

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015
(IInd Sitting) TF No. 7203752)

26. Two trains of lengths 150m and 180m respectively are running in opposite directions on parallel tracks. If their speeds be 50 km/hr and 58 km/hr respectively, in what time will they cross each other?

- (1) 22 seconds (2) 15 seconds

- (3) 30 seconds (4) 11 seconds

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015
(Ist Sitting) TF No. 9692918)

27. Two trains start at the same time from Aligarh and Delhi and proceed towards each other at the rate of 14 km and 21 km per hour respectively. When they meet, it is found that one train has travelled 70 km more than the other. The distance between two stations is

- (1) 350 km (2) 210 km

- (3) 300 km (4) 140 km

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015
(Ist Sitting) TF No. 9692918)

TYPE-V

1. A train running at $\frac{7}{11}$ of its own speed reached a place in 22 hours. How much time could be saved if the train would run at its own speed?

- (1) 14 hours (2) 7 hours

- (3) 8 hours (4) 16 hours

(SSC CGL Prelim Exam. 24.02.2002
(Ist Sitting) & (SSC CGL Prelim Exam. 13.11.2005 (Ist Sitting)

2. A man with $\frac{3}{5}$ of his usual speed reaches the destination $2\frac{1}{2}$ hours late. Find his usual time to reach the destination.

- (1) 4 hours (2) 3 hours

- (3) $3\frac{3}{4}$ hours (4) $4\frac{1}{2}$ hours

(SSC CGL Prelim Exam. 24.02.2002
(Middle Zone)

3. A car travelling with $\frac{5}{7}$ of its

usual speed covers 42 km in 1 hour 40 min 48 sec. What is the usual speed of the car?

- (1) $17\frac{6}{7}$ km/hr (2) 35 km/hr

- (3) 25 km/hr (4) 30 km/hr

(SSC CGL Prelim Exam. 13.11.2005
(Second Sitting)

4. Walking at three-fourth of his usual speed, a man covers a certain distance in 2 hours more than the time he takes to cover the distance at his usual speed. The time taken by him to cover the distance with his usual speed is

- (1) 4.5 hours (2) 5.5 hours

- (3) 6 hours (4) 5 hours

(SSC CGL Prelim Exam. 13.11.2005
(Second Sitting)

5. By walking at $\frac{3}{4}$ of his usual

speed, a man reaches his office 20 minutes later than his usual time. The usual time taken by him to reach his office is

- (1) 75 minutes (2) 60 minutes

- (3) 40 minutes (4) 30 minutes

(SSC CGL Tier-I Exam. 16.05.2010
(Ist Sitting) & (SSC GL Tier-I Exam. 19.05.2013)

6. Walking at $\frac{3}{4}$ of his usual speed, a

man is $1\frac{1}{2}$ hours late. His usual time to cover the same distance, (in hours) is

- (1) $4\frac{1}{2}$ (2) 4

- (3) $5\frac{1}{2}$ (4) 5

(SSC CGL Tier-1 Exam 19.06.2011
(First Sitting)

7. Walking at $\frac{6}{7}$ th of his usual speed a man is 25 minutes late. His usual time to cover this distance is

- (1) 2 hours 30 minutes

- (2) 2 hours 15 minutes

- (3) 2 hours 25 minutes

- (4) 2 hours 10 minutes

(SSC CGL Tier-1 Exam 19.06.2011
(Second Sitting)

8. Walking $\frac{6}{7}$ th of his usual speed, a man is 12 minutes late. The usual time taken by him to cover that distance is

- (1) 1 hour

- (2) 1 hour 12 minutes

- (3) 1 hour 15 minutes

- (4) 1 hour 20 minutes

(SSC CGL Tier-1 Exam. 26.06.2011
(Second Sitting)

9. A car travels from P to Q at a constant speed. If its speed were increased by 10 km/h, it would have been taken one hour lesser to cover the distance. It would have taken further 45 minutes lesser if the speed was further increased by 10 km/h. The distance between the two cities is

- (1) 540 km (2) 420 km

- (3) 600 km (4) 620 km

(SSC CGL Tier-I Exam. 19.10.2014)

10. A car covers four successive 7 km distances at speeds of 10 km/hour, 20 km/hour, 30 km/hour and 60 km/hour respectively. Its average speed over this distance is

- (1) 30 km/hour (2) 20 km/hour

- (3) 60 km/hour (4) 40 km/hour

(SSC CGL Tier-II Exam.
25.10.2015, TF No. 1099685)

11. A car goes 20 metres in a second. Find its speed in km/hr.

- (1) 18 (2) 72

- (3) 36 (4) 20

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015
(Ist Sitting) TF No. 6636838)

12. The speed of a car is 54 km/hr. What is its speed in m/sec?

- (1) 15 m/sec (2) 19.44 m/sec

- (3) 194.4 m/sec (4) 150 m/sec

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015
(IInd Sitting) TF No. 3441135)

TIME AND DISTANCE

13. A car covers a certain distance in 25 hours. If it reduces the

speed by $\frac{1}{5}$ th, the car covers 200 km. less in that time. The speed of car is

- (1) 60 km./hr. (2) 30 km./hr.
 - (3) 40 km./hr. (4) 50 km./hr.
- (SSC CGL Tier-I (CBE) Exam. 03.09.2016) (IIInd Sitting)

14. A car moving in the morning fog passes a man walking at 4 km/h. in the same direction. The man can see the car for 3 minutes and visibility is upto a distance of 130 m. The speed of the car is :

- (1) $7\frac{3}{5}$ km. per hour
- (2) $6\frac{3}{5}$ km. per hour
- (3) 7 km. per hour
- (4) 5 km. per hour

(SSC CGL Tier-I (CBE) Exam. 08.09.2016 (IIIrd Sitting)

TYPE-VI

1. A boy rides his bicycle 10km at an average speed of 12 km/hr and again travels 12 km at an average speed of 10 km/hr. His average speed for the entire trip is approximately :

- (1) 10.4 km/hr (2) 10.8 km/hr
 - (3) 11.0 km/hr (4) 12.2 km/hr
- (SSC CGL Prelim Exam. 04.07.1999 (First Sitting)

2. A person travels 600 km by train at 80km/hr, 800 km by ship at 40 km/hr 500 km by aeroplane at 400 km/hr and 100 km by car at 50km/hr. What is the average speed for the entire distance ?

$$(1) 65\frac{5}{123} \text{ km./hr.}$$

$$(2) 60 \text{ km./hr.}$$

$$(3) 60\frac{5}{123} \text{ km./hr.}$$

$$(4) 62 \text{ km./hr.}$$

(SSC CGL Prelim Exam. 04.07.1999 (Second Sitting)

3. A train moves with a speed of 30 kmph for 12 minutes and for next 8 minutes at a speed of 45 kmph. Find the average speed of the train:

- (1) 37.5 kmph (2) 36 kmph
- (3) 48 kmph (4) 30 kmph

(SSC Section Officer (Commercial Audit) Exam. 25.09.2005)

4. A man covers half of his journey at 6km/hr and the remaining half at 3km/hr. His average speed is

- (1) 9 km/hr (2) 4.5 km/hr
- (3) 4 km/hr (4) 3 km/hr

(SSC CGL Prelim Exam. 04.02.2007 (First Sitting)

5. A man goes from A to B at a uniform speed of 12 kmph and returns with a uniform speed of 4 kmph. His average speed (in kmph) for the whole journey is :

- (1) 8 (2) 7.5
- (3) 6 (4) 4.5

(SSC CPO S.I. Exam. 16.12.2007)

6. A train covers a distance of 3584 km in 2 days 8 hours. If it covers 1440 km on the first day and 1608 km on the second day, by how much does the average speed of the train for the remaining part of the journey differ from that for the entire journey ?

- (1) 3 km/hour more
- (2) 3 km/hour less
- (3) 4 km/hour more
- (4) 5 km/hour less

(SSC CGL Prelim Exam. 27.07.2008 (First Sitting)

7. A man travels a distance of 24 km at 6 kmph. Another distance of 24 km at 8 kmph and a third distance of 24 km at 12 kmph. His average speed for the whole journey (in kmph) is

- (1) $8\frac{2}{3}$ (2) 8
- (3) $2\frac{10}{13}$ (4) 9

(SSC CPO S.I. Exam. 09.11.2008)

8. A constant distance from Chennai to Bangalore is covered by Express train at 100 km/hr. If it returns to the same distance at 80 km/hr, then the average speed during the whole journey is

- (1) 90.20 km/hr
- (2) 88.78 km/hr
- (3) 88.98 km/hr
- (4) 88.89 km/hr

(SSC CPO S.I. Exam. 06.09.2009)

9. A person went from A to B at an average speed of x km/hr and returned from B to A at an average speed of y km/hr. What was his average speed during the total journey ?

$$(1) \frac{x+y}{2xy} \quad (2) \frac{2xy}{x+y}$$

$$(3) \frac{2}{x+y} \quad (4) \frac{1}{x} + \frac{1}{y}$$

(SSC SAS Exam. 26.06.2010 (Paper-1)

10. A man goes from Mysore to Bangalore at a uniform speed of 40 km/hr and comes back to Mysore at a uniform speed of 60 km/hr. His average speed for the whole journey is

- (1) 48 km/hr (2) 50 km/hr
- (3) 54 km/hr (4) 55 km/hr

(SSC CISF ASI Exam. 29.08.2010 (Paper-1) & (SSC CHSL DEO & LDC Exam. 21.10.2012 (IIInd Sitting)

11. A man goes from a place A to B at a speed of 12 km/hr and returns from B to A at a speed of 18 km/hr. The average speed for the whole journey is

$$(1) 14\frac{2}{5} \text{ km/hr}$$

$$(2) 15 \text{ km/hr}$$

$$(3) 15\frac{1}{2} \text{ km/hr}$$

$$(4) 16 \text{ km/hr}$$

(SSC (South Zone) Investigator Exam. 12.09.2010)

12. One third of a certain journey is covered at the rate of 25 km/hour, one-fourth at the rate of 30 km/hour and the rest at 50 km/hour. The average speed for the whole journey is

- (1) 35 km/hour

$$(2) 33\frac{1}{3} \text{ km/hour}$$

$$(3) 30 \text{ km/hour}$$

$$(4) 37\frac{1}{12} \text{ km/hour}$$

FCI Assistant Grade-III Exam. 25.02.2012 (Paper-1) North Zone (Ist Sitting)

TIME AND DISTANCE

- 13.** A man completes 30 km of a journey at the speed of 6 km/hr and the remaining 40 km of the journey in 5 hours. His average speed for the whole journey is

(1) 7 km/hr (2) $6\frac{4}{11}$ km/hr

(3) 8 km/hr (4) 7.5 km/hr

(SSC CGL Prelim Exam. 04.02.2007
(First Sitting)

- 14.** A man covers the journey from a station A to station B at a uniform speed of 36 km/hr and returns to A with a uniform speed of 45 km/hr. His average speed for the whole journey is :

(1) 40 km/hr (2) 40.5 km/hr
(3) 41 km/hr (4) 42 km/hr

(SSC CHSL DEO & LDC
Exam. 28.11.2010 (1st Sitting)

- 15.** The speed of a train going from Nagpur to Allahabad is 100 kmph while its speed is 150 kmph when coming back from Allahabad to Nagpur. Then the average speed during the whole journey is :

(1) 120 kmph (2) 125 kmph
(3) 140 kmph (4) 135 kmph

(SSC CHSL DEO & LDC
Exam. 21.10.2012 (IInd Sitting)

- 16.** P travels for 6 hours at the rate of 5 km/ hour and for 3 hours at the rate of 6 km/ hour. The average speed of the journey in km/ hour is

(1) $3\frac{1}{5}$ (2) $5\frac{1}{3}$

(3) $1\frac{2}{9}$ (4) $2\frac{2}{5}$

(SSC CHSL DEO & LDC
Exam. 28.10.2012 (1st Sitting)

- 17.** With an average speed of 40 km/ hr, a train reaches its destination in time. If it goes with an average speed of 35 km/hr, it is late by 15 minutes. The total journey is

(1) 30 km (2) 40 km
(3) 70 km (4) 80 km

(SSC Multi-Tasking Staff Exam.
17.03.2013, Kolkata Region)

- 18.** A bus covers four successive 3 km stretches at speed of 10 km/hr, 20 km/hr, 30 km/hr and 60 km/hr respectively. Its average speed over this distance is

(1) 30 km/hr (2) 25 km/hr
(3) 20 km/hr (4) 10 km/hr

(SSC Multi-Tasking Staff Exam.
17.03.2013, Kolkata Region)

- 19.** A train travelled at a speed of 35 km/hr for the first 10 minutes and at a speed of 20 km/hr for the next 5 minutes. The average speed of the train for the total 15 minutes is

(1) 30 km/hr (2) 23 km/hr
(3) 31 km/hr (4) 29 km/hr

(SSC Constable (GD)
Exam. 12.05.2013 1st Sitting)

- 20.** On a journey across Kolkata, a taxi averages 50 km per hour for 50% of the distance, 40 km per hour for 40% of it and 20 km per hour for the remaining. The average speed (in km/hour) for the whole journey is :

(1) 42 (2) 40
(3) 35 (4) 45

(SSC CAPFs SI & CISF ASI
Exam. 23.06.2013)

- 21.** A train goes from Ballygunge to Sealdah at an average speed of 20 km/hour and comes back at an average speed of 30 km/hour. The average speed of the train for the whole journey is

(1) 27 km/hr (2) 26 km/hr
(3) 25 km/hr (4) 24 km/hr

(SSC Graduate Level Tier-II
Exam. 29.09.2013)

- 22.** A and B are 20 km apart. A can walk at an average speed of 4 km/ hour and B at 6 km/hr. If they start walking towards each other at 7 a.m., when they will meet ?

(1) 8.00 a.m. (2) 8.30 a.m.
(3) 9.00 a.m. (4) 10.00 a.m.

(SSC CGL Tier-I
Exam. 19.10.2014 (1st Sitting)

- 23.** A train runs from Howrah to Bandel at an average speed of 20 km/ hr and returns at an average speed of 30 km/hr. The average speed (in km/hr) of the train in the whole journey is

(1) 20 (2) 22.5
(3) 24 (4) 25

(SSC CHSL DEO Exam. 02.11.2014
(1st Sitting))

- 24.** A motorist travels to a place 150 km away at an average speed of 50 km/hr and returns at 30 km/ hr. His average speed for the whole journey in km/hr is

(1) 37.5 (2) 37
(3) 35 (4) 40

(SSC CHSL (10+2) DEO & LDC
Exam. 16.11.2014, IInd Sitting
TF No. 545 QP 6)

- 25.** A man walks from his house at an average speed of 5 km per hour and reaches his office 6 minutes late. If he walks at an average speed of 6 km/h he reaches 2 minutes early. The distance of the office from his house is

(1) 6 km (2) 9 km
(3) 12 km (4) 4 km

(SSC CGL Tier-II Exam.
2014 12.04.2015 (Kolkata Region)
TF No. 789 TH 7)

- 26.** A train runs at an average speed of 75 km/hr. If the distance to be covered is 1050 kms, how long will the train take to cover it ?

(1) 13 hrs (2) 12 hrs
(3) 15 hrs (4) 14 hrs

(SSC CGL Tier-I Exam, 16.08.2015
(1st Sitting) TF No. 3196279)

- 27.** A train travels 500 m in first minute. In the next 4 minutes, it travels in each minute 125 m more than that in the previous minute. The average speed per hour of the train during those 5 minutes will be

(1) 30 km/hr (2) 45 km/hr
(3) 50 km/hr (4) 55 km/hr
(SSC CGL Tier-I
Re-Exam, 30.08.2015)

- 28.** A man covers a total distance of 100 km on bicycle. For the first 2 hours, the speed was 20 km/ hr and for the rest of the journey, it came down to 10 km/hr. The average speed will be

(1) $12\frac{1}{2}$ km/hr
(2) 13 km/hr
(3) $15\frac{1}{8}$ km/hr
(4) 20 km/hr
(SSC CGL Tier-I (CBE)
Exam. 10.09.2016)

TIME AND DISTANCE

- 29.** When Alisha goes by car at 50 kmph, she reaches her office 5 minutes late. But when she takes her motorbike, she reaches 3 minutes early. If her office is 25 kms away, what is the approximate average speed at which she rides her motorbike ?
 (1) 68 kmph (2) 62 kmph
 (3) 58 kmph (4) 52 kmph
 (SSC CPO Exam. 06.06.2016)
 (1st Sitting)
- 30.** A man goes to a place on bicycle at speed of 16 km/hr and comes back at lower speed. If the average speed is 6.4 km/hr in total journey, then the return speed (in km/hr) is :
 (1) 10 (2) 8
 (3) 6 (4) 4
 (SSC CHSL (10+2) Tier-I (CBE) Exam. 08.09.2016) (1st Sitting)
- 31.** A car completed a journey of $400 \frac{3}{4}$ km in $12 \frac{1}{2}$ hrs. The first $\frac{3}{4}$ th of the journey was done at 30 km/hr. Calculate the speed for the rest of the journey.
 (1) 45 km/hr (2) 25 km/hr
 (3) 40 km/hr (4) 30 km/hr
 (SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 20.03.2016)
 (IIInd Sitting)
- 32.** Durga walks 5 km from her home to school in 60 minutes, then bicycles back to home along the same route at 15 km per hour. Her sister Smriti makes the same round trip, but does so at half of Durga's average speed. How much time does Smriti spend on her round trip ?
 (1) 120 minutes (2) 40 minutes
 (3) 160 minutes (4) 80 minutes
 (SSC CPO SI & ASI, Online Exam. 06.06.2016) (IIInd Sitting)
- 33.** Gautam travels 160 kms at 32 kmph and returns at 40 kmph. Then his average speed is
 (1) 72 kmph (2) 71.11 kmph
 (3) 36 kmph (4) 35.55 kmph
 (SSC CGL Tier-I (CBE) Exam. 01.09.2016) (Ist Sitting)
- 34.** A car travels from A to B at the rate of 40 km/h and returns from B to A at the rate of 60 km/h. Its average speed during the whole journey is
 (1) 48 km/h (2) 50 km/h
 (3) 45 km/h (4) 60 km/h
 (SSC CGL Tier-II (CBE) Exam. 30.11.2016)
- 35.** A bus travels 150 km in 3 hours and then travels next 2 hours at 60 km/hr. Then the average speed of the bus will be
 (1) 55 km/hr (2) 54 km/hr
 (3) 50 km/hr (4) 60 km/hr
 (SSC CGL Tier-II (CBE) Exam. 30.11.2016)
- 36.** Gautam goes to office at a speed of 12 kmph and returns home at 10 kmph. His average speed is :
 (1) 11 kmph (2) 22 kmph
 (3) 10.9 kmph (4) 12.5 kmph
 (SSC CGL Tier-I (CBE) Exam. 30.08.2016) (IIInd Sitting)
- 37.** A man travels 50 km at speed 25 km/h and next 40 km at 20 km/h and thereafter travels 90 km at 15 km/h. His average speed is :
 (1) 18 kmph. (2) 25 kmph.
 (3) 20 kmph. (4) 15 kmph.
 (SSC CGL Tier-I (CBE) Exam. 31.08.2016) (IIInd Sitting)
- 38.** At an average of 80 km/hr Shatabdi Express reaches Ranchi from Kolkata in 7 hrs. The distance between Kolkata and Ranchi is
 (1) 560 km. (2) 506 km.
 (3) 560 m. (4) 650 m.
 (SSC CGL Tier-I (CBE) Exam. 09.09.2016) (IIInd Sitting)
- 39.** To cover a distance of 216 km in 3.2 hours, what should be the average speed of the car in metre/second?
 (1) 67.5 metre/second
 (2) 33.75 metre/second
 (3) 37.5 metre/second
 (4) 18.75 metre/second
 (SSC CHSL (10+2) Tier-I (CBE) Exam. 15.01.2017) (IIInd Sitting)
- 2.** The speed of A and B are in the ratio 3 : 4. A takes 20 minutes more than B to reach a destination. In what time does A reach the destination ?
 (1) $1 \frac{1}{3}$ hours (2) 2 hours
 (3) $2 \frac{2}{3}$ hours (4) $1 \frac{2}{3}$ hours
 (SSC CGL Prelim Exam. 04.02.2007)
 (First Sitting)
- 3.** The ratio of length of two trains is 5 : 3 and the ratio of their speed is 6 : 5. The ratio of time taken by them to cross a pole is
 (1) 5 : 6 (2) 11 : 8
 (3) 25 : 18 (4) 27 : 16
 (SSC CGL Prelim Exam. 04.02.2007)
 (Second Sitting)
- 4.** A train starts from A at 7 a.m. towards B with speed 50 km/h. Another train starts from B at 8 a.m. with speed 60 km/h towards A. Both of them meet at 10 a.m. at C. The ratio of the distance AC to BC is
 (1) 5 : 6 (2) 5 : 4
 (3) 6 : 5 (4) 4 : 5
 (SSC CGL Prelim Exam. 04.02.2007)
 (Second Sitting)
- 5.** Two trains started at the same time, one from A to B and the other from B to A. If they arrived at B and A respectively 4 hours and 9 hours after they passed each other, the ratio of the speed of the two trains was
 (1) 2 : 1 (2) 3 : 2
 (3) 4 : 3 (4) 5 : 4
 (SSC CGL Prelim Exam. 08.02.2004)
 (Ist Sitting) & (SSC CGL Prelim Exam. 27.07.2008) (First Sitting)
- 6.** The speed of two trains are in the ratio 6 : 7. If the second train runs 364 km in 4 hours, then the speed of first train is
 (1) 60 km/hr (2) 72 km/hr
 (3) 78 km/hr (4) 84 km/hr
 (SSC CPO S.I. Exam 12.12.2010 (Paper-I))
- 7.** A truck covers a distance of 550 metres in 1 minute whereas a bus covers a distance of 33 kms in 45 minutes. The ratio of their speed is :
 (1) 4 : 3 (2) 3 : 5
 (3) 3 : 4 (4) 50 : 3
 (SSC CGL Prelim Exam. 08.02.2004)
 (First Sitting)

TYPE-VII

- 1.** In covering a certain distance, the speed of A and B are in the ratio of 3 : 4. A takes 30 minutes more than B to reach the destination. The time taken by A to reach the destination is :

(1) 1 hour (2) $1 \frac{1}{2}$ hours

(3) 2 hours (4) $2 \frac{1}{2}$ hours

(SSC CGL Prelim Exam. 04.07.1999)
 (First Sitting)

TIME AND DISTANCE

- 8.** Three cars travelled distance in the ratio $1 : 2 : 3$. If the ratio of the time of travel is $3 : 2 : 1$, then the ratio of their speed is
 (1) $3 : 9 : 1$ (2) $1 : 3 : 9$
 (3) $1 : 2 : 4$ (4) $4 : 3 : 2$
 (SSC CPO S.I. Exam. 06.09.2009)
- 9.** A and B run a 5 km race on a round course of 400 m. If their speed are in the ratio $5 : 4$, the number of times, the winner passes the other, is
 (1) 1 (2) 2
 (3) 3 (4) 5
 (SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting))
- 10.** A cyclist, after cycling a distance of 70 km on the second day, finds that the ratio of distance covered by him on the first two days is $4 : 5$. If he travels a distance of 42 km. on the third day, then the ratio of distance travelled on the third day and the first day is :
 (1) $4 : 3$ (2) $3 : 2$
 (3) $3 : 4$ (4) $2 : 3$
 (SSC Multi-Tasking Staff Exam. 10.03.2013)
- 11.** A certain distance is covered by a cyclist at a certain speed. If a jogger covers half the distance in double the time, the ratio of the speed of the jogger to that of the cyclist is
 (1) $1 : 4$ (2) $4 : 1$
 (3) $1 : 2$ (4) $2 : 1$
 (SSC GL Tier-I Exam. 19.05.2013
 (1st Sitting) & (SSC Graduate Level
 Tier-II Exam. 29.09.2013))
- 12.** It takes 8 hours for a 600 km journey, if 120 km is done by train and the rest by car. It takes 20 minutes more if 200 km is done by train and the rest by car. The ratio of the speed of the train to that of the car is
 (1) $2 : 3$ (2) $3 : 2$
 (3) $3 : 4$ (4) $4 : 3$
 (SSC CGL Tier-I Exam. 19.10.2014
 TF No. 022 MH 3)
- 13.** It takes eight hours for a 600 km journey, if 120 km is done by train and the rest by car. It takes 20 minutes more, if 200 km is done by train and the rest by car. The ratio of the speed of the train to that of the car is :
 (1) $3 : 5$ (2) $3 : 4$
 (3) $4 : 3$ (4) $4 : 5$
 (SSC CGL Tier-I (CBE)
 Exam. 02.09.2016) (1st Sitting)
- 14.** A truck covers a distance of 550 metre in one minute where as a bus covers a distance of 33 km in $\frac{3}{4}$ hour. Then the ratio of their speeds is :
- (1) 1 : 3 (2) 2 : 3
 (3) 3 : 4 (4) 1 : 4
 (SSC CGL Tier-I (CBE)
 Exam. 03.09.2016 (IIInd Sitting))
- 15.** A car travels 80 km. in 2 hours and a train travels 180 km. in 3 hours. The ratio of the speed of the car to that of the train is :
 (1) $2 : 3$ (2) $3 : 2$
 (3) $3 : 4$ (4) $4 : 3$
 (SSC CGL Tier-I (CBE)
 Exam. 04.09.2016 (IIInd Sitting))
- 16.** The speeds of three cars are in the ratio of $1 : 3 : 5$. The ratio among the time taken by these cars to travel the same distance is
 (1) $3 : 5 : 15$ (2) $15 : 3 : 5$
 (3) $15 : 5 : 3$ (4) $5 : 3 : 1$
 (SSC Multi-Tasking Staff Exam. 30.04.2017)
- 5.** A constable follows a thief who is 200 m ahead of the constable. If the constable and the thief run at speed of 8 km/hour and 7 km/hour respectively, the constable would catch the thief in
 (1) 10 minutes (2) 12 minutes
 (3) 15 minutes (4) 20 minutes
 (SSC CPO S.I. Exam. 05.09.2004)
- 6.** Two trains are running with speed 30 km/hr and 58 km/hr in the same direction. A man in the slower train passes the faster train in 18 seconds. The length (in metres) of the faster train is :
 (1) 70 (2) 100
 (3) 128 (4) 140
 (SSC CPO S.I. Exam. 26.05.2005)
- 7.** Two trains travel in the same direction at the speed of 56 km/h and 29 km/h respectively. The faster train passes a man in the slower train in 10 seconds. The length of the faster train (in metres) is
 (1) 100 (2) 80
 (3) 75 (4) 120
 (SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting))
- 8.** A bus moving at a speed of 45 km/hr overtakes a truck 150 metres ahead going in the same direction in 30 seconds. The speed of the truck is
 (1) 27 km/hr (2) 24 km/hr
 (3) 25 km/hr (4) 28 km/hr
 (SSC Data Entry Operator Exam. 31.08.2008)
- 9.** Two trains of equal length are running on parallel lines in the same direction at 46 km/h and 36 km/h. The faster train passes, the slower train in 36 seconds. The length of each train is :
 (1) 82 m (2) 50 m
 (3) 80 m (4) 72 m
 (SSC CHSL DEO & LDC Exam.
 21.10.2012 (IIInd Sitting))
- 10.** Two trains start from a certain place on two parallel tracks in the same direction. The speed of the trains are 45 km/hr and 40 km/hr respectively. The distance between the two trains after 45 minutes will be
 (1) 2 km 500 m (2) 2 km 750 m
 (3) 3 km 750 m (4) 3 km 250 m
 (SSC Assistant Grade-III Exam. 11.11.2012 (IIInd Sitting))

TIME AND DISTANCE

TIME AND DISTANCE

26. Two trains start from a certain place on two parallel tracks in the same direction. The speed of the trains are 45 km/hr. and 40 km/hr respectively. The distance between the two trains after 45 minutes will be

- (1) 2.5 km. (2) 2.75 km.
(3) 3.7 km. (4) 3.75 km.

(SSC CGL Tier-I (CBE) Exam. 02.09.2016) (IInd Sitting)

27. A thief is stopped by a policeman from a distance of 400 metres. When the policeman starts the chase, the thief also starts running. Assuming the speed of the thief as 5 km/h and that of policeman as 9 km/h, how far the thief would have run, before he is overtaken by the policeman?

- (1) 400 metre (2) 600 metre
(3) 500 metre (4) 300 metre

(SSC CHSL (10+2) Tier-I (CBE) Exam. 16.01.2017) (IInd Sitting)

28. Two trains of equal length are running on parallel lines in the same direction at 46 km/hour and 36 km/hour. The faster train passes the slower train in 36 seconds. The length of each train is

- (1) 72 m (2) 80 m
(3) 82 m (4) 50 m

(SSC Multi-Tasking Staff Exam. 30.04.2017)

TYPE-IX

1. If a man walks 20 km at 5 km/hr, he will be late by 40 minutes. If he walks at 8 km/hr, how early from the fixed time will he reach?

- (1) 15 minutes (2) 25 minutes
(3) 50 minutes (4) $1\frac{1}{2}$ hours

(SSC CGL Prelim Exam. 04.07.1999) (First Sitting)

2. If a man reduces his speed to 2/3, he takes 1 hour more in walking a certain distance. The time (in hours) to cover the distance with his normal speed is :

- (1) 2 (2) 1
(3) 3 (4) 1.5

(SSC CGL Prelim Exam. 27.02.2000) (First Sitting)

3. A student rides on bicycle at 8 km/hour and reaches his school 2.5 minutes late. The next day he increases his speed to 10 km/hour and reaches school 5 minutes early. How far is the school from his house?

- (1) $\frac{5}{8}$ km (2) 8 km
(3) 5 km (4) 10 km

(SSC CPO S.I. Exam. 12.01.2003)

4. A man covered a certain distance at some speed. Had he moved 3 km per hour faster, he would have taken 40 minutes less. If he had moved 2 km per hour slower, he would have taken 40 minutes more. The distance (in km) is :

- (1) 20 (2) 35
(3) $36\frac{2}{3}$ (4) 40

(SSC CGL Prelim Exam. 11.05.2003) (First Sitting)

5. If a train runs at 40 km/hour, it reaches its destination late by 11 minutes. But if it runs at 50 km/hour, it is late by 5 minutes only. The correct time (in minutes) for the train to complete the journey is

- (1) 13 (2) 15
(3) 19 (4) 21

FCI Assistant Grade-III Exam. 25.02.2012 (Paper-I)

North Zone (Ist Sitting)

6. A student walks from his house

at a speed of $2\frac{1}{2}$ km per hour and reaches his school 6 minutes late. The next day he increases his speed by 1 km per hour and reaches 6 minutes before school time. How far is the school from his house?

- (1) $\frac{5}{4}$ km (2) $\frac{7}{4}$ km
(3) $\frac{9}{4}$ km (4) $\frac{11}{4}$ km

(SSC CGL Prelim Exam. 08.02.2004) (Ist Sitting) & (SSC CGL Prelim Exam. 04.02.2007 (First Sitting))

7. A boy is late by 9 minutes if he walks to school at a speed of 4 km/hour. If he walks at the rate of 5 km/hour, he arrives 9 minutes early. The distance to his school is

- (1) 9 km (2) 5 km
(3) 4 km (4) 6 km

(SSC CPO S.I. Exam. 06.09.2009)

8. A car can cover a certain distance in $4\frac{1}{2}$ hours. If the speed is increased by 5 km/hour, it would

take $\frac{1}{2}$ hour less to cover the same distance. Find the slower speed of the car.

- (1) 50 km/hour (2) 40 km/hour
(3) 45 km/hour (4) 60 km/hour

(SSC CPO S.I. Exam. 06.09.2009)

9. Shri X goes to his office by scooter at a speed of 30 km/h and reaches 6 minutes earlier. If he goes at a speed of 24 km/h, he reaches 5 minutes late. The distance of his office is

- (1) 20 km (2) 21 km
(3) 22 km (4) 24 km

(SSC CGL Tier-1 Exam 19.06.2011) (First Sitting)

10. Walking at 5 km/hr a student reaches his school from his house 15 minutes early and walking at 3 km/hr he is late by 9 minutes. What is the distance between his school and his house?

- (1) 5 km (2) 8 km
(3) 3 km (4) 2 km

(SSC CGL Tier-1 Exam 19.06.2011) (Second Sitting)

11. A student goes to school at the rate of $2\frac{1}{2}$ km/h and reaches 6 minutes late. If he travels at the speed of 3 km/h, he is 10 minutes early. The distance (in km) between the school and his house is

- (1) 5 (2) 4
(3) 3 (4) 1

(SSC CGL Tier-1 Exam. 26.06.2011) (First Sitting)

12. When a person cycled at 10 km per hour he arrived at his office 6 minutes late. He arrived 6 minutes early, when he increased his speed by 2 km per hour. The distance of his office from the starting place is

- (1) 6 km (2) 7 km
(3) 12 km (4) 16 km

(SSC Multi-Tasking (Non-Technical) Staff Exam. 27.02.2011)

13. A train covers a distance between station A and station B in 45 minutes. If the speed of the train is reduced by 5 km/hr, then the same distance is covered in 48 minutes. The distance between station A and B is

- (1) 60 km (2) 64 km
(3) 80 km (4) 55 km

(SSC Graduate Level Tier-II Exam. 16.09.2012)

TIME AND DISTANCE

- 14.** A train covers a distance of 10 km in 12 minutes. If its speed is decreased by 5 km/hr, the time taken by it to cover the same distance will be :

- (1) 10 minutes
- (2) 13 minutes 20 sec
- (3) 13 minutes
- (4) 11 minutes 20 sec

(SSC CHSL DEO & LDC Exam.
21.10.2012 (IInd Sitting)

- 15.** Walking at a speed of 5 km/hr, a man reaches his office 6 minutes late. Walking at 6 km/hr, he reaches there 2 minutes early. The distance of his office is

- (1) 3 km (2) 4 km
- (3) 3.5 km (4) 2 km

(SSC Multi-Tasking Staff
Exam. 17.03.2013, IInd Sitting)

- 16.** If a boy walks from his house to school at the rate of 4 km per hour, he reaches the school 10 minutes earlier than the scheduled time. However, if he walks at the rate of 3 km per hour, he reaches 10 minutes late. Find the distance of his school from his house.

- (1) 5 km (2) 4 km
- (3) 6 km (4) 4.5 km

(SSC Graduate Level Tier-II
Exam. 29.09.2013)

- 17.** A train travelling at a speed of 55 km/hr travels from place X to place Y in 4 hours. If its speed is increased by 5 km/hr., then the time of journey is reduced by

- (1) 25 minutes (2) 35 minutes
- (3) 20 minutes (4) 30 minutes

(SSC CGL Tier-I Exam. 26.10.2014)

- 18.** If a train runs at 70 km/hour, it reaches its destination late by 12 minutes. But if it runs at 80 km/hour, it is late by 3 minutes. The correct time to cover the journey is

- (1) 58 minutes (2) 2 hours
- (3) 1 hour (4) 59 minutes

(SSC CGL Tier-I Exam. 19.10.2014
TF No. 022 MH 3)

TYPE-X

- 1.** A train passes a 50 metres long platform in 14 seconds and a man standing on the platform in 10 seconds. The speed of the train is :

- (1) 24 km/hr (2) 36 km/hr
 - (3) 40 km/hr (4) 45 km/hr
- (SSC CGL Prelim Exam. 27.02.2000
(Second Sitting))

- 2.** A train passes a man standing on a platform in 8 seconds and also crosses the platform which is 264 metres long in 20 seconds. The length of the train (in metres) is :

- (1) 188 (2) 176
 - (3) 175 (4) 96
- (SSC CGL Prelim Exam. 24.02.2002
(IInd Sitting) & (SSC CGL Prelim
Exam. 13.11.2005))

- 3.** A train moves past a telegraph post and a bridge 264 m long in 8 seconds and 20 seconds respectively. What is the speed of the train ?

- (1) 69.5 km/hr (2) 70 km/hr
 - (3) 79 km/hr (4) 79.2 km/hr
- (SSC CGL Prelim Exam. 08.02.2004
(Second Sitting))

- 4.** A person standing on a railway platform noticed that a train took 21 seconds to completely pass through the platform which was 84 m long and it took 9 seconds in passing him. The speed of the train was

- (1) 25.2 km/hour
- (2) 32.4 km/hour
- (3) 50.4 km/hour
- (4) 75.6 km/hour

(SSC CPO S.I. Exam. 05.09.2004)

- 5.** A moving train passes a platform 50 metres long in 14 seconds and a lamp-post in 10 seconds. The speed of the train is

- (1) 24 km/hr. (2) 36 km/hr.
- (3) 40 km/hr. (4) 45 km/hr.

(SSC CPO S.I. Exam. 07.09.2003)

- 6.** A train passes a platform 90 metre long in 30 seconds and a man standing on the platform in 15 seconds. The speed of the train is :

- (1) 12.4 kmph (2) 14.6 kmph
- (3) 18.4 kmph (4) 21.6 kmph

(SSC CPO S.I. Exam. 16.12.2007)

- 7.** A moving train crosses a man standing on a platform and a bridge 300 metres long in 10 seconds and 25 seconds respectively. What will be the time taken by the train to cross a platform 200 metres long ?

- (1) $16\frac{2}{3}$ seconds
- (2) 18 seconds

(3) 20 seconds (4) 22 seconds
(SSC CGL Prelim Exam. 27.07.2008
(First Sitting))

- 8.** A train passes a platform 110 m long in 40 seconds and a boy standing on the platform in 30 seconds. The length of the train is

- (1) 100 m (2) 110 m
- (3) 220 m (4) 330 m

(SSC CPO S.I. Exam. 09.11.2008)

- 9.** A train crosses a pole in 15 seconds and a platform 100 metres long in 25 seconds. Its length (in metres) is

- (1) 50 (2) 100
- (3) 150 (4) 200

(SSC (South Zone) Investigator
Exam 12.09.2010)

- 10.** Points 'A' and 'B' are 70 km apart on a highway. A car starts from 'A' and another from 'B' at the same time. If they travel in the same direction, they meet in 7 hours, but if they travel towards each-other, they meet in one hour. Find the speed of the two cars (in km/hr).

- (1) 20, 30 (2) 40, 30
- (3) 30, 50 (4) 20, 40

(SSC Delhi Police S.I. (SI)
Exam. 19.08.2012)

- 11.** Two trains 100 metres and 95 metres long respectively pass each other in 27 seconds when they run in the same direction and in 9 seconds when they run in opposite directions. Speed of the two trains are

- (1) 44 km/hr, 22 km/hr
- (2) 52 km/hr, 26 km/hr
- (3) 36 km/hr, 18 km/hr
- (4) 40 km/hr, 20 km/hr

(SSC Multi-Tasking Staff
Exam. 17.03.2013, Ist Sitting)

TIME AND DISTANCE

- 12.** A train passes by a lamp post on a platform in 7 sec. and passes by the platform completely in 28 sec. If the length of the platform is 390 m, then length of the train (in metres) is

(1) 120 (2) 130
 (3) 140 (4) 150

(SSC Multi-Tasking Staff Exam. 24.03.2013, 1st Sitting)

- 13.** A train moving at a rate of 36 km/hr. crosses a standing man in 10 seconds. It will cross a platform 55 metres long, in :

(1) 6 seconds
 (2) 7 seconds

(3) $15\frac{1}{2}$ seconds
 (4) $5\frac{1}{2}$ seconds

(SSC Graduate Level Tier-I Exam. 21.04.2013, 1st Sitting)

- 14.** A train crosses a platform in 30 seconds travelling with a speed of 60 km/h. If the length of the train be 200 metres, then the length (in metres) of the platform is

(1) 400 (2) 300
 (3) 200 (4) 500

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

- 15.** A train leaves a station A at 7 am and reaches another station B at 11 am. Another train leaves B at 8 am and reaches A at 11.30 am. The two trains cross one another at

(1) 8:36 am (2) 8:56 am
 (3) 9:00 am (4) 9:24 am

(SSC CGL Tier-I Exam. 19.10.2014)

- 16.** The time for a train of length 110 metre running at the speed of 72 km/hr to cross a bridge of length 132 metre is

(1) 9.8 seconds
 (2) 12.1 seconds
 (3) 12.42 seconds
 (4) 14.3 seconds

(SSC CGL Tier-I (CBE) Exam. 03.09.2016 (IIInd Sitting))

- 17.** A train 110 metre long is running with a speed of 60 kmph. In what time will it pass a man who is running at 6 kmph in the direction opposite to that in which the train is going?

(1) 5 seconds (2) 6 seconds
 (3) 7 seconds (4) 10 seconds

(SSC CGL Tier-I (CBE) Exam. 06.09.2016 (IIInd Sitting))

TYPE-XI

- 1.** In a one-kilometre race A, B and C are the three participants. A can give B a start of 50 m. and C a start of 69 m. The start, which B can allow C is

(1) 17 m. (2) 20 m.
 (3) 19 m. (4) 18 m.

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006 (Second Sitting))

- 2.** A runs twice as fast as B and B runs thrice as fast as C. The distance covered by C in 72 minutes, will be covered by A in :

(1) 18 minutes (2) 24 minutes
 (3) 16 minutes (4) 12 minutes

(SSC CPO S.I. Exam. 16.12.2007)

- 3.** In a race of one kilometre, A gives B a start of 100 metres and still wins by 20 seconds. But if A gives B a start of 25 seconds, B wins by 50 metres. The time taken by A to run one kilometre is

(1) 17 seconds
 (2) $\frac{500}{29}$ seconds
 (3) $\frac{1200}{29}$ seconds
 (4) $\frac{700}{29}$ seconds

(SSC CPO S.I. Exam. 09.11.2008)

- 4.** In a 100m race, Kamal defeats Bimal by 5 seconds. If the speed of Kamal is 18 Kmph, then the speed of Bimal is

(1) 15.4 kmph (2) 14.5 kmph
 (3) 14.4 kmph (4) 14 kmph

(SSC CGL Tier-I Exam. 16.05.2010 (Second Sitting))

- 5.** In a race of 1000 m, A can beat B by 100m. In a race of 400 m, B beats C by 40m. In a race of 500m. A will beat C by

(1) 95 m (2) 50 m
 (3) 45 m (4) 60 m

(SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (Second Sitting))

- 6.** In a race of 800 metres, A can beat B by 40 metres. In a race of 500 metres, B can beat C by 5 metres. In a race of 200 metres, A will beat C by

(1) 11.9 metre (2) 1.19 metre
 (3) 12.7 metre (4) 1.27 metre

(SSC CPO S.I. Exam. 16.12.2007)

- 7.** In a race of 200 metres, B can give a start of 10 metres to A, and C can give a start of 20 metres to B. The start that C can give to A, in the same race, is

(1) 30 metres (2) 25 metres
 (3) 29 metres (4) 27 metres

(SSC CPO S.I. Exam. 16.12.2007)

- 8.** A can give 40 metres start to B and 70 metres to C in a race of one kilometre How many metres start can B give to C in a race of one kilometre ?

(1) 30 metre (2) $31\frac{1}{4}$ metre

(3) $31\frac{3}{4}$ metre (4) 32 metre

(SSC CPO S.I. Exam. 09.11.2008)

- 9.** A jeep is chasing a car which is 5km ahead. Their respective speed are 90 km/hr and 75 km/hr. After how many minutes will the jeep catch the car ?

(1) 18 min. (2) 20 min.
 (3) 24 min. (4) 25 min.

(SSC Data Entry Operator Exam. 02.08.2009)

- 10.** A is twice as fast as B, and B is thrice as fast as C is. The journey covered by C in $1\frac{1}{2}$ hours

will be covered by A in

(1) 15 minutes (2) 30 minutes
 (3) 1 hour (4) 10 minutes

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region TF No. 789 TH 7))

- 11.** Walking at the rate of 4 kmph a man covers certain distance in 2 hrs 45 min. Running at a speed of 16.5 kmph the man will cover the same distance in how many minutes ?

(1) 50 min. (2) 35 min.
 (3) 40 min. (4) 45 min.

(SSC CGL Tier-I Exam, 09.08.2015 (1st Sitting) TF No. 1443088)

- 12.** Sarthak completed a marathon in 4 hours and 35 minutes. The marathon consisted of a 10 km run followed by 20 km cycle ride and the remaining distance again a run. He ran the first stage at 6 km/hr and then cycled at 16 km/hr. How much distance did Sarthak cover in total, if his speed in the last run was just half that of his first run?

(1) 5 km. (2) 35 km.
 (3) 40 km. (4) 45 km.

(SSC CPO SI, ASI Online Exam.05.06.2016) (IIInd Sitting))

TIME AND DISTANCE

- 13.** Walking at $\frac{3}{4}$ of his usual speed, a man reaches his office 20 minutes late. Then his usual time for walking to his office is :
- 1 hour
 - 30 minutes
 - 45 minutes
 - 40 minutes
- (SSC CPO SI & ASI, Online Exam. 06.06.2016) (IInd Sitting)
- 14.** A is faster than B. A and B each walk 24 km. The sum of their speeds is 7 km/hr and the sum of times taken by them is 14 hours. Then A's speed is equal to:
- 3 km/hr.
 - 4 km/hr.
 - 5 km/hr.
 - 7 km/hr.
- (SSC CGL Tier-I (CBE) Exam. 27.08.2016) (IInd Sitting)
- 15.** Two persons ride towards each other from two places 55 km apart, one riding at 12km/hr and the other at 10 km/hr. In what time will they be 11 km apart?
- 2 hours and 30 minutes
 - 1 hour and 30 minutes
 - 2 hours
 - 2 hours and 45 minutes
- (SSC CGL Tier-I (CBE) Exam. 02.09.2016) (IInd Sitting)
- 16.** A and B start running at the same time and from the same point around a circle. If A can complete one round in 40 seconds and B in 50 seconds, how many seconds will they take to reach the starting point simultaneously?
- 10
 - 200
 - 90
 - 2000
- (SSC CGL Tier-I (CBE) Exam. 28.08.2016 (IST Sitting))
- 17.** Rubi goes to a multiplex at the speed of 3 km/hr to see a movie and reaches 5 minutes late. If she travels at the speed of 4 km/hr she reaches 5 minutes early. Then the distance of the multiplex from her starting point is
- 2 km.
 - 5 km.
 - 2 metre
 - 5 metre
- (SSC CGL Tier-II (CBE) Exam. 12.01.2017)
- TYPE-XII**
- 1.** I walk a certain distance and ride back taking a total time of 37 minutes. I could walk both ways in 55 minutes. How long would it take me to ride both ways?
- 9.5 minutes
 - 19 minutes
 - 18 minutes
 - 20 minutes
- (SSC CGL Prelim Exam. 27.02.2000) (First Sitting)
- 2.** A and B start at the same time with speed of 40 km/hr and 50 km/hr respectively. If in covering the journey A takes 15 minutes longer than B, the total distance of the journey is :
- 46 km
 - 48 km
 - 50 km
 - 52 km
- (SSC CGL Prelim Exam. 27.02.2000) (Second Sitting)
- 3.** A man can reach a certain place in 30 hours. If he reduces his speed by $\frac{1}{15}$ th, he goes 10 km less in that time. Find his speed per hour.
- 6 km/hr
 - $5\frac{1}{2}$ km/hr
 - 4 km/hr
 - 5 km/hr
- (SSC CGL Prelim Exam. 24.02.2002) (Second Sitting)
- 4.** A, B and C start at the same time in the same direction to run around a circular stadium. A completes a round in 252 seconds, B in 308 seconds and C in 198 seconds, all starting at the same point. After what time will they next meet at the starting point again ?
- 46 minutes 12 seconds
 - 45 minutes
 - 42 minutes 36 seconds
 - 46 minutes 18 seconds
- (SSC CGL Prelim Exam. 11.05.2003) (First Sitting)
- 5.** A man walks a certain distance and rides back in 4 hours 30 minutes. He could ride both ways in 3 hours. The time required by the man to walk both ways is
- 4 hours 30 minutes
 - 4 hours 45 minutes
 - 5 hours
 - 6 hours
- (SSC CPO S.I. Exam. 07.09.2003)
- 6.** A person, who can walk down a hill at the rate of $4\frac{1}{2}$ km/hour and up the hill at the rate of 3 km/hour, ascends and comes down to his starting point in 5 hours. How far did he ascend ?
- 13.5 km
 - 3 km
 - 15 km
 - 9 km
- (SSC CPO S.I. Exam. 05.09.2004)
- 7.** A walks at a uniform rate of 4 km an hour; and 4 hours after his start, B bicycles after him at the uniform rate of 10 km an hour. How far from the starting point will B catch A ?
- 16.7 km
 - 18.6 km
 - 21.5 km
 - 26.7 km
- (SSC CPO S.I. Exam. 26.05.2005)
- 8.** A car completes a journey in 10 hours. If it covers half of the journey at 40 kmph and the remaining half at 60 kmph, the distance covered by car is
- 400 km
 - 480 km
 - 380 km
 - 300 km
- (SSC Section Officer (Commercial Audit) Exam. 25.09.2005)
- 9.** A and B run a kilometre and A wins by 25 sec. A and C run a kilometre and A wins by 275 m. When B and C run the same distance, B wins by 30 sec. The time taken by A to run a kilometre is
- 2 min 25 sec
 - 2 min 50 sec
 - 3 min 20 sec
 - 3 min 30 sec
- (SSC CGL Prelim Exam. 13.11.2005) (Second Sitting)
- 10.** Two cars start at the same time from one point and move along two roads at right angles to each other. Their speeds are 36 km/hour and 48 km/hour respectively. After 15 seconds the distance between them will be
- 400 m
 - 150 m
 - 300 m
 - 250 m
- (SSC CPO S.I. Exam. 03.09.2006)
- 11.** In a kilometre race, A beats B by 30 seconds and B beats C by 15 seconds. If A beats C by 180 metres, the time taken by A to run 1 kilometre is
- 250 seconds
 - 205 seconds
 - 200 seconds
 - 210 seconds
- (SSC CPO S.I. Exam. 03.09.2006)
- 12.** Two guns are fired from the same place at an interval of 6 minutes. A person approaching the place observes that 5 minutes 52 seconds have elapsed between the hearing of the sound of the two guns. If the velocity of the sound is 330 m/sec, the man was approaching that place at what speed (in km/hr) ?
- 24
 - 27
 - 30
 - 36
- (SSC CGL Prelim Exam. 04.02.2007) (First Sitting)

TIME AND DISTANCE

- 13.** Ram arrives at a Bank 15 minutes earlier than scheduled time if he drives his car at 42 km/hr. If he drives car at 35 km/hr he arrives 5 minutes late. The distance of the Bank from his starting point is
 (1) 70 km (2) 210 km
 (3) 72 km (4) 60 km
 (SSC CGL Prelim Exam. 04.02.2007
 (Second Sitting)
- 14.** A and B started at the same time from the same place for a certain destination. B walking at $\frac{5}{6}$ of A's speed reached the destination 1 hour 15 minutes after A. B reached the destination in
 (1) 6 hours 45 minutes
 (2) 7 hours 15 minutes
 (3) 7 hours 30 minutes
 (4) 8 hours 15 minutes
 (SSC CGL Prelim Exam. 27.07.2008
 (First Sitting)
- 15.** In covering a distance of 30 km, Abhay takes 2 hours more than Sameer. If Abhay doubles his speed, then he would take 1 hour less than Sameer. Abhay's speed (in km/hr) is
 (1) 5 (2) 6
 (3) 6.25 (4) 7.5
 (SSC Constable (GD) & Rifleman (GD)
 Exam. 22.04.2012 (IInd Sitting)
- 16.** A man takes 6 hours 15 minutes in walking a distance and riding back to the starting place. He could walk both ways in 7 hours 45 minutes. The time taken by him to ride both ways, is
 (1) 4 hours
 (2) 4 hours 30 minutes
 (3) 4 hours 45 minutes
 (4) 5 hours
 (SSC CGL Prelim Exam. 27.07.2008
 (First Sitting)
- 17.** A man completed a certain journey by a car. If he covered 30% of the distance at the speed of 20km/hr, 60% of the distance at 40km/hr and the remaining distance at 10km/hr; his average speed for the whole journey was
 (1) 25 km/hr (2) 28 km/hr
 (3) 30 km/hr (4) 33 km/hr
 (SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting)
- 18.** From two places, 60 km apart, A and B start towards each other at the same time and meet each other after 6 hours. Had A travelled with $\frac{2}{3}$ of his speed and B travelled with double of his speed, they would have met after 5 hours. The speed of A is
 (1) 4 km/hr. (2) 6 km/hr.
 (3) 10 km/hr. (4) 12 km/hr.
 (SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting)
- 19.** P and Q are 27 km away. Two trains with speed of 24 km/hr and 18 km/hr respectively start simultaneously from P and Q and travel in the same direction. They meet at a point R beyond Q. Distance QR is
 (1) 126 km (2) 81 km
 (3) 48 km (4) 36 km
 (SSC Graduate Level Tier-II
 Exam. 16.09.2012)
- 20.** Ravi and Ajay start simultaneously from a place A towards B, 60 km apart. Ravi's speed is 4km/hr less than that of Ajay. Ajay, after reaching B, turns back and meets Ravi at a place 12 km away from B. Ravi's speed is
 (1) 12 km/hr (2) 10 km/hr
 (3) 8 km/hr (4) 6 km/hr
 (SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting)
- 21.** A man travelled a distance of 61 km in 9 hours, partly on foot at the rate of 4 km/hr and partly on bicycle at the rate of 9 km/hr. The distance travelled on foot was
 (1) 12 km (2) 16 km
 (3) 20 km (4) 24 km
 (SSC (South Zone) Investigator
 Exam 12.09.2010)
- 22.** If I walk at 5 km/hour, I miss a train by 7 minutes. If, however, I walk at 6 km/hour, I reach the station 5 minutes before the departure of the train. The distance (in km) between my house and the station is
 (1) 6 (2) 5
 (3) 4 (4) 3
 (SSC CGL Tier-1 Exam. 26.06.2011
 (Second Sitting)
- 23.** A man has to be at a certain place at a certain time. He finds that he shall be 20 minutes late if he walks at 3 km/hour speed and 10 minutes earlier if he walks at a speed of 4 km/hour. The distance he has to walk is
 (1) 24 km (2) 12.5 km
 (3) 10 km (4) 6 km
 (SSC CPO (SI, ASI & Intelligence Officer)
 Exam 28.08.2011 (Paper-I)
- 24.** Ravi travels 300 km partly by train and partly by car. He takes 4 hours to reach, if he travels 60 km by train and rest by car. He will take 10 minutes more if he were to travel 100 km by train and rest by car. The speed of the train is :
 (1) 50 km/hr (2) 60 km/hr
 (3) 100 km/hr (4) 120 km/hr
 FCI Assistant Grade-III
 Exam. 05.02.2012 (Paper-I)
 East Zone (IInd Sitting)
- 25.** A is twice as fast runner as B, and B is thrice as fast runner as C. If C travelled a distance in 1 hour 54 minutes, the time taken by B to cover the same distance is
 (1) 19 minutes (2) 38 minutes
 (3) 51 minutes (4) 57 minutes
 (SSC SAS Exam. 26.06.2010
 (Paper-1)
- 26.** Two trains, A and B, start from stations X and Y towards Y and X respectively. After passing each other, they take 4 hours 48 minutes and 3 hours 20 minutes to reach Y and X respectively. If train A is moving at 45 km/hr., then the speed of the train B is
 (1) 60 km/hr (2) 64.8 km/hr
 (3) 54 km/hr (4) 37.5 km/hr
 (SSC Graduate Level Tier-II
 Exam. 16.09.2012)
- 27.** Ram travelled 1200 km by air which formed $\frac{2}{5}$ of his trip. He travelled one-third of the trip by car and the rest by train. The distance (in km) travelled by train was
 (1) 480 (2) 800
 (3) 1600 (4) 1800
 (SSC Graduate Level Tier-I
 Exam. 21.04.2013 IInd Sitting)

TIME AND DISTANCE

- 28.** A, B, C walk 1 km in 5 minutes, 8 minutes and 10 minutes respectively. C starts walking from a point, at a certain time, B starts from the same point 1 minutes later and A starts from the same point 2 minutes later than C. Then A meets B and C after

- (1) $\frac{5}{3}$ min, 2 min
 (2) 1 min, 2 min
 (3) 2 min, 3 min
 (4) $\frac{4}{3}$ min, 3 min

(SSC Graduate Level Tier-I Exam. 21.04.2013)

- 29.** Two cars are moving with speed v_1 , v_2 towards a crossing along two roads. If their distance from the crossing be 40 metres and 50 metres at an instant of time then they do not collide if their speed are such that

- (1) $v_1 : v_2 = 16 : 25$
 (2) $v_1 : v_2 \neq 4 : 5$
 (3) $v_1 : v_2 \neq 5 : 4$
 (4) $v_1 : v_2 = 25 : 16$

(SSC Graduate Level Tier-I Exam. 19.05.2013 1st Sitting)

- 30.** The distance between place A and B is 999 km. An express train leaves place A at 6 am and runs at a speed of 55.5 km/hr. The train stops on the way for 1 hour 20 minutes. It reaches B at

- (1) 1.20 am (2) 12 pm
 (3) 6 pm (4) 11 pm

(SSC Graduate Level Tier-II Exam. 29.09.2013)

- 31.** A speed of 45 km per hour is the same as

- (1) 12.5 metre/second
 (2) 13 metre/second
 (3) 15 metre/second
 (4) 12 metre/second

(SSC CGL Tier-I Exam. 26.10.2014)

- 32.** If a distance of 50 m is covered in 1 minute, that 90 m in 2 minutes and 130 m in 3 minutes find the distance covered in 15 minutes.

- (1) 610 m (2) 750 m
 (3) 1000 m (4) 650 m

(SSC CGL Tier-II Exam. 21.09.2014)

- 33.** A train leaves station A at 5 AM and reaches station B at 9 AM on the same day. Another train leaves station B at 7 AM and reaches station A at 10:30 AM on the same day. The time at which the two trains cross each other is :

- (1) 8 : 26 AM (2) 7: 36 AM
 (3) 7: 56 AM (4) 8 AM
 (SSC CGL Tier-I Exam. 16.08.2015 (IIInd Sitting) TF No. 2176783)

- 34.** A plane can cover 6000 km in 8 hours. If the speed is increased by 250 kmph, then the time taken by the plane to cover 9000 km is

- (1) 8 hours (2) 6 hours
 (3) 5 hours (4) 9 hours
 (SSC Constable (GD) Exam. 04.10.2015, 1st Sitting)

- 35.** A man travels 450 km to his home partly by train and partly by car. He takes 8 hours 40 minutes if he travels 240 km by train and rest by car. He takes 20 minutes more if he travels 180 km by train and the rest by car. The speed of the car in km/hr is

- (1) 45 (2) 50
 (3) 60 (4) 48

(SSC CGL Tier-II Online Exam.01.12.2016)

- 36.** Two rifles are fired from the same place at a difference of 11 min. 45 seconds. But a man who is coming towards the same place in a train hears the second sound after 11 minutes. Find the speed of the train (Assuming speed of sound = 330 m/s).

- (1) 72 km/h (2) 36 km/h
 (3) 81 km/h (4) 108 km/h
 (SSC CGL Tier-I (CBE) Exam. 27.08.2016) (IIInd Sitting)

- 37.** A man can cover a certain distance in 3 hours 36 minutes if he walks at the rate of 5 km/hr. If he covers the same distance on cycle at the rate of 24 km/hr, then the time taken by him in minutes is

- (1) 40 (2) 45
 (3) 50 (4) 55

(SSC CGL Tier-II (CBE) Exam. 30.11.2016)

- 38.** Due to inclement weather, an air plane reduced its speed by 300 km/hr, and reached the destination of 1200 km late by 2hrs. Then the schedule duration of the flight was

- (1) 1 hour (2) 1.5 hours
 (3) 2 hours (4) 2.5 hours
 (SSC CGL Tier-II (CBE) Exam. 30.11.2016)

- 39.** A motor cycle gives an average of 45 km per litre. If the cost of petrol is Rs. 20 per litre, the amount required to complete a journey of 540 km is, (in Rupees)

- (1) 120 (2) 360
 (3) 200 (4) 240
 (SSC CGL Tier-I (CBE) Exam. 06.09.2016 (IIIrd Sitting))

- 40.** Ravi has a roadmap with a scale of 1.5 cm for 18 km. He drives on that road for 72 km. What would be his distance covered in that map?

- (1) 4 cm (2) 6 cm
 (3) 8 cm (4) 7 cm
 (SSC CGL Tier-I (CBE) Exam. 02.09.2016 (IIInd Sitting))

- 41.** A farmer travelled a distance of 61 km in 9 hours. He travelled partly on foot at a speed of 4 km/hour and partly on bicycle at a speed of 9 km/hour. The distance travelled on foot is :

- (1) 14 km. (2) 16 km.
 (3) 20 km. (4) 18 km.
 (SSC CGL Tier-I (CBE) Exam. 03.09.2016 (IIInd Sitting))

- 42.** A man travelled a distance of 61 km. in 9 hours, partly by walking at the speed of 4 km./hr. and partly on bicycle at the speed of 9 km./hr. The distance covered by walking is

- (1) 16 km. (2) 12 km.
 (3) 15 km. (4) 17 km.
 (SSC CGL Tier-I (CBE) Exam. 11.09.2016 (IIInd Sitting))

- 43.** Sound travels 330 metre in a second. When the sound follows the flash of lightning after 10 seconds the thunder cloud will be at a distance of :

- (1) 1300 metre (2) 2000 metre
 (3) 3650 metre (4) 3300 metre
 (SSC CGL Tier-I (CBE) Exam. 27.10.2016 (Ist Sitting))

- 44.** A man travels for 14 hours 40 minutes. He covers half of the journey by train at the rate of 60 km/hr and rest half by road at the rate of 50 km/hr. The distance travelled by him is :

- (1) 720 km (2) 800 km
 (3) 960 km (4) 1000 km
 (SSC CGL Tier-I (CBE) Exam. 27.10.2016 (Ist Sitting))

- 45.** Two donkeys are standing 400 metres apart. First donkey can run at a speed of 3 m/sec and the second can run at 2 m/sec. If two donkeys run towards each other after how much time (in seconds) will they bump into each other?

- (1) 60 (2) 80
 (3) 400 (4) 40
 (SSC CGL Tier-II (CBE) Exam. 12.01.2017)

Importance : 'Boats and Streams' questions are special type of 'Time & distance' questions but as there are special 'tricks' and 'methods' to solve these questions hence it is easy and convenient to study them in separate chapter. Questions from this chapter have been asked in different competitive examinations.

Scope of questions : Questions specifically based on still water, down stream and upstream conditions are asked to calculate speed of boat/current swimmer, time in crossing and distance between two places.

Way to success : Ensure that you have understood the concept of downstream and upstream and also got expertise in solving questions from different 'formulae' and 'rules'.

SOME POINTS

If the speed of certain swimmer (or boat or ship) in still water is v km/h and the speed of stream is u km/h., then

- (i) The speed of swimmer or boat or ship in the direction of stream (down stream) = $(u + v)$ km/h.
- (ii) The speed of swimmer or boat or ship in the opposite direction of stream (upstream)
 $= (v - u)$ km/h.

RULE 1 : If the speed of a swimmer/boat/ship in the direction of stream (downstream) is x km/h and in the opposite direction of stream (upstream) is y km/h, then,

$$(i) \text{ Speed of swimmer/boat/ship} = \frac{x+y}{2} \text{ km/h}$$

$$(ii) \text{ Speed of stream} = \frac{x-y}{2} \text{ km/h}$$

RULE 2 : Let the speed of boat is x km/h and speed of stream is y km/h. To travel d_1 km downstream and d_2 km upstream, the time taken is 't' hours, then

$$\frac{d_1}{x+y} + \frac{d_2}{x-y} = t$$

RULE 3 : Let the speed of stream be y km/h and speed of boat be x km/h. A boat travels equal distance upstream as well as down stream in 't' hours, then

$$\frac{d}{x+y} + \frac{d}{x-y} = t, d \text{ is the fixed distance or, } d = \frac{t(x^2 - y^2)}{2x}$$

RULE 4 : If a boat travels in downstream and upstream, then,

$$\text{Speed of boat} = \frac{\text{Sum of distances}}{2 \times \text{time}}$$

$$= \frac{d_1 + d_2}{2 \times \text{time}} \text{ and}$$

$$\text{Speed of stream} = \frac{\text{Difference of distances}}{2 \times \text{time}}$$

$$= \frac{d_1 - d_2}{2 \times \text{time}}$$

RULE 5 : A swimmer or a boat travels a certain distance upstream in t_1 hours, while it takes t_2 hours to travel same distance down stream, then,

$$\frac{\text{Speed of swimmer}}{\text{Speed of stream}} = \frac{t_1 + t_2}{t_1 - t_2}$$

RULE 6 : If a swimmer takes same time to travel d_1 km downstream and d_2 km upstream, then,

$$\frac{\text{Speed of swimmer or boat}}{\text{Speed of stream}} = \frac{d_1 + d_2}{d_1 - d_2}$$

RULE 7 : If a man or a boat covers x km distance in t_1 hours along the direction of stream (downstream) and covers the same distance in t_2 hours against the stream i.e. upstream, then

$$\text{speed of man/boat} = \frac{x}{2} \left(\frac{1}{t_1} + \frac{1}{t_2} \right) \text{ km/hr}$$

$$\text{speed of stream} = \frac{x}{2} \left(\frac{1}{t_1} - \frac{1}{t_2} \right) \text{ km/hr}$$

RULE 8 : If the speed of a boat or swimmer in still water is a km/hr and river is flowing with a speed of b km/hr, then average speed in going to a certain place and coming

back to starting point is given by = $\frac{(a+b)(a-b)}{a}$ km/hr



QUESTIONS ASKED IN PREVIOUS SSC EXAMS

TYPE-I

- 1.** A man rows a boat 18 kilometres in 4 hours downstream and returns upstream in 12 hours. The speed of the stream (in km per hour) is :
- (1) 1 (2) 1.5
 (3) 2 (4) 1.75
 (SSC CGL Prelim Exam. 11.05.2003
 (First Sitting) & (SSC Section Officer
 (Commercial Audit) Exam. 25.09.2005)
- 2.** A motorboat in still water travels at a speed of 36 kmph. It goes 56 km upstream in 1 hour 45 minutes. The time taken by it to cover the same distance down the stream will be :
- (1) 2 hours 25 minutes
 (2) 3 hours
 (3) 1 hour 24 minutes
 (4) 2 hours 21 minutes
 (SSC CPO S.I. Exam. 16.12.2007)
- 3.** A boat running downstream covers a distance of 20km in 2 hrs while it covers the same distance upstream in 5 hrs. Then speed of the boat in still water is
- (1) 7 km/hr (2) 8 km/hr
 (3) 9 km/hr (4) 10 km/hr
 (SSC CPO S.I. Exam. 06.09.2009)
- 4.** A boatman rows 1 km in 5 minutes, along the stream and 6 km in 1 hour against the stream. The speed of the stream is
- (1) 3 kmph (2) 6 kmph
 (3) 10 kmph (4) 12 kmph
 (SSC CGL Tier-I Exam. 16.05.2010
 (Second Sitting))
- 5.** A boat covers 24 km upstream and 36 km downstream in 6 hours, while it covers 36 km upstream and 24 km down-
- stream in $6\frac{1}{2}$ hours. The speed of the current is
- (1) 1 km/hr (2) 2 km/hr
 (3) 1.5 km/hr (4) 2.5 km/hr
 (SSC CPO S.I. Exam. 12.12.2010 (Paper-I))
- 6.** The speed of a boat in still water is 10 km/hr. It covers (upstream) a distance of 45 km in 6 hours. The speed (in km/hr) of the stream is

- (1) 2.5 (2) 3
 (3) 3.5 (4) 4
 (SSC CHSL DEO & LDC Exam.
 28.11.2010 (IIInd Sitting))
- 7.** A man rows 40 km upstream in 8 hours and a distance of 36 km downstream in 6 hours. Then speed of stream is
- (1) 0.5 km/hr (2) 1.5 km/hr
 (3) 1 km/hr (4) 3 km/hr
 (SSC CHSL DEO & LDC Exam.
 04.12.2011 (Ist Sitting (North Zone)))
- 8.** A boat travels 24 km upstream in 6 hours and 20 km downstream in 4 hours. Then the speed of boat in still water and the speed of water current are respectively
- (1) 4 kmph and 3 kmph
 (2) 4.5 kmph and 0.5 kmph
 (3) 4 kmph and 2 kmph
 (4) 5 kmph and 2 kmph
 (SSC CHSL DEO & LDC Exam.
 04.12.2011 (Ist Sitting (East Zone)))
- 9.** If a boat goes 100 km downstream in 10 hours and 75 km upstream in 15 hours, then the speed of the stream is
- (1) 2 km/hour (2) 2.5 km/hour
 (3) 3 km/hour (4) 3.5 km/hour
 (SSC CHSL DEO & LDC Exam.
 04.12.2011 (IIInd Sitting (East Zone)))
- 10.** A boat covers 12 km upstream and 18 km downstream in 3 hours, while it covers 36 km upstream and 24 km downstream
- in $6\frac{1}{2}$ hours. What is the speed of the current ?
- (1) 1.5 km/hr (2) 1 km/hr
 (3) 2 km/hr (4) 2.5 km/hr
 (SSC Graduate Level Tier-II
 Exam. 16.09.2012)
- 11.** A boy can swim in still water at a speed of 10 km/hr. If the speed of the current would have been 5 kmph, then the boy could swim 60km
- (1) upstream in 4 hour
 (2) downstream in 12 hours
 (3) upstream in 6 hours
 (4) downstream in 4 hours
 (SSC CHSL DEO & LDC Exam.
 28.10.2012, Ist Sitting))
- 12.** A man can swim at the rate of 4 km/hr in still water. If the speed of the water is 2 km/hr, then the time taken by him to swim 10 km upstream is
- (1) $2\frac{1}{2}$ hrs (2) $3\frac{1}{2}$ hrs
 (3) 5 hrs (4) 4 hrs
 (SSC CHSL DEO & LDC Exam.
 04.11.2012, IIInd Sitting))
- 13.** Speed of a boat along and against the current are 12 km/hr and 8 km/hr respectively. Then the speed of the current in km/hr is
- (1) 5 (2) 4
 (3) 3 (4) 2
 (SSC Multi-Tasking Staff Exam.
 17.03.2013 (Kolkata Region))
- 14.** A man can swim 3 km/hr. in still water. If the velocity of the stream is 2 km/hr., the time taken by him to swim to a place 10 km upstream and back is :
- (1) $9\frac{1}{3}$ hr. (2) 10 hr.
 (3) 12 hr. (4) $8\frac{1}{3}$ hr
 (SSC Graduate Level Tier-I
 Exam. 21.04.2013, Ist Sitting))
- 15.** A swimmer swims from a point A against a current for 5 minutes and then swims backwards in favour of the current for next 5 minutes and comes to the point B. If AB is 100 metres, the speed of the current (in km per hour) is :
- (1) 0.4 (2) 0.2
 (3) 1 (4) 0.6
 (SSC Graduate Level Tier-I
 Exam. 21.04.2013))
- 16.** A person can row a distance of one km upstream in ten minutes and downstream in four minutes. What is the speed of the stream ?
- (1) 4.5 km/h (2) 4 km/h
 (3) 9 km/h (4) 5.6 km/h
 (SSC Graduate Level Tier-I
 Exam. 19.05.2013 Ist Sitting))
- 17.** A boat goes 20 km downstream in one hour and the same distance upstream in two hours. The speed of the boat in still water is
- (1) 15 km/hr. (2) 10 km/hr.
 (3) 5 km/hr. (4) 7.5 km/hr.
 (SSC CPO S.I. Exam. 12.01.2003))

BOAT AND STREAM

- 18.** A man rows 750 m in 675 seconds against the stream and returns in $7\frac{1}{2}$ minutes. Find his rowing speed in still water.
 (1) 3 kmph (2) 4 kmph
 (3) 5 kmph (4) 6 kmph
 (SSC Section Officer (Commercial Audit) Exam. 16.11.2003)
- 19.** A boat goes 40 km upstream in 8 hours and 36 km downstream in 6 hours. The speed of the boat in still water is :
 (1) 6.5 km/hour (2) 5.5 km/hour
 (3) 6 km/hour (4) 5 km/hour
 (SSC CGL Prelim Exam. 08.02.2004 (Second Sitting))
- 20.** A boat goes 12 km downstream and comes back to the starting point in 3 hours. If the speed of the current is 3 km/hr, then the speed (in km/hr) of the boat in still water is
 (1) 12 (2) 9
 (3) 8 (4) 6
 (SSC CISF ASI Exam. 29.08.2010 (Paper-1))
- 21.** The speed of the current is 5 km/hour. A motorboat goes 10 km upstream and back again to the starting point in 50 minutes. The speed (in km/hour) of the motorboat in still water is
 (1) 20 (2) 26
 (3) 25 (4) 28
 (SSC CPO (SI, ASI & Intelligence Officer) Exam. 28.08.2011 (Paper-I))
- 22.** A man can row 15km/ hr downstream and 9 km/hr upstream. The speed of the boat in still water is
 (1) 8 km/hr. (2) 10 km/hr.
 (3) 15 km/hr. (4) 12 km/ hr.
 (SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))
- 23.** A sailor goes 12 km downstream in 48 minutes and returns in 1 hour 20 minutes. The speed of the sailor in still water is :
 (1) 12 km/hr (2) 12.5 km/ hr
 (3) 13 km/hr (4) 15 km/hr
 (SSC CHSL DEO & LDC Exam. 27.11.2010)
- 24.** The current of a stream runs at the rate of 4 km an hour. A boat goes 6 km and comes back to the starting point in 2 hours. The speed of the boat in still water is
 (1) 6 km/hour (2) 8 km/hour
 (3) 7.5 km/hour
 (4) 6.8 km/hour
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting (North Zone)))
- 25.** A man swims downstream a distance of 15 km in 1 hour. If the speed of the current is 5 km/hour, the time taken by the man to swim the same distance upstream is
 (1) 1 hour 30 minutes
 (2) 45 minutes
 (3) 2 hours 30 minutes
 (4) 3 hours
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (East Zone)))
- 26.** The speed of a stream is 3 km/hr. and the speed of a man in still water is 5 km/hr. The time taken by the man to swim 26 km downstream is :
 (1) $8\frac{2}{3}$ hrs. (2) $3\frac{1}{4}$ hrs.
 (3) 13 hrs. (4) $5\frac{1}{5}$ hrs.
 (SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting))
- 27.** A man rows down a river 15 km in 3 hrs. with the stream and returns in $7\frac{1}{2}$ hrs. The rate at which he rows in still water is
 (1) 2.5 km/hr (2) 1.5 km/hr
 (3) 3.5 km/hr (4) 4.5 km/hr
 (SSC Graduate Level Tier-I Exam. 21.04.2013)
- 28.** A boat takes half time in moving a certain distance downstream than upstream. The ratio of the speed of the boat in still water and that of the current is
 (1) 2 : 1 (2) 1 : 2
 (3) 4 : 3 (4) 3 : 1
 (SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)
- 29.** A man rows upstream 36 km and downstream 48 km taking 6 hours each time. The speed of the current is
 (1) 0.5 kmph (2) 2 kmph
 (3) 1 kmph (4) 1.5 kmph
 (SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)
- 30.** A man rows 750 m in 600 seconds against the stream and returns in $7\frac{1}{2}$ minutes. Its rowing speed in still water is (in km/hr).
 (1) 5.5 (2) 5.75
 (3) 5 (4) 5.25
 (SSC Constable (GD) Exam, 04.10.2015, IIInd Sitting)
- 31.** A boat moves downstream at the rate of 1 km in $7\frac{1}{2}$ minutes and upstream at the rate of 5 km an hour. What is the speed of the boat in the still water?
 (1) $3\frac{1}{2}$ km/hour
 (2) $6\frac{1}{2}$ km/hour
 (3) 4 km/hour
 (4) 8 km/hour
 (SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)
- 32.** A boat goes 75 km upstream in 3 hours and 60 km downstream in 1.5 hours. The speed of the boat in still water is :
 (1) 32.5 kmph (2) 30 kmph
 (3) 65 kmph (4) 60 kmph
 (SSC CPO Exam. 06.06.2016 (Ist Sitting))
- 33.** A man rows to a place 35 km in distant and back in 10 hours 30 minutes. He found that he could row 5 km with the stream in the same time as he can row 4 km against the stream. Find the rate of flow of the stream.:
 (1) 1 km/hr (2) 0.5 km/hr
 (3) 0.75 km/hr (4) 1.5 km/hr
 (SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016 (Ist Sitting))
- 34.** A man can row upstream at 12 km/hr and downstream at 18 km/hr. The man's rowing speed in still water is
 (1) 15 km/hr (2) 5 km/hr
 (3) 3 km/hr (4) 10 km/hr
 (SSC CGL Tier-I (CBE) Exam. 27.08.2016 (Ist Sitting))
- 35.** A boat moves downstream at the rate of 8 km per hour and upstream at 4 km per hour. The speed of the boat in still waters is :
 (1) 4.5 km per hour
 (2) 5 km per hour
 (3) 6 km per hour
 (4) 6.4 km per hour
 (SSC CGL Tier-I (CBE) Exam. 07.09.2016 (IIIrd Sitting))

BOAT AND STREAM

TYPE-II

1. A boat goes 6 km an hour in still water, but takes thrice as much time in going the same distance against the current. The speed of the current (in km/hour) is :

(1) 4 (2) 5
(3) 3 (4) 2

(SSC CGL Prelim Exam. 11.05.2003
(Second Sitting)

2. In a fixed time, a boy swims double the distance along the current that he swims against the current. If the speed of the current is 3 km/hr, the speed of the boy in still water is

(1) 6 km/hr (2) 9 km/hr
(3) 10 km/hr (4) 12 km/hr

(SSC CGL Prelim Exam. 27.07.2008
(Second Sitting)

3. A man can row 30 km downstream and return in a total of 8 hours. If the speed of the boat in still water is four times the speed of the current, then the speed of the current is

(1) 1 km/hour (2) 2 km/hour
(3) 4 km/hour (4) 3 km/hour

(SSC CHSL DEO & LDC Exam.
11.12.2011 (Ist Sitting (Delhi Zone)

4. A person can row $7\frac{1}{2}$ km an hour

in still water and he finds that it takes him twice as long to row up as to row down the river. The speed of the stream is :

(1) 2 km/hr (2) 3 km/hr

(3) $2\frac{1}{2}$ km/hr (4) $3\frac{1}{2}$ km/hr

(SSC CHSL DEO & LDC Exam.
11.12.2011 (IInd Sitting (East Zone)

5. A man can row at a speed of $4\frac{1}{2}$ km/hr in still water. If he takes 2 times as long to row a distance upstream as to row the same distance downstream, then, the speed of stream (in km/hr) is

(1) 1 (2) 1.5
(3) 2 (4) 2.5

(SSC CGL Prelim Exam. 04.02.2007
(IInd Sitting) and SSC CGL Prelim
Exam. 27.07.2008)

6. A boat can travel with a speed of 13 km/hr in still water. If the speed of stream is 4 km/hr in the same direction, time taken by boat to go 63 km in opposite direction is

(1) 9 hrs (2) 4 hrs
(3) 7 hrs (4) $3\frac{9}{17}$ hrs

(SSC CGL Tier-I Exam, 09.08.2015
(IInd Sitting) TF No. 4239378)

7. The speed of a boat in still water is 6 kmph and the speed of the stream is 1.5 kmph. A man rows to a place at a distance of 22.5 km and comes back to the starting point. The total time taken by him is :

(1) 10 hours
(2) 4 hours 10 minutes
(3) 6 hours 10 minutes
(4) 8 hours

(SSC CGL Tier-I Exam, 16.08.2015
(IInd Sitting) TF No. 2176783)

8. A motor boat covers a certain distance downstream in a river in 3 hours. It covers the same distance upstream in 3 hours and a half. If the speed of water is 1.5 km/h, then the speed of the boat in still water is :

(1) 17 km/h (2) 19.5 km/h
(3) 17.5 km/h (4) 19 km/h

(SSC CHSL (10+2) LDC, DEO
& PA/SA Exam, 06.12.2015
(Ist Sitting) TF No. 1375232)

TYPE-III

1. A man can row at 5 kmph. in still water. If the velocity of current is 1 kmph. and it takes him 1 hour to row to a place and come back, how far is the place ?

(1) 2.5 km (2) 3 km

(3) 2.4 km (4) 3.6 km

(SSC CGL Prelim Exam. 08.02.2004
(First Sitting))

2. The speed of a motor-boat is that of the current of water as 36 : 5. The boat goes along with the current in 5 hours 10 minutes. It will come back in

(1) 5 hours 50 minutes

(2) 6 hours

(3) 6 hours 50 minutes

(4) 12 hours 10 minutes

(SSC CGL Prelim Exam. 04.02.2007
(First Sitting))

3. A man goes downstream with a boat to some destination and returns upstream to his original place in 5 hours. If the speed of the boat in still water and the stream are 10 km/hr and 4 km/hr respectively, the distance of the destination from the starting place is

(1) 16 km (2) 18 km
(3) 21 km (4) 25 km

(SSC CGL Prelim Exam. 27.07.2008
(First Sitting))

4. Two boats A and B start towards each other from two places, 108 km apart. Speed of the boat A and B in still water are 12km/hr and 15km/hr respectively. If A proceeds down and B up the stream, they will meet after.

(1) 4.5 hours (2) 4 hours
(3) 5.4 hours (4) 6 hours

(SSC CGL Prelim Exam. 27.07.2008
(Second Sitting))

5. A man can row 6 km/h in still water. If the speed of the current is 2 km/h, it takes 3 hours more in upstream than in the downstream for the same distance. The distance is

(1) 30 km (2) 24 km
(3) 20 km (4) 32 km

(SSC CGL Tier-1 Exam 26.06.2011
(First Sitting))

6. Speed of motorboat in still water is 45kmph. If the motorboat travels 80 km along the stream in 1 hour 20 minutes, then the time taken by it to cover the same distance against the stream will be

(1) 3 hours
(2) 1 hour 20 minutes
(3) 2 hours 40 minutes
(4) 2 hours 55 minutes

(SSC CPO S.I. Exam. 09.11.2008))

7. Speed of a boat is 5 km per hour in still water and the speed of the stream is 3 km per hour. If the boat takes 3 hours to go to a place and come back, the distance of the place is :

(1) 3.75 km (2) 4 km
(3) 4.8 km (4) 4.25 km

(SSC CHSL DEO & LDC Exam.
11.12.2011 (IInd Sitting (Delhi Zone))

BOAT AND STREAM

8. The speed of a boat along the stream is 12 km/h and against the stream is 8 km/h. The time taken by the boat to sail 24 km in still water is

- (1) 2 hours (2) 3 hours
(3) 2.4 hours (4) 1.2 hours

(SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (Ist Sitting))

9. On a river, Q is the mid-point between two points P and R on the same bank of the river. A boat can go from P to Q and back in 12 hours, and from P to R in 16 hours 40 minutes. How long would it take to go from R to P?

- (1) $3\frac{1}{3}$ hours (2) 5 hours

- (3) $6\frac{2}{3}$ hours (4) $7\frac{1}{3}$ hours

(SSC CGL Tier-II Online Exam. 01.12.2016)

10. A boat goes at 14 kmph along the stream and 8 kmph against the stream. The speed of the boat (in kmph) in still water is :

- (1) 12 kmph (2) 11 kmph
(3) 10 kmph (4) 8 kmph

(SSC CGL Tier-I (CBE))

Exam. 02.09.2016 (IIInd Sitting)

11. Speed of a boat along and against the current are 14 kms/hr and 8 kms/hr respectively. The speed of the current is

- (1) 11 km/hr (2) 6 km/hr
(3) 5.5 km/hr (4) 3 km/hr

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (Ist Sitting)

12. If the speed of a boat in still water is 20 km/hr and the speed of the current is 5 km/hr, then the time taken by the boat to travel 100 km with the current is :

- (1) 2 hours (2) 3 hours
(3) 4 hours (4) 7 hours

(SSC CGL Tier-I (CBE))

Exam. 10.09.2016 (IIIrd Sitting)

25. (4)	26. (2)	27. (3)	28. (4)
29. (3)	30. (4)	31. (2)	32. (1)
33. (3)	34. (1)	35. (3)	

TYPE-II

1. (1)	2. (2)	3. (2)	4. (3)
5. (2)	6. (3)	7. (4)	8. (2)

TYPE-III

1. (3)	2. (3)	3. (3)	4. (2)
5. (2)	6. (3)	7. (3)	8. (3)
9. (4)	10. (2)	11. (4)	12. (3)

EXPLANATIONS

TYPE-I

1. (2) [Tricky Approach]

Rate downstream

$$= \frac{18}{4} = \frac{9}{2} \text{ kmph}$$

$$\text{Rate upstream} = \frac{18}{12} = \frac{3}{2} \text{ kmph.}$$

Now, speed of the stream

$$= \frac{\text{Rate downstream} - \text{Rate upstream}}{2}$$

$$= \frac{\frac{9}{2} - \frac{3}{2}}{2} = \frac{6}{4} = \frac{3}{2} = 1.5 \text{ kmph.}$$

Aliter : Using Rule 7,

Here, $x = 18$, $t_1 = 4$, $t_2 = 12$

$$\text{Speed of stream} = \frac{x}{2} \left(\frac{1}{t_1} - \frac{1}{t_2} \right)$$

$$= \frac{18}{2} \left(\frac{1}{4} - \frac{1}{12} \right)$$

$$= 9 \left(\frac{3-1}{12} \right)$$

$$= 1.5 \text{ km/hr}$$

2. (3) Speed of the motorboat upstream

$$= \frac{56 \text{ km}}{1 \frac{3}{4} \text{ hours}} = \frac{56 \times 4}{7} = 32 \text{ kmph}$$

Let the speed of the current be x kmph

$$\therefore 36 - x = 32$$

$\Rightarrow x = 36 - 32 = 4 \text{ kmph}$
Speed of motor boat downstream = $36 + 4 = 40 \text{ kmph}$
 \therefore Time taken to cover 56 km at

$$40 \text{ kmph} = \frac{56}{40} = \frac{7}{5} \text{ hours}$$

or 1 hour 24 minutes

3. (1) Let the speed of boat in still water be x kmph and that of stream be y kmph.

$$\therefore \frac{20}{x+y} = 2$$

$$\Rightarrow x+y = 10 \quad \dots(i)$$

$$\frac{20}{x-y} = 5$$

$$\Rightarrow x-y = 4 \quad \dots(ii)$$

On adding, $2x = 14 \text{ kmph}$
 $= 7 \text{ kmph}$

Aliter : Using Rule 7,

Here, $x = 20$, $t_1 = 2$, $t_2 = 5$

$$\text{Speed of Boat} = \frac{x}{2} \left(\frac{1}{t_1} + \frac{1}{t_2} \right)$$

$$= \frac{20}{2} \left(\frac{1}{2} + \frac{1}{5} \right) = 7 \text{ km/hr}$$

4. (1) [Tricky Approach]

Speed of current

$$= \frac{1}{2} (\text{Rate downstream} - \text{Rate upstream})$$

$$= \frac{1}{2} (12 - 6) \text{ kmph}$$

$= 3 \text{ kmph}$ [Rate downstream

$$= \frac{1}{5} \times 60 = 12 \text{ kmph}]$$

Aliter : Using Rule 1,

$$\text{Here, } x = \frac{1}{5} \times 60 = 12 \text{ km/hr}$$

$$y = 6 \text{ km/hr}$$

$$\text{Speed of Stream} = \left(\frac{x-y}{2} \right)$$

$$= \left(\frac{12-6}{2} \right)$$

$$= 3 \text{ km/hr}$$

5. (2) Let speed of boat in still water

$$= x \text{ kmph}$$

and speed of current = y kmph

$$\therefore \frac{24}{x-y} + \frac{36}{x+y} = 6 \quad \dots(i)$$

SHORT ANSWERS

TYPE-I

1. (2)	2. (3)	3. (1)	4. (1)
5. (2)	6. (1)	7. (1)	8. (2)
9. (2)	10. (3)	11. (4)	12. (3)
13. (4)	14. (3)	15. (4)	16. (1)
17. (1)	18. (3)	19. (2)	20. (2)
21. (3)	22. (4)	23. (1)	24. (2)

16

SEQUENCE AND SERIES

Importance : In all competitive examinations 2-3 questions from this chapter are asked. The difficulty level depends on level of examination.

Scope of questions : Mixed series mainly involve mixture of Arithmetic or Geometric series and rarely Harmonic series.

Way to success : Main step is to identify and disassociate the mixed terms to find out Arithmetic & Geometric series.

Sequence : Succession of numbers arranged in a definite order forming a definite pattern is known as sequence.

Series : If $a_1, a_2, a_3, a_4, \dots, a_n, \dots$ is a sequence, then the expression $a_1 + a_2 + a_3 + a_4 + \dots + a_n + \dots$ is a series.

A series is finite or infinite according to as the number of terms in the corresponding sequence is finite or infinite.

Progressions : Those sequences whose terms follow certain patterns are called progressions.

Arithmetic Progression (A.P.) : A sequence is called an Arithmetic Progression if the difference between two consecutive terms is always same. i.e., $a_{n+1} - a_n = \text{constant} (= d)$ for all $n \in \mathbb{N}$

The constant difference, generally denoted by 'd' is called the common difference.

a_n is called the nth or last term of an A.P.

$$a_n = l = a + (n - 1)d$$

(i) Three consecutive terms in an A.P are taken as $a - d, a, a + d$.

(ii) Four consecutive terms in an A.P taken as $a - 3d, a - d, a + d, a + 3d$.

Note : If each term of an A.P. is (increased/decreased) by K then A.M. is also (increased/decreased) by K.

If each term of an A.P. is (multiplied/Divided) by K, then A.M is also (multiplied/Divided) by same number K.

Rule 1. Let a be the first term and d be the common difference of an A.P. Then its n th term is $a + (n - 1)d$ i.e., $a_n = a + (n - 1)d$.

Rule 2. The sum S_n of n terms of an A.P. with first term is 'a' and common difference is 'd' is

$$S_n = \frac{n}{2}[2a + (n - 1)d] \text{ or } S_n = \frac{n}{2}[a + l],$$

where l = last term = $a + (n - 1)d$.

Rule 3. Three numbers a, b, c are in A.P. if

$$2b = a + c \text{ OR } b = \frac{a+c}{2} \text{ or vice versa. Here } b \text{ is}$$

called Arithmetic Mean of a and c .

Arithmetic Mean : If between two given quantities a and b we have inserted n quantities $A_1, A_2, A_3, \dots, A_n$ such that $a, A_1, A_2, \dots, A_n, b$ to form A.P., then we say that $A_1, A_2, A_3, \dots, A_n$ are arithmetic means between a and b .

Insertion of ' n ' Arithmetic Means between a and b : Let A_1, A_2, \dots, A_n be n Arithmetic Means between two quantities a and b . Such that,

$$a, A_1, A_2, \dots, A_n, b \text{ are in A.P. then } d = \left(\frac{b-a}{n+1} \right)$$

$$A_1 = \left(a + \frac{b-a}{n+1} \right), A_2 = \left[a + \frac{2(b-a)}{n+1} \right] \dots A_n = a + \frac{n(b-a)}{(n+1)}$$

These are the required Arithmetic Means between a and b .

Note : Let A be the Arithmetic Mean between a and b , then a, A, b are in A.P. Such that

$$2A = a + b$$

$$\Rightarrow A = \frac{a+b}{2}$$

Rule 4.

$$(i) 1 + 2 + 3 + \dots + n = \frac{n(n+1)}{2}$$

$$(ii) 1^2 + 2^2 + 3^2 + \dots + n^2 = \frac{n(n+1)(2n+1)}{6}$$

$$(iii) 1^3 + 2^3 + 3^3 + \dots + n^3 = \left[\frac{n(n+1)}{2} \right]^2$$

Note that : (ii) and (iii) are not AP's.

Geometric Progression : A sequence of non-zero numbers is called a Geometric Progression (abbreviated as G.P.) if the ratio of a term and the term preceding to it is always same.

The constant ratio is called the common ratio (r) of the G.P.

In other words, a sequence $a_1, a_2, a_3, \dots, a_n$ is called a Geometric Progression if

$$\frac{a_{n+1}}{a_n} = \text{constant for all } n \in \mathbb{N}.$$

Three numbers in G.P is taken as a, ar, ar^2 or $\frac{a}{r}, a, ar$

Geometric Series : If $a_1, a_2, a_3, \dots, a_n, \dots$ is a G.P., then the expression $a_1 + a_2 + a_3 + \dots + a_n + \dots$ is called a geometric series.

Rule 5. The nth term of a G.P. with first term a and common ratio r is given by $a_n = ar^{n-1}$.

Rule 6. The sum of n terms of a G.P. with first term ' a ' and common ratio ' r ' is given by

$$S_n = a \left(\frac{1 - r^n}{1 - r} \right) \text{ for } r < 1 \text{ and } S_n = a \left(\frac{r^n - 1}{r - 1} \right) \text{ for } r > 1$$

In fact these two are exactly identical. The only thing which must be noted is that the above formulas do not hold for $r = 1$, the sum of n terms of the G.P. is $S_n = na$. where $r = 1$.

Rule 7. The sum of an infinite G.P. with 1st term is ' a ' and common ratio is $r(-1 < r < 1 \text{ i.e., } |r| < 1)$ is given by

$$S_\infty = \frac{a}{1 - r}.$$

Rule 8. Three non-zero numbers a, b, c are in G.P. if

$$b^2 = ac \text{ or } b = \sqrt{ac}.$$

Here, b is known as the Geometric Mean of a and c .

Note : Let a and b be two given numbers. If ' n ' numbers G_1, G_2, \dots, G_n are inserted between a and b such that the sequence $a, G_1, G_2, \dots, G_n, b$ is a G.P. Then the numbers G_1, G_2, \dots, G_n are known as n Geometric Means (G.M's) between a and b .

Rule 9. Geometric mean : If a single geometric mean G is inserted between two given numbers a and b , then G is known as the Geometric Mean between a and b . Thus, G is the G.M. between a and b .

$\therefore a, G, b$ are in G.P.

$$\Leftrightarrow G^2 = ab$$

$$\Rightarrow G = \sqrt{ab}$$

Rule 10. Insertion of n Geometric Means between two given numbers a and b : Let G_1, G_2, \dots, G_n be n Geometric Means between two given numbers a and b . Then $a, G_1, G_2, \dots, G_n, b$ is a G.P. consisting of $(n+2)$ terms. Let r be the common ratio of this G.P., then

$$b = (n+2)\text{th term} = ar^{n+1}$$

$$\Rightarrow r = \left(\frac{b}{a} \right)^{\frac{1}{n+1}}$$

$$\therefore G_1 = ar = a \left(\frac{b}{a} \right)^{\frac{1}{n+1}}$$

$$G_2 = ar^2 = a \left(\frac{b}{a} \right)^{\frac{2}{n+1}}$$

$$G_n = ar^n = a \left(\frac{b}{a} \right)^{\frac{n}{n+1}}$$

Rule 11. If ' n ' Geometric Means are inserted between two quantities, then the product of n geometric means is the n th power of the single geometric mean between the two quantities, i.e., $- G_1 G_2 G_3 \dots G_n = (\sqrt{ab})^n = G^n$. where, $\sqrt{ab} = G$ is the single Geometric Mean between a and b .

Harmonic Progression :

If a, b, c, d , are in H.P. then,

$$\frac{1}{a}, \frac{1}{b}, \frac{1}{c}, \frac{1}{d} \text{ will form an A.P.}$$

and then we can apply all rules of A.P.

- **Harmonic Mean (H.M.) :** H will be called Harmonic Mean between a and b if a, H, b are in H.P. Then

$$H = \frac{2ab}{a+b}$$

For two numbers a and b , A.M. = $\frac{a+b}{2}$;

$$\text{G.M.} = \sqrt{ab}; \text{H.M.} = \frac{2ab}{a+b}$$

Relation among A.M., G.M. and H.M. : For two numbers a and b , A.M. = $\frac{a+b}{2}$; G.M. = \sqrt{ab} ;

$$\text{H.M.} = \frac{2ab}{a+b}$$

$$\therefore \frac{a+b}{2} \geq \sqrt{ab} \geq \frac{2ab}{a+b}$$

$$\therefore \boxed{\text{A.M.} \geq \text{G.M.} \geq \text{H.M.}}.$$

They will be equal if both numbers are equal to each other.

Now, A.M. \times H.M.

$$= \frac{a+b}{2} \times \frac{2ab}{a+b} \text{ A.M.} \times \text{H.M.} = ab = (\text{G.M.})^2$$

$$\text{or, } \boxed{\text{G.M.} = \sqrt{(\text{A.M.}) \times (\text{H.M.})}}$$



QUESTIONS ASKED IN PREVIOUS SSC EXAMS

TYPE-I

- 1.** The next number of the sequence 3, 5, 9, 17, 33 is :

(1) 65 (2) 60
(3) 50 (4) 49

(SSC CGL Prelim Exam. 27.02.2000
(First Sitting) & (SSC CPO S.I.
Exam. 05.09.2004)

- 2.** The next term of the sequence

$\frac{1}{2}, 3\frac{1}{4}, 6, 8\frac{3}{4}$ is :

(1) $10\frac{1}{4}$ (2) $10\frac{3}{4}$
(3) $11\frac{1}{4}$ (4) $11\frac{1}{2}$

(SSC CGL Prelim Exam. 27.02.2000
(First Sitting)

- 3.** Find the missing number of the sequence :

" 3, 14, 25, 36, 47, ?"

(1) 1114 (2) 1111
(3) 1113 (4) None of these

(SSC CGL Prelim Exam. 27.02.2000
(First Sitting)

- 4.** The next term of the sequence 1, 2, 5, 26, ... is :

(1) 677 (2) 47
(3) 50 (4) 152

(SSC CGL Prelim Exam.
27.02.2000 (Second Sitting)

- 5.** The missing term in the sequence 0, 3, 8, 15, 24,, 48 is

(1) 35 (2) 30
(3) 36 (4) 39

(SSC CPO S.I. Exam. 07.09.2003)

- 6.** In the sequence of numbers 5, 8, 15, 20, 29, 40, 53, one number is wrong. The wrong number is

(1) 15 (2) 20
(3) 29 (4) 40

(SSC CPO S.I. Exam. 07.09.2003)

- 7.** $1 + 2 + 3 + \dots + 49 + 50 + 49 + 48 + \dots + 3 + 2 + 1$ is equal to

(1) 1250 (2) 2500
(3) 2525 (4) 5000

(SSC CPO S.I. Exam. 07.09.2003)

- 8.** The next number in the sequence 2, 8, 18, 32, 50, is :

(1) 68 (2) 72
(3) 76 (4) 80

(SSC CGL Prelim Exam. 08.02.2004
(First Sitting)

- 9.** Next term of the sequence 8, 12, 9, 13, 10, 14, is

(1) 11 (2) 15
(3) 16 (4) 17

(SSC CHSL DEO & LDC
Exam. 28.11.2010 (IInd Sitting)

- 10.** The number of terms in the series

$1 + 3 + 5 + 7 + \dots + 73 + 75$ is

(1) 28 (2) 30
(3) 36 (4) 38

(SSC CPO S.I. Exam. 05.09.2004)

- 11.** In the sequence of number 0, 7, 26, 63,, 215, 342 the missing term is

(1) 115 (2) 124
(3) 125 (4) 135

(SSC CPO S.I. Exam. 05.09.2004)

- 12.** What will come in the place of question-mark (?) in the series "2, 7, 14, 23, ?, 47"?

(1) 28 (2) 34
(3) 31 (4) 38

(SSC Section Officer (Commercial Audit)
Exam. 25.09.2005)

- 13.** The missing number of the sequence 0, 2, 8, 18, —, 50 is :

(1) 28 (2) 30
(3) 32 (4) 36

(SSC CGL Prelim Exam. 13.11.2005
(First Sitting)

- 14.** The next number of the sequence 2, 5, 10, 14, 18, 23, 26, 32, ... is :

(1) 33 (2) 34
(3) 36 (4) 37

(SSC CGL Prelim Exam. 13.11.2005
(First Sitting)

- 15.** The next term in the sequence

- 1, 6, 25, 62, 123, 214, ... is

(1) 343 (2) 342
(3) 341 (4) None of these

(SSC CGL Prelim Exam. 13.11.2005
(Second Sitting)

- 16.** The wrong term in the sequence

7, 28, 63, 124, 215, 342, 511 is

(1) 7 (2) 28
(3) 124 (4) 215

(SSC CPO S.I. Exam. 03.09.2006)

- 17.** The sixth term of the sequence

11, 13, 17, 19, 23, —, 29 is

(1) 24 (2) 19
(3) 25 (4) 22

(SSC CPO S.I. Exam. 03.09.2006)

- 18.** Given below is a finite sequence of numbers with an unknown x :

0, 1, 1, 2, 3, 5, 8, 13, x , 34,

The value of x is

(1) 21 (2) 20
(3) 19 (4) 17

(SSC CGL Prelim Exam. 04.02.2007
(First Sitting)

- 19.** The next number of the sequence 2, 6, 12, 20, 30, 42, 56, ___ is

(1) 60 (2) 64
(3) 70 (4) 72

(SSC CGL Prelim Exam. 04.02.2007
& 27.07.2008 (First Sitting)

- 20.** The value of ___ in the sequence

$27, 9, 3, \dots, \frac{1}{3}, \frac{1}{9}, \frac{1}{27}$ is

(1) 0 (2) 1
(3) -1 (4) -3

(SSC CGL Prelim Exam. 04.02.2007
(First Sitting)

- 21.** The value of x in the sequence 1, 2, 6, 24, x is

(1) 46 (2) 56
(3) 96 (4) 120

(SSC CGL Prelim Exam. 04.02.2007
(Second Sitting)

- 22.** The missing term of the sequence 9, 12, 11, 14, 13, __, 15 is

(1) 12 (2) 16
(3) 10 (4) 17

(SSC CGL Prelim Exam. 04.02.2007
(Second Sitting)

- 23.** Which number in the sequence 8, 27, 64, 100, 125, 216, 343 is wrongly written?

(1) 27 (2) 100
(3) 125 (4) 343

(SSC CPO S.I. Exam. 16.12.2007)

- 24.** The numbers of the sequence 56, 72, 90, 110, 132, 154, form a pattern. Which of them is a misfit in the pattern?

(1) 72 (2) 110
(3) 132 (4) 154

(SSC CPO S.I. Exam. 16.12.2007)

- 25.** The wrong number in the sequence

3, 5, 7, 9, 13, 17, 19 is

(1) 17 (2) 13
(3) 9 (4) 7

(SSC CHSL DEO & LDC
Exam. 28.11.2010 (IInd Sitting)

SEQUENCE AND SERIES

SEQUENCE AND SERIES

- 52.** Find out the wrong number in the series.

190 166 145 128 112 100 91

- (1) 100 (2) 166
(3) 145 (4) 128

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 05.06.2016)

(Ist Sitting)

- 53.** Find the wrong number in the following number series.

3 7 16 35 70 153

- (1) 70 (2) 16
(3) 153 (4) 35

(SSC CGL Tier-I (CBE)

Exam. 02.09.2016) (IIInd Sitting)

TYPE-II

- 1.** The sum $(101 + 102 + 103 + \dots + 200)$ is equal to :

- (1) 15000 (2) 15025
(3) 15050 (4) 25000

(SSC CGL Prelim Exam. 27.02.2000
(First Sitting)

- 2.** Which term of the series 72, 63, 54, is zero?

- (1) 11th (2) 10th
(3) 9th (4) 8th

(SSC CGL Prelim Exam. 27.02.2000
(Second Sitting)

- 3.** The sum $9 + 16 + 25 + 36 + \dots + 100$ is equal to :

- (1) 350 (2) 380
(3) 400 (4) 420

(SSC CGL Prelim Exam.
27.02.2000 (Second Sitting)

- 4.** What is the 507th term of the sequence

1, -1, 2, -2, 1, -1, 2, -2, 1,?

- (1) -1 (2) 1
(3) -2 (4) 2

(SSC CGL Prelim Exam. 27.02.2000
(Second Sitting)

- 5.** If the 4th term of an arithmetic progression is 14 and the 12th term is 70, then the first term is :

- (1) -10 (2) -7
(3) +7 (4) +10

(SSC CGL Prelim Exam. 27.02.2000
(Second Sitting)

- 6.** By adding the same constant to each of 31, 7, -1 a geometric progression results. The common ratio is :

- (1) 13 (2) $2\frac{1}{3}$

- (3) -12 (4) None of these

(SSC CGL Prelim Exam. 27.02.2000
(Second Sitting)

- 7.** The sum of the first 8 terms of a geometric progression is 6560 and the common ratio is 3. The first term is

- (1) 1 (2) 2
(3) 3 (4) 4

(SSC CPO S.I. Exam. 07.09.2003)

- 8.** How many terms of the series "1 + 2 + 3 add upto 5050?

- (1) 50 (2) 51
(3) 100 (4) 101

(SSC CPO S.I. Exam. 05.09.2004)

- 9.** The seventh term of the sequence

- 1, 3, 6, 10, is :
(1) 20 (2) 26
(3) 28 (4) 32

(SSC CPO S.I. Exam. 26.05.2005)

- 10.** If the 10th term of the sequence $a, a-b, a-2b, a-3b, \dots$ is 20 and the 20th term is 10, then the x th term of the series is

- (1) $10-x$ (2) $20-x$
(3) $29-x$ (4) $30-x$

(SSC CPO S.I. Exam. 03.09.2006)

- 11.** When simplified, the sum

$$\frac{1}{2} + \frac{1}{6} + \frac{1}{12} + \frac{1}{20} + \frac{1}{30} + \dots + \frac{1}{n(n+1)}$$

is equal to

- (1) $\frac{1}{n}$ (2) $\frac{1}{n+1}$
(3) $\frac{2(n-1)}{n}$ (4) $\frac{n}{n+1}$

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006
(Second Sitting)

- 12.** $(1 + 3 + 5 + 7 + 9 + \dots + 99)$ is equal to

- (1) 2050 (2) 2500
(3) 2005 (4) 2002

(SSC CGL Prelim Exam. 04.02.2007
(Second Sitting)

- 13.** The n th term of the sequence

$$\frac{1}{n}, \frac{n+1}{n}, \frac{2n+1}{n}, \dots$$

- (1) $\frac{n^2+1}{n}$ (2) $\frac{n^2-n+1}{n}$
(3) $n+1$ (4) 2

(SSC CPO S.I. Exam. 16.12.2007)

- 14.** If $1+10+10^2+\dots$ upto n

$$\text{terms} = \frac{10^n - 1}{9}, \text{ then the sum}$$

of the series

$4 + 44 + 444 + \dots$ upto n term is

$$(1) \frac{4}{9}(10^n - 1) - \frac{4n}{9}$$

$$(2) \frac{4}{81}(10^n - 1) - \frac{4n}{9}$$

$$(3) \frac{40}{81}(10^n - 1) - \frac{4n}{9}$$

$$(4) \frac{40}{9}(10^n - 1) - \frac{4n}{9}$$

(SSC CPO S.I. Exam. 16.12.2007)

- 15.** Which term of the sequence

$$\frac{1}{2}, -\frac{1}{4}, \frac{1}{8}, -\frac{1}{16}, \dots \text{ is } -\frac{1}{256} ?$$

- (1) 9th (2) 8th

- (3) 7th (4) 5th

(SSC CGL Prelim Exam. 27.07.2008
(First Sitting)

- 16.** The first odd number is 1, the second odd number is 3, the third odd number is 5 and so on. The 200th odd number is

- (1) 399 (2) 421
(3) 357 (4) 599

(SSC CGL Prelim Exam. 27.07.2008
(First Sitting)

- 17.** Only two entries are known of the following Arithmetic progression :

—, 5, —, —, 14, —, ——

What should be the number just after 14 ?

- (1) 17 (2) 18
(3) 19 (4) 20

(SSC CGL Prelim Exam. 27.07.2008
(First Sitting)

- 18.** Which term of the sequence 7,

10, 13, is 151 ?

- (1) 29th (2) 19th
(3) 59th (4) 49th

(SSC CGL Prelim Exam. 27.07.2008
(Second Sitting)

- 19.** The sum of the first 20 terms of the series

$$\frac{1}{5 \times 6} + \frac{1}{6 \times 7} + \frac{1}{7 \times 8} + \dots \text{ is}$$

- (1) 0.16 (2) 1.6

- (3) 16 (4) 0.016

(SSC CGL Prelim Exam. 27.07.2008
(Second Sitting)

- 20.** Which term of the sequence 6,

13, 20, 27, is 98 more than its 24th term ?

- (1) 36th (2) 38th

- (3) 35th (4) 48th

(SSC CGL Prelim Exam. 27.07.2008
(Second Sitting)

- 21.** The sum of series $1 + 2 + 3 + 4 + \dots + 998 + 999 + 1000$ is

- (1) 5050 (2) 500500

- (3) 550000 (4) 55000

(SSC CPO S.I. Exam. 09.11.2008)

SEQUENCE AND SERIES

- 22.** The sum of n terms the series

$$1 + \frac{1}{2} + \frac{1}{2^2} + \frac{1}{2^3} + \dots \dots \dots \text{ is}$$

- (1) $\frac{2^n - 1}{2^{n-1}}$ (2) $\frac{2^{n-1} - 1}{2^{n-2}}$
 (3) $2 - 2^n$ (4) $\frac{2^n - 1}{2^n}$

(SSC CPO S.I. Exam. 09.11.2008)

- 23.** The ninth term of the sequence 0, 3, 8, 15, 24, 35, is

- (1) 63 (2) 70
 (3) 80 (4) 99

(SSC CGL Tier-I Exam. 16.05.2010
 (First Sitting))

- 24.** The sixth term of the sequence

- 2, 6, 11, 17, is
 (1) 24 (2) 30
 (3) 32 (4) 36

(SSC CGL Tier-I Exam. 16.05.2010
 (Second Sitting))

- 25.** The ratio of the fifth and sixth terms of the sequence

- 1, 3, 6, 10, is
 (1) 5 : 6 (2) 5 : 7
 (3) 7 : 5 (4) 6 : 5

(SSC CPO S.I.
 Exam. 12.12.2010 (Paper-I))

- 26.** The middle term(s) of the following series $2 + 4 + 6 + \dots + 198$ is

- (1) 98 (2) 96
 (3) 94 (4) 100

(SSC CHSL DEO & LDC Exam.
 04.11.2012 (IInd Sitting))

- 27.** If p, q, r are in Geometric Progression, then which is true among the following?

- (1) $q = \frac{p+r}{2}$ (2) $p^2 = qr$
 (3) $q = \sqrt{pr}$ (4) $\frac{p}{r} = \frac{r}{q}$

(SSC Graduate Level Tier-I
 Exam. 11.11.2012 (Ist Sitting))

- 28.** Terms $a, 1, b$ are in Arithmetic Progression and terms $1, a, b$ are in Geometric Progression. Find ' a ' and ' b ' given $a \neq b$.

- (1) 2, 4 (2) -2, 1
 (3) 4, 1 (4) -2, 4
 (SSC FCI Assistant Grade-III Main
 Exam. 07.04.2013)

- 29.** The fifth term of the sequence for which $t_1 = 1$, $t_2 = 2$ and $t_{n+2} = t_n + t_{n+1}$, is

- (1) 5 (2) 10
 (3) 6 (4) 8
 (SSC Graduate Level Tier-I
 Exam. 21.04.2013)

- 30.** $1 + (3 + 1)(3^2 + 1)(3^4 + 1)$
 $(3^8 + 1)(3^{16} + 1)(3^{32} + 1)$
 is equal to

$$\begin{array}{ll} (1) \frac{3^{64} - 1}{2} & (2) \frac{3^{64} + 1}{2} \\ (3) 3^{64} - 1 & (4) 3^{64} + 1 \end{array}$$

(SSC Section Officer (Commercial Audit)
 Exam. 25.09.2005)

- 31.** The sum '5 + 6 + 7 + 8 + + 19' is equal to :

- (1) 150 (2) 170
 (3) 180 (4) 190

(SSC CGL Prelim Exam. 13.11.2005
 (First Sitting))

- 32.** Given that $1^2 + 2^2 + 3^2 + \dots + 20^2 = 2870$, the value of $(2^2 + 4^2 + 6^2 + \dots + 40^2)$ is :

- (1) 11480 (2) 5740
 (3) 28700 (4) 2870

(SSC CGL Prelim Exam. 13.11.2005
 (First Sitting))

- 33.** Given

$1^3 + 2^3 + 3^3 + \dots + 10^3 = 3025$
 then $2^3 + 4^3 + 6^3 + \dots + 20^3$ is equal to

- (1) 6050 (2) 9075
 (3) 12100 (4) 24200

(SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting))

- 34.** $(45 + 46 + 47 + \dots + 113 + 114 + 115)$ is equal to

- (1) 5600 (2) 5656
 (3) 5680 (4) 4000

(SSC CGL Prelim Exam. 04.02.2007
 (First Sitting))

- 35.** The 12th term of the series

$$\frac{1}{x} + \frac{x+1}{x} + \frac{2x+1}{x} + \dots$$

- (1) $\frac{11x+1}{x}$ (2) $\frac{12x+1}{x}$

- (3) $\frac{x+12}{x}$ (4) $\frac{x+11}{x}$
 (SSC CHSL DEO & LDC Exam.
 02.11.2014 (IInd Sitting))

- 36.** The first term of an Arithmetic Progression is 22 and the last term is -11. If the sum is 66, the number of terms in the sequence is

- (1) 10 (2) 12
 (3) 9 (4) 8

(SSC CHSL DEO & LDC
 Exam. 9.11.2014)

- 37.** The 30th term of the series 30,

$$25\frac{1}{2}, 21, 16\frac{1}{2}, \dots \text{ is}$$

- (1) 0 (2) $-100\frac{1}{2}$

- (3) -183 (4) $-133\frac{1}{2}$

(SSC CHSL DEO & LDC
 Exam. 16.11.2014)

- 38.** Find the n th term of the following sequence :

$$5 + 55 + 555 + \dots \dots T_n$$

- (1) $5(10^n - 1)$ (2) $5^n(10^n - 1)$

$$(3) \frac{5}{9}(10^n - 1) \quad (4) \left(\frac{5}{9}\right)^n (10^n - 1)$$

(SSC CHSL DEO & LDC
 Exam. 16.11.2014)

- 39.** Find the sum of first five terms of the following series :

$$\frac{1}{1 \times 4} + \frac{1}{4 \times 7} + \frac{1}{7 \times 10} + \dots \dots \dots$$

- (1) $\frac{9}{32}$ (2) $\frac{7}{16}$

- (3) $\frac{5}{16}$ (4) $\frac{1}{210}$

(SSC CHSL DEO Exam. 02.11.2014
 (Ist Sitting))

- 40.** The least value of n , such that $(1 + 3 + 3^2 + \dots + 3^n)$ exceeds 2000, is

- (1) 5 (2) 6
 (3) 7 (4) 8

(SSC CHSL DEO Exam. 16.11.2014
 (Ist Sitting))

- 41.** The next term of the sequence,

$$\left(1 + \frac{1}{2}\right); \left(1 + \frac{1}{2}\right)\left(1 + \frac{1}{3}\right);$$

$$\left(1 + \frac{1}{2}\right)\left(1 + \frac{1}{3}\right)\left(1 + \frac{1}{4}\right); \text{ --- is}$$

- (1) 3 (2) $\left(1 + \frac{1}{5}\right)$

- (3) 5 (4) $\left(1 + \frac{1}{2}\right)\left(1 + \frac{1}{5}\right)$

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014
 TF No. 999 KPO)

- 42.** The sum of 10 terms of the arithmetic series is 390. If the third term of the series is 19, find the first term

- (1) 3 (2) 5
 (3) 7 (4) 8

(SSC CGL Tier-I (CBE)
 Exam. 11.09.2016) (Ist Sitting))

- 43.** Given $2^2 + 4^2 + 6^2 + \dots + 40^2 = 11480$, then the value of $1^2 + 2^2 + 3^2 + \dots + 20^2$ is :

- (1) 2870 (2) 2868
 (3) 2867 (4) 2869

(SSC CAPFs (CPO) SI & ASI,
 Delhi Police Exam. 20.03.2016
 (IInd Sitting))

SEQUENCE AND SERIES

- 44.** If $1^2 + 2^2 + 3^2 + \dots + p^2$
 $= \frac{p(p+1)(2p+1)}{6}$,
then $1^2 + 3^2 + 5^2 + \dots + 17^2$ is equal to :
(1) 1785 (2) 1700
(3) 980 (4) 969
(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 20.03.2016)
(IInd Sitting)
- 45.** If 7 times the seventh term of an Arithmetic Progression (AP) is equal to 11 times its eleventh term, then the 18th term of the AP will be
(1) 1 (2) 0
(3) 2 (4) -1
(SSC CGL Tier-I (CBE)
Exam. 04.09.2016) (Ist Sitting)

TYPE-III

- 1.** If $1 \times 2 \times 3 \times \dots \times n$ is denoted by $\lfloor n \rfloor$, then $(\lfloor 8 \rfloor - \lfloor 7 \rfloor - \lfloor 6 \rfloor)$ is equal to :
(1) $6 \times 8 \times \lfloor 6 \rfloor$ (2) $7 \times 8 \times \lfloor 6 \rfloor$
(3) $6 \times 7 \times \lfloor 8 \rfloor$ (4) $7 \times 8 \times \lfloor 7 \rfloor$
(SSC CGL Prelim Exam. 27.02.2000
(First Sitting))
- 2.** Find the sum of the first five terms of the following series.
 $\frac{1}{1 \times 4} + \frac{1}{4 \times 7} + \frac{1}{7 \times 10} + \dots + \dots$
(1) $\frac{9}{32}$ (2) $\frac{7}{16}$
(3) $\frac{5}{16}$ (4) $\frac{1}{210}$
(SSC CGL Prelim Exam. 24.02.2002
(Middle Zone))

- 3.** If $(10^{12} + 25)^2 - (10^{12} - 25)^2 = 10^n$, then the value of n is
(1) 20 (2) 14
(3) 10 (4) 5
(SSC CPO S.I. Exam. 07.09.2003)
- 4.** Given $1 + 2 + 3 + 4 + \dots + 10 = 55$, then the sum $6 + 12 + 18 + 24 + \dots + 60$ is equal to :
(1) 300 (2) 655
(3) 330 (4) 455
(SSC CGL Prelim Exam. 08.02.2004
(First Sitting))

- 5.** When simplified the product
 $\left(1 - \frac{1}{2}\right)\left(1 - \frac{1}{3}\right)\left(1 - \frac{1}{4}\right) \dots \left(1 - \frac{1}{n}\right)$
gives :

- (1) $\frac{1}{n}$ (2) $\frac{2}{n}$
(3) $\frac{2(n-1)}{n}$ (4) $\frac{2}{n(n+1)}$
(SSC CGL Prelim Exam. 08.02.2004
(Ist Sitting) & (SSC CGL Prelim
Exam. 27.07.2008))

- 6.** The value of
 $\frac{3}{1^2 \cdot 2^2} + \frac{5}{2^2 \cdot 3^2} + \frac{7}{3^2 \cdot 4^2} + \frac{9}{4^2 \cdot 5^2} + \frac{11}{5^2 \cdot 6^2} + \dots + \frac{13}{6^2 \cdot 7^2} + \frac{15}{7^2 \cdot 8^2} + \frac{17}{8^2 \cdot 9^2} + \frac{19}{9^2 \cdot 10^2}$ is
(1) $\frac{1}{100}$ (2) $\frac{99}{100}$
(3) $\frac{101}{100}$ (4) 1
(SSC CGL Prelim Exam. 08.02.2004
(Second Sitting))

- 7.** The value of
 $1 - \frac{1}{20} + \frac{1}{20^2} - \frac{1}{20^3} + \dots$
correct to 5 places of decimal is :
(1) 1.05 (2) 0.95238
(3) 0.95239 (4) 10.5
(SSC CGL Prelim Exam. 08.02.2004
(Second Sitting))

- 8.** For all integral values of n , the largest number that exactly divides each number of the sequence $(n-1)n(n+1), n(n+1)(n+2), (n+1)(n+2)(n+3), \dots$ is
(1) 12 (2) 6
(3) 3 (4) 2
(SSC CPO S.I. Exam. 03.09.2006)

- 9.** Given that
 $1 + 2 + 3 + \dots + x = \frac{x(x+1)}{2}$ then
 $1 + 3 + 5 + \dots + 99$ is equal to
(1) 2250 (2) 2500
(3) 2525 (4) 3775
(SSC CGL Prelim Exam. 27.07.2008
(Second Sitting))

- 10.** $\left(1 - \frac{1}{5}\right)\left(1 - \frac{1}{6}\right)\left(1 - \frac{1}{7}\right) \dots \left(1 - \frac{1}{100}\right)$ is equal to
(1) 0 (2) $\frac{1}{25}$
(3) $\frac{1}{100}$ (4) $\frac{1}{50}$
(SSC CPO S.I. Exam. 09.11.2008)

- 11.** The sum of the series
 $(1 + 0.6 + 0.06 + 0.006 + 0.0006 + \dots)$ is

- (1) $1 \frac{2}{3}$ (2) $1 \frac{1}{3}$
(3) $2 \frac{1}{3}$ (4) $2 \frac{2}{3}$
(SSC CGL Tier-I Exam. 16.05.2010
(First Sitting))

- 12.** $\left(1 - \frac{1}{3}\right)\left(1 - \frac{1}{4}\right)\left(1 - \frac{1}{5}\right) \dots \left(1 - \frac{1}{25}\right)$ is equal to
(1) $\frac{2}{25}$ (2) $\frac{1}{25}$
(3) $1 \frac{19}{25}$ (4) $\frac{1}{325}$
(SSC CGL Tier-I Exam. 16.05.2010
(Second Sitting))

TYPE-IV

- 1.** The sum $(5^3 + 6^3 + \dots + 10^3)$ is equal to :
(1) 2295 (2) 2425
(3) 2495 (4) 2925
(SSC CGL Prelim Exam. 27.02.2000
(Second Sitting))

- 2.** If $1^3 + 2^3 + 3^3 + \dots + 10^3 = 3025$, then find the value of $2^3 + 4^3 + 6^3 + \dots + 20^3$
(1) 6050 (2) 9075
(3) 12100 (4) 24200
(SSC CGL Prelim Exam. 24.02.2002
(First Sitting))

- 3.** If $1^3 + 2^3 + \dots + 10^3 = 3025$, then $4 + 32 + 108 + \dots + 4000$ is equal to :
(1) 12000 (2) 12100
(3) 12200 (4) 12400
(SSC CGL Prelim Exam. 24.02.2002
(Second Sitting))

- 4.** If $1^3 + 2^3 + 3^3 + 4^3 + 5^3 + 6^3 = 441$ then find the value of $2^3 + 4^3 + 6^3 + 8^3 + 10^3 + 12^3$
(1) 882 (2) 1323
(3) 1764 (4) 3528
(SSC CGL Prelim Exam. 24.02.2002
(Middle Zone))

- 5.** If $1^2 + 2^2 + 3^2 + \dots + x^2 = \frac{x(x+1)(2x+1)}{6}$ then $1^2 + 3^2 + 5^2 + \dots + 19^2$ is equal to
(1) 1330 (2) 2100
(3) 2485 (4) 2500
(SSC CGL Prelim Exam. 11.05.2003
(First Sitting))

SEQUENCE AND SERIES

6. If $1^3 + 2^3 + \dots + 9^3 = 2025$, then the value of $(0.11)^3 + (0.22)^3 + \dots + (0.99)^3$ is close to
 (1) 0.2695 (2) 2.695
 (3) 3.695 (4) 0.3695
 (SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting)

7. The value of $5^2 + 6^2 + \dots + 10^2 + 20^2$ is
 (1) 755 (2) 760
 (3) 765 (4) 770
 (SSC CPO S.I. Exam. 07.09.2003)

8. $1^2 - 2^2 + 3^2 - 4^2 + \dots - 10^2$ is equal to
 (1) 45 (2) -45
 (3) -54 (4) -55
 (SSC Section Officer (Commercial Audit) Exam. 26.11.2006
 (IInd Sitting) & (SSC Investigator Exam. 12.09.2010 (South Zone))

9. Given that $1^2 + 2^2 + 3^2 + \dots + n^2 = \frac{n}{6} (n + 1)(2n + 1)$, then $10^2 + 11^2 + 12^2 + \dots + 20^2$ is equal to
 (1) 2616 (2) 2585
 (3) 3747 (4) 2555
 (SSC CGL Prelim Exam. 27.07.2008
 (First Sitting))

10. $(1^2 + 2^2 + 3^2 + \dots + 10^2)$ is equal to
 (1) 380 (2) 385
 (3) 390 (4) 392
 (SSC CGL Tier-I Exam. 16.05.2010
 (Second Sitting))

11. $(5^2 + 6^2 + 7^2 + \dots + 10^2)$ is equal to
 (1) 330 (2) 345
 (3) 355 (4) 360
 (SSC CISF ASI Exam. 29.08.2010
 (Paper-1))

12. $[2^2 + 3^2 + 4^2 + 5^2 + 6^2 + 7^2 + 8^2 + 9^2 + 10^2]$ is equal to
 (1) 385 (2) 2916
 (3) 540 (4) 384
 (SSC Data Entry Operator Exam. 31.08.2008)

13. $[1^3 + 2^3 + 3^3 + \dots + 9^3 + 10^3]$ is equal to
 (1) 3575 (2) 2525
 (3) 5075 (4) 3025
 (SSC Data Entry Operator Exam. 02.08.2009)

14. Given that $1^2 + 2^2 + 3^2 + \dots + 10^2 = 385$, the value of $2^2 + 4^2 + 6^2 + \dots + 20^2 =$
 (1) 770 (2) 1540
 (3) 1155 (4) $(385)^2$
 (SSC CGL Tier-I Re-Exam. (2013)
 20.07.2014 (Ist Sitting))

SHORT ANSWERS

TYPE-I

1. (1)	2. (4)	3. (4)	4. (1)
5. (1)	6. (1)	7. (2)	8. (2)
9. (1)	10. (4)	11. (2)	12. (2)
13. (3)	14. (2)	15. (3)	16. (2)
17. (3)	18. (1)	19. (4)	20. (2)
21. (4)	22. (2)	23. (2)	24. (4)
25. (3)	26. (3)	27. (1)	28. (4)
29. (2)	30. (4)	31. (4)	32. (1)
33. (4)	34. (1)	35. (3)	36. (2)
37. (2)	38. (4)	39. (1)	40. (4)
41. (1)	42. (4)	43. (4)	44. (2)
45. (1)	46. (1)	47. (1)	48. (2)
49. (4)	50. (1)	51. (2)	52. (4)
53. (1)			

TYPE-II

1. (3)	2. (3)	3. (2)	4. (4)
5. (2)	6. (4)	7. (2)	8. (3)
9. (3)	10. (4)	11. (4)	12. (2)
13. (2)	14. (3)	15. (2)	16. (1)
17. (1)	18. (4)	19. (1)	20. (2)
21. (2)	22. (1)	23. (3)	24. (3)
25. (2)	26. (4)	27. (3)	28. (4)
29. (4)	30. (2)	31. (3)	32. (1)
33. (4)	34. (3)	35. (1)	36. (2)
37. (2)	38. (3)	39. (3)	40. (3)
41. (1)	42. (1)	43. (1)	44. (4)
45. (2)			

TYPE-III

1. (1)	2. (3)	3. (2)	4. (3)
5. (1)	6. (2)	7. (2)	8. (2)
9. (4)	10. (2)	11. (1)	12. (1)

TYPE-IV

1. (4)	2. (4)	3. (2)	4. (4)
5. (1)	6. (2)	7. (1)	8. (4)
9. (2)	10. (2)	11. (3)	12. (4)
13. (4)	14. (2)		

EXPLANATIONS

TYPE-I

- 1.** (1) Using Rule 1,

3,	5,	9,	17,	33,

\therefore The next term in the sequence will be 65

2. (4) $\frac{1}{2}, \frac{3\frac{1}{4}}{4}, 6, \frac{8\frac{3}{4}}{4}, \dots$

= 0.5,	3.25,	6,	8.75,

\therefore Next term of the sequence

$$= 8.75 + 2.75 = 11.5 = 11\frac{1}{2}$$

3. (4) $\frac{3}{1}, \frac{14}{2}, \frac{25}{3}, \frac{36}{4}, \frac{47}{5}, \frac{58}{6}$

3,	14,	25,	36,	47,	58

\therefore Missing number in the sequence = 58

4. (1) The series is based on following pattern :
 $(1)^2 + 1 = 2$
 $(2)^2 + 1 = 5$
 $(5)^2 + 1 = 26$

$$(26)^2 + 1 = \boxed{677}$$

Therefore, the next number of the series will be 677.

5. (1)

0	3	8	15	24	35	48

Missing no. = 35

6. (1)

5	8	15	20	29	40	53

Incorrect no. = 15

7. (2) Required sum

$$= 2\left(\frac{x(x+1)}{2}\right) + 50$$

$$= \frac{2 \times 49 \times 50}{2} + 50 = 2500$$

8. (2) The given sequence is based on the following pattern :

2	8	18	32	50	72

Hence, 72 will be the next number.

9. (1) The pattern of the sequence is :
 $8 + 4 = 12$

Importance : Algebra based 2-3 questions are essentially asked in almost all competitive exams obviously this chapter should be given sufficient time and practice done.

Scope of questions : Questions based on different algebraic expressions, equations (e.g. quadratic or higher order, square root, cube root and inverse) or based on graphic representation of equations and the value of a variable is asked or an equation is required to be validated.

Way to success : Solution of questions of this chapter can be ensured by memorising the concerned formulae/rules and by regular practice.

Polynomials : An algebraic expression in which the variables involved have only non-negative integral powers is called a polynomial.

General Form : $p(x) = a_0 + a_1x + a_2x^2 + \dots + a_nx^n$ is a polynomial in variable x , where $a_0, a_1, a_2, a_3 \dots a_n$ are real numbers and n is non-negative integer.

Remainder Theorem : Let $f(x)$ be a polynomial of degree $n \geq 1$, and let a be any real number. When $f(x)$ is divided by $(x - a)$, then the remainder is $f(a)$.

Proof : Suppose that when $f(x)$ is divided by $(x - a)$, the quotient is $g(x)$ and the remainder is $r(x)$.

Then, degree $r(x) <$ degree $(x - a)$

\Rightarrow degree $r(x) < 1$

\Rightarrow degree $r(x) = 0$ $\quad [\because$ degree of $(x - a) = 1]$

$\Rightarrow r(x)$ is constant, equal to r (say).

Thus, when $f(x)$ is divided by $(x - a)$, then the quotient is $g(x)$ and the remainder is r .

$\therefore f(x) = (x - a) \cdot g(x) + r \quad \dots (i)$

Putting $x = a$ in (i), we get $r = f(a)$.

Thus, when $f(x)$ is divided by $(x - a)$, then the remainder is $f(a)$.

Remarks

(i) If a polynomial $p(x)$ is divided by $(x + a)$, the remainder is the value of $p(x)$ at $x = -a$ i.e. $p(-a)$

$$[\because x + a = 0 \Rightarrow x = -a]$$

(ii) If a polynomial $p(x)$ is divided by $(ax - b)$, the remainder

is the value of $p(x)$ at $x = \frac{b}{a}$ i.e. $p\left(\frac{b}{a}\right)$.

$$[\because ax - b = 0 \Rightarrow x = \frac{b}{a}]$$

(iii) If a polynomial $p(x)$ is divided by $(ax + b)$, then

remainder is the value of $p(x)$ at $x = -\frac{b}{a}$ i.e. $p\left(-\frac{b}{a}\right)$

$$[\because ax + b = 0 \Rightarrow x = -\frac{b}{a}]$$

(iv) If a polynomial $p(x)$ is divided by $b - ax$, the remainder

is the value of $p(x)$ at $x = \frac{b}{a}$ i.e. $p\left(\frac{b}{a}\right)$

$$[\because b - ax = 0 \Rightarrow x = \frac{b}{a}]$$

Factor Theorem

Let $p(x)$ be a polynomial of degree greater than or equal to 1 and a be a real number such that $p(a) = 0$, then $(x - a)$ is a factor of $p(x)$.

Conversely, if $(x - a)$ is a factor of $p(x)$, then $p(a) = 0$

$\Rightarrow p(x)$, when divided by $(x - a)$ gives remainder zero. But by Remainder theorem,

$p(x)$ when divided by $(x - a)$ gives the remainder equal to $p(a)$.

$$\therefore p(a) = 0$$

Remarks

(i) $(x + a)$ is a factor of a polynomial iff (if and only if) $p(-a) = 0$

(ii) $(ax - b)$ is a factor of a polynomial if $p\left(\frac{b}{a}\right) = 0$

(iii) $(ax + b)$ is a factor of a polynomial $p(x)$ if $p\left(-\frac{b}{a}\right) = 0$

(iv) $(x - a)(x - b)$ are factors of a polynomial $p(x)$ if $p(a) = 0$ and $p(b) = 0$

ALGEBRAIC IDENTITIES

An algebraic identity is an algebraic equation which is true for all values of the variable (s).

IMPORTANT FORMULAE

$$1. (a + b)^2 = a^2 + 2ab + b^2$$

$$2. (a - b)^2 = a^2 - 2ab + b^2$$

$$3. (a + b)^2 = (a - b)^2 + 4ab$$

$$4. (a - b)^2 = (a + b)^2 - 4ab$$

$$5. a^2 - b^2 = (a + b)(a - b)$$

$$6. a^3 + b^3 = (a + b)(a^2 - ab + b^2)$$

$$7. a^3 - b^3 = (a - b)(a^2 + ab + b^2)$$

$$8. (a + b)^3 = a^3 + b^3 + 3ab(a + b)$$

$$9. (a - b)^3 = a^3 - b^3 - 3ab(a - b)$$

$$10. a^3 + b^3 = (a + b)^3 - 3ab(a + b)$$

$$11. a^3 - b^3 = (a - b)^3 + 3ab(a - b)$$

- 12.** $a^3 + b^3 + c^3 - 3abc$
 $= (a + b + c)(a^2 + b^2 + c^2 - ab - bc - ac)$
 $= (a + b + c) \frac{1}{2} (2a^2 + 2b^2 + 2c^2 - 2ab - 2bc - 2ac)$
 $= \frac{1}{2} (a + b + c) [(a - b)^2 + (b - c)^2 + (c - a)^2]$
- 13.** If $a + b + c = 0$, then $a^3 + b^3 + c^3 = 3abc$
- 14.** $(a + b + c)^3 = a^3 + b^3 + c^3 + 3(b + c)(c + a)(a + b)$
- 15.** $a^2 + b^2 = (a + b)^2 - 2ab$
- 16.** $a^2 + b^2 = (a - b)^2 + 2ab$
- 17.** $(a + b + c)^2 = a^2 + b^2 + c^2 + 2ab + 2ac + 2bc$
- 18.** $a^4 + b^4 + a^2b^2 = (a^2 - ab + b^2)(a^2 + ab + b^2)$

GRAPHIC REPRESENTATION OF STRAIGHT LINES

Ordered Pair : A pair of numbers a and b listed in a specific order with a at the first place and b at the second place is called an ordered pair (a, b) .

Note that $(a, b) \neq (b, a)$.

Thus, $(2, 3)$ is one ordered pair and $(3, 2)$ is another ordered pair.

CO-ORDINATE SYSTEM

Co-ordinate Axes : The position of a point in a plane is determined with reference to two fixed mutually perpendicular lines, called the coordinate axes.

Let us draw two lines $X'OX$ and YOY' , which are perpendicular to each other and intersect at the point O . These lines are called the coordinate axes or the axes of reference.

The horizontal line $X'OX$ is called the x -axis.

The vertical line YOY' is called the y -axis.

The point O is called the origin.

The distance of a point from y -axis is called its x -co-ordinate or abscissa and the distance of the point from x -axis is called its y -co ordinate or ordinate.

If x and y , denote respectively the abscissa and ordinate of a point P , then (x, y) are called the coordinates of the point P .

The y -co-ordinate of every point on x -axis is zero. i.e. when a straight line intersects at x -axis, its y -co-ordinate is zero. So, the co-ordinates of any point on the x -axis are of the form $(x, 0)$.

The x -co-ordinate of every point on y -axis is zero. So, the co-ordinates of any point on y -axis are of the form $(0, y)$.

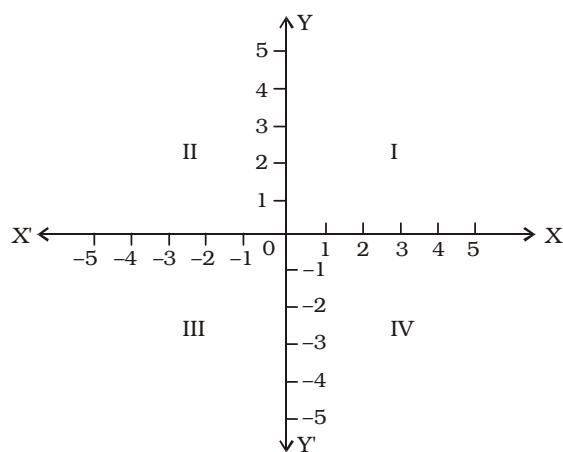
The co-ordinates of the origin are $(0, 0)$.

$y = a$ where a is constant denotes a straight line parallel to x -axis.

$x = a$ where a is constant, denotes a straight line parallel to y -axis.

$x = 0$ denotes y -axis.

$y = 0$ denotes x -axis.



We can fix a convenient unit of length and taking the origin as zero, mark equal distances on the x -axis as well as on the y -axis.

Convention of Signs : The distances measured along OX and YOY' are taken as positive and those along OY and OX' are taken as negative, as shown in the figure given above.

CO-ORDINATES OF A POINT IN A PLANE

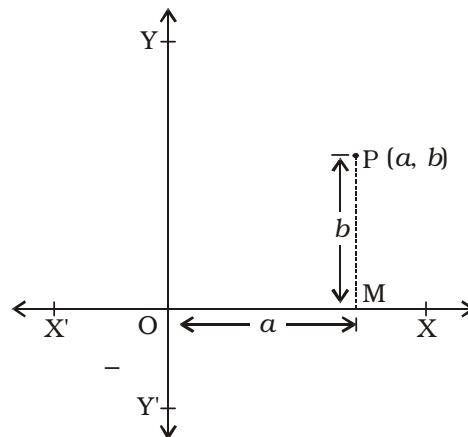
Let P be a point in a plane.

Let the distance of P from the y -axis = a units.

And, the distance of P from the x -axis = b units.

Then, we say that the co-ordinates of P are (a, b) .
 a is called the x -co-ordinate, or abscissa of P .

b is called the y co-ordinate, or ordinate of P .



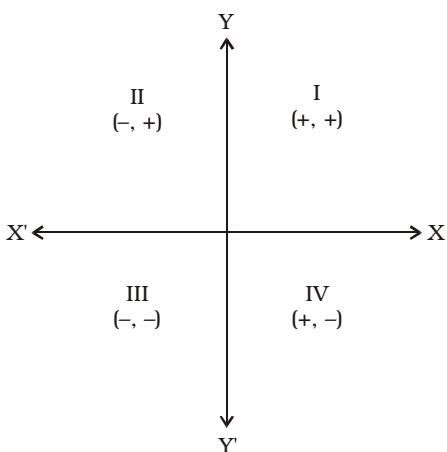
Quadrants : Let $X'OX$ and YOY' be the co-ordinate axes.

These axes divide the plane of the paper into four regions, called quadrants. The regions XOY , YOX , $X'OX$ and YOY' are respectively known as the first, second, third and fourth quadrants.

ALGEBRA

Using the convention of signs, we have the signs of the coordinates in various quadrants as given below.

Region	Quadrant	Nature of x and y	Signs of co-ordinates
XOY	I	$x > 0, y > 0$	(+, +)
YOX'	II	$x < 0, y > 0$	(-, +)
XOY'	III	$x < 0, y < 0$	(-, -)
YOX	IV	$x > 0, y < 0$	(+, -)



Note : Any point lying on x-axis or y-axis does not lie in any quadrant.

Consistency and Inconsistency

A system of a pair of linear equations in two variables is said to be consistent if it has at least one solution. A system of a pair of linear equations in two variables is said to be inconsistent if it has no solution.

The system of a pair of linear equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ has :

(i) a unique solution (i.e. consistent) if $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$. The graph

of the linear equations intersect at only one point.

(ii) no solution (i.e. inconsistent) if $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$

The graph of the two linear equations are parallel to each other i.e. the lines do not intersect.

(iii) an infinite number of solution if $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$

The graph of the linear equations are coincident.

Homogeneous equation of the form $ax + by = 0$ is a line passing through the origin. Therefore, this system is always consistent.

Rule 1. $(a + b)^2 = a^2 + 2ab + b^2$

$$\Rightarrow a^2 + b^2 = (a + b)^2 - 2ab$$

$$(a - b)^2 = a^2 - 2ab + b^2$$

$$\Rightarrow a^2 + b^2 = (a - b)^2 + 2ab$$

Rule 2. $(a + b)^2 + (a - b)^2 = 2(a^2 + b^2)$

Rule 3. $(a + b)^2 - (a - b)^2 = 4ab$

$$\text{or, } (a + b)^2 = (a - b)^2 + 4ab$$

$$\text{or, } (a - b)^2 = (a + b)^2 - 4ab$$

Rule 4. $(a^2 - b^2) = (a + b)(a - b)$

$$\text{Rule 5. } a^2 + \frac{1}{a^2} = \left(a + \frac{1}{a}\right)^2 - 2 \text{ or, } \left(a - \frac{1}{a}\right)^2 + 2$$

$$\text{Rule 6. } a^4 - b^4 = (a^2 + b^2)(a + b)(a - b)$$

$$\text{Rule 7. } (a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$$

$$\text{or, } a^2 + b^2 + c^2 = (a + b + c)^2 - 2(ab + bc + ca)$$

$$\text{Rule 8. } (a + b)^3 = a^3 + b^3 + 3ab(a + b)$$

$$\text{or, } a^3 + b^3 = (a + b)^3 - 3ab(a + b)$$

$$\text{Rule 9. } (a - b)^3 = a^3 - b^3 - 3ab(a - b)$$

$$\text{or, } a^3 - b^3 = (a - b)^3 - 3ab(a - b).$$

$$\text{Rule 10. } a^3 + b^3 = (a + b)(a^2 - ab + b^2)$$

$$\text{Rule 11. } a^3 - b^3 = (a - b)(a^2 + ab + b^2)$$

$$\text{Rule 12. } a^3 + \frac{1}{a^3} = \left(a + \frac{1}{a}\right)^3 - 3\left(a + \frac{1}{a}\right)$$

$$\text{Rule 13. } a^3 - \frac{1}{a^3} = \left(a - \frac{1}{a}\right)^3 + 3\left(a - \frac{1}{a}\right)$$

$$\text{Rule 14. If } a + \frac{1}{a} = 2 \text{ then } a^n + \frac{1}{a^n} = 2.$$

$$\text{Rule 15. If } a + \frac{1}{a} = 2 \text{ then, } a^n - \frac{1}{a^n} = 0$$

(By putting $a = 1$)

$$\text{Rule 16. If } a + \frac{1}{a} = 2 \text{ then } a^m + \frac{1}{a^n} = 2$$

(By putting $a = 1$), and $m \neq n$.

$$\text{Rule 17. If } a + \frac{1}{a} = 2 \text{ then } a^m - \frac{1}{a^n} = 0$$

(By putting $a = 1$)

$$\text{Rule 18. If } a + \frac{1}{a} = -2, \text{ then } a^n + \frac{1}{a^n} = 2 \text{ If } n \text{ is even}$$

and $a^n + \frac{1}{a^n} = -2$, if n is odd.

(By putting $a = -1$)

Rule 19. If $a + \frac{1}{a} = -2$ then the value of

$$a^m \pm \frac{1}{a^n} = (-1)^m \pm \frac{1}{(-1)^n}$$

$$\text{Rule 20. } a^3 + b^3 + c^3 - 3abc = (a + b + c)(a^2 + b^2 + c^2 -$$

$$ab - bc - ca) \text{ or, } \frac{1}{2}(a + b + c)[(a - b)^2 + (b - c)^2 + (c - a)^2]$$

$$\text{Rule 21. If } a + b + c = 0, \text{ then } a^3 + b^3 + c^3 = 3abc.$$

ALGEBRA

Rule 22. If $a^3 + b^3 + c^3 = 3abc$, then $a + b + c = 0$ or $a = b = c$.

Proof $\because a^3 + b^3 + c^3 - 3abc = 0$

$$\text{Now, } a^3 + b^3 + c^3 - 3abc = \frac{1}{2} (a + b + c) [(a - b)^2 + (b - c)^2 + (c - a)^2]$$

$$\Rightarrow 0 = \frac{1}{2} (a + b + c) [(a - b)^2 + (b - c)^2 + (c - a)^2]$$

\therefore Either $a + b + c = 0$ or, $(a - b)^2 + (b - c)^2 + (c - a)^2 = 0$, i.e., $a - b = 0$

$$\Rightarrow a = b, b - c = 0$$

$$\Rightarrow b = c, c - a = 0$$

$$\Rightarrow c = a$$

$$\therefore a = b = c$$

Rule 23. If $a^2 + b^2 + c^2 = ab + bc + ca$, then $a = b = c$.

Rule 24. Componendo and Dividendo Rule, If

$$\frac{a}{b} = \frac{c}{d} \text{ then } \frac{a+b}{a-b} = \frac{c+d}{c-d}$$

Rule 25. If $\frac{a+b}{a-b} = \frac{c}{d}$, then $\frac{a}{b} = \frac{c+d}{c-d}$.

Rule 26. If $\sqrt{x + \sqrt{x + \sqrt{x + \dots}}}$ where $x = n(n + 1)$

$$\text{then } \sqrt{x + \sqrt{x + \sqrt{x + \dots}}} = (n + 1)$$

Rule 27. If $\sqrt{x - \sqrt{x - \sqrt{x - \dots}}}$ where $x = n(n + 1)$ then,

$$\sqrt{x - \sqrt{x - \sqrt{x - \dots}}} = n.$$

Rule 28. $(a + b + c)^3 = a^3 + b^3 + c^3 - 3(a + b)(b + c)(c + a)$

Rule 29. $a^4 + a^2b^2 + b^4 = (a^2 + ab + b^2)(a^2 - ab + b^2)$

Rule 30. If $a + \frac{1}{a} = x$, then $a^3 + \frac{1}{a^3} = x^3 - 3x$.

Rule 31. If $a - \frac{1}{a} = x$, then $a^3 - \frac{1}{a^3} = x^3 + 3x$.

Rule 32. Binomial theorem :

$(a + b)^n = {}^nC_0 a^n b^0 + {}^nC_1 a^{n-1} b^1 + {}^nC_2 a^{n-2} b^2 + \dots + {}^nC_{n-1} a^1 b^{n-1} + {}^nC_n a^0 b^n$, where, n is a positive number and ${}^nC_r = \frac{n!}{r!(n-r)!}$

Permutation and Combination

Permutation : It is used where we have to arrange things. Out of total n things, r things (taken at a time) can be arranged as ${}^n P_r$ or $P(n, r)$

$$P(n, r) = {}^n P_r = \frac{n!}{(n-r)!} \text{ where } n \geq r$$

Combination : It is used where we have to select things. It is written as ${}^n C_r$ or $C(n, r)$

$$C(n, r) = \frac{n!}{(n-r)!r!} \quad n \geq r$$

Some important results.

$${}^n P_o = 1; {}^n P_n = n!$$

$${}^n C_o = {}^n C_n = 1; {}^n C_r = {}^n C_{n-r} = {}^n C_1 = {}^n C_{n-1} = n.$$

$$\text{Ex. } {}^7 P_3 = \frac{7!}{(7-3)!} = \frac{7!}{4!} = \frac{7 \cdot 6 \cdot 5 \cdot 4!}{4!} = 210$$

$$5 C_2 = \frac{5!}{(5-2)!2!} = \frac{5 \cdot 4 \cdot 3!}{3! \times 2 \times 1} = 10$$

$n!$ (is called as n factorial)

$$5! = 5 \cdot 4 \cdot 3!$$

$$= 5 \cdot 4 \cdot 3 \cdot 2!$$

$$= 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1!$$

$$5! = 120$$

$$\text{Also } 0! = 1$$

COORDINATE GEOMETRY

Importance : Coordinate geometry is separate and important filled in mathematics but very rarely asked in competitive exams. However in two-dimensional (2-D) geometry introductory/easy questions should be practised for improving marks.

Scope of questions : Mostly questions are related to distance between two points, linear/non-linear these coplaner points, cutting a line a specific ratio by a given point.

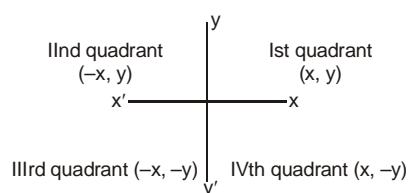
Way to success : The concept of coordinate geometry and practice of above mentioned questions is very important to solve questions.

Important Points :

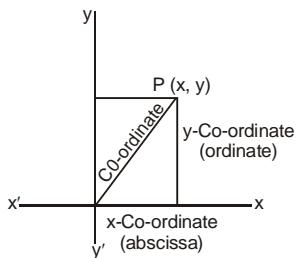
x-coordinate is called the abscissa of P, where (x, y) are co-ordinates of any point P.

y-co-ordinate is called the ordinate of P, where (x, y) are co-ordinates of any point P.

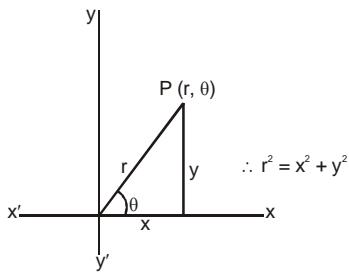
Quadrants :



Cartesian Co-ordinate System :



Polar Coordinate System :



RULE 1 : The distance between any two points in the plane is the length of the line segment joining them. The distance between two points $P(x_1, y_1)$ and $Q(x_2, y_2)$ is

$$PQ = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2} \text{ or,}$$

$$PQ = \sqrt{(\text{difference of abscissa})^2 + (\text{difference of ordinates})^2}$$

RULE 2 : The area of a triangle, the Co-ordinates of whose vertices are (x_1, y_1) , (x_2, y_2) and (x_3, y_3) is

$$\text{Area } \Delta = \left(\frac{1}{2} \right) |x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2)|$$

$$= \left(\frac{1}{2} \right) \begin{vmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{vmatrix}$$

If all three points are collinear,

then area of $\Delta = 0$

RULE 3 : The Co-ordinates of the point which divides the line segment joining the points (x_1, y_1) and (x_2, y_2) internally in the ratio $m : n$ are given by

$$x = \frac{mx_2 + nx_1}{m+n} \quad y = \frac{my_2 + ny_1}{m+n}$$

RULE 4 : If P is the mid-point of AB , such that it divides AB in the ratio $1 : 1$, then its Co-ordinates are $(x, y) =$

$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right) \text{ also called mid point formula.}$$

RULE 5 : The Co-ordinates of the point which divides the line segment joining the points (x_1, y_1) and (x_2, y_2) externally in the ratio $m : n$, are

$$\left(\frac{mx_2 - nx_1}{m-n}, \frac{my_2 - ny_1}{m-n} \right)$$

RULE 6 : The Co-ordinates of the centroid of a triangle whose vertices are (x_1, y_1) , (x_2, y_2) and (x_3, y_3) is given by

$$\left(\frac{x_1 + x_2 + x_3}{3}, \frac{y_1 + y_2 + y_3}{3} \right)$$

RULE 7 : The Co-ordinates of the in-centre of a triangle whose vertices are $A(x_1, y_1)$, $B(x_2, y_2)$, $C(x_3, y_3)$ are given by

$$\left(\frac{ax_1 + bx_2 + cx_3}{a+b+c}, \frac{ay_1 + by_2 + cy_3}{a+b+c} \right) \text{ where } a = BC, b = CA \text{ and } c = AB.$$

Equation of straight line.

A straight line is a curve such that every point on the line segment joining any two points on it lies on it.

RULE 8 : If (x_1, y_1) and (x_2, y_2) are the Co-ordinates of any two points on a line, then its slope is

$$(\tan \theta) = m = \frac{(y_2 - y_1)}{(x_2 - x_1)} = \frac{\text{difference of ordinates}}{\text{difference of abscissa}}$$

RULE 9 : The angle θ between the lines having slopes

$$m_1 \text{ and } m_2 \text{ is given by } \tan \theta = \pm \frac{m_2 - m_1}{1 + m_1 m_2}$$

RULE 10 : If two lines having slopes m_1 and m_2 are (i) parallel if $m_1 = m_2$ (ii) Perpendicular if $m_1 \times m_2 = -1$

RULE 11 : (Slope-Intercept) The equation of a line with slope m and making an intercept c on y -axis is $y = mx + c$.

RULE 12 : (Point-Slope form) The equation of a line which passes through the point (x_1, y_1) and has the slope 'm' is $(y - y_1) = m(x - x_1)$

RULE 13 : (Two-point form) The equation of a line passing through two points (x_1, y_1) and (x_2, y_2) is given by

$$\frac{x - x_1}{x_2 - x_1} = \frac{y - y_1}{y_2 - y_1}$$

RULE 14 : (Intercept form) The equation of a line which cuts off intercepts a and b respectively on the x and y -axes is

$$\frac{x}{a} + \frac{y}{b} = 1$$

RULE 15 : (i) The slope of a line whose general equation

is given by $Ax + By + C = 0$ is $\frac{-A}{B}$

(ii) The intercepts of a line on x and y axes respectively whose general equation is $Ax + By + C = 0$ is given by :-

$$x\text{-intercept} = \frac{-C}{A} \text{ and } y\text{-intercept} = \frac{-C}{B}$$

RULE 16 : General equation of straight line is $ax+by+c=0$

∴ Now the area of the triangle made by the given straight line and its intercepts is

$$\Delta = \frac{1}{2} \times \left(\frac{-c}{a} \right) \times \left(\frac{-c}{b} \right) \text{ sq. units}$$

□□□

QUESTIONS ASKED IN PREVIOUS SSC EXAMS

TYPE-I

- 1.** If $a * b = 2a - 3b + ab$, then $3 * 5 + 5 * 3$ is equal to :
 (1) 22 (2) 24
 (3) 26 (4) 28
 (SSC CGL Prelim Exam. 04.07.1999
 (First Sitting)

- 2.** If $p \times q = p + q + \frac{p}{q}$, the value of 8×2 is :
 (1) 6 (2) 10
 (3) 14 (4) 16
 (SSC CGL Prelim Exam. 04.07.1999
 (Second Sitting)

- 3.** Two numbers x and y ($x > y$) are such that their sum is equal to three times their difference.

Then value of $\frac{3xy}{2(x^2 - y^2)}$ will be:

- (1) $\frac{2}{3}$ (2) 1
 (3) $1\frac{1}{2}$ (4) $1\frac{2}{3}$

(SSC CGL Prelim Exam. 04.07.1999
 (Second Sitting)

- 4.** The value of

$$\left(1 + \frac{1}{x}\right)\left(1 + \frac{1}{x+1}\right)\left(1 + \frac{1}{x+2}\right)\left(1 + \frac{1}{x+3}\right)$$

is :

- (1) $1 + \frac{1}{x+4}$ (2) $x+4$
 (3) $\frac{1}{x}$ (4) $\frac{x+4}{x}$

(SSC CGL Prelim Exam. 27.02.2000
 (Second Sitting)

- 5.** If $a * b = 2(a + b)$, then $5 * 2$ is equal to :

- (1) 3 (2) 10
 (3) 14 (4) 20
 (SSC CGL Prelim Exam. 24.02.2002
 (First Sitting)

- 6.** If $\frac{2a+b}{a+4b} = 3$, then find the

value of $\frac{a+b}{a+2b}$

- (1) $\frac{5}{9}$ (2) $\frac{2}{7}$

- (3) $\frac{10}{9}$ (4) $\frac{10}{7}$

(SSC CGL Prelim Exam. 24.02.2002
 (First Sitting)

- 7.** If $x = \sqrt{\frac{\sqrt{5}+1}{\sqrt{5}-1}}$, then the value of $5x^2 - 5x - 1$ is
 (1) 0 (2) 3
 (3) 4 (4) 5
 (SSC CGL Tier-1 Exam 26.06.2011
 (Second Sitting)

- 8.** If $a * b = a + b + ab$, then $3 * 4 - 2 * 3$ is equal to :
 (1) 6 (2) 8
 (3) 10 (4) 12
 (SSC CGL Prelim Exam. 24.02.2002
 (Second Sitting)

- 9.** If $x = 7 - 4\sqrt{3}$, then the value of $\left(x + \frac{1}{x}\right)$ is :
 (1) $3\sqrt{3}$ (2) $8\sqrt{3}$
 (3) $14 + 8\sqrt{3}$ (4) 14
 (SSC CGL Prelim Exam. 27.02.2000
 (First Sitting)

- 10.** If $x - y = 3x + 2y$, Then $2 - 3 + 3 - 4$ is equal to
 (1) 18 (2) 29
 (3) 32 (4) 38
 (SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone) & (SSC CGL Prelim
 Exam. 13.11.2005 (Ist Sitting)

- 11.** If $\frac{a}{3} = \frac{b}{4} = \frac{c}{7}$ then $\frac{a+b+c}{c}$ is equal to
 (1) 0 (2) 1
 (3) 2 (4) 3
 (SSC CPO S.I.Exam. 12.01.2003)

- 12.** If $\frac{144}{0.144} = \frac{14.4}{x}$, then the value of x is
 (1) 144 (2) 14.4
 (3) 1.44 (4) 0.0144
 (SSC CPO S.I.Exam. 12.01.2003)

- 13.** If $1 < x < 2$, then the value of $\sqrt{(x-1)^2} + \sqrt{(x-3)^2}$ is

- (1) 1 (2) 2
 (3) 3 (4) $2x-4$

(SSC CPO S.I.Exam. 12.01.2003)

- 14.** If $a \otimes b = (a \times b) + b$, then $5 \otimes 7$ equals to

- (1) 12 (2) 35
 (3) 42 (4) 50

(SSC CPO S.I.Exam. 12.01.2003)

- 15.** Given that $10^{0.48} = x$, $10^{0.70} = y$, and $x^z = y^2$, then the value of z is close to
 (1) 1.45 (2) 1.88
 (3) 2.9 (4) 3.7
 (SSC CPO S.I.Exam. 12.01.2003)

- 16.** If $47.2506 = 4A + \frac{7}{B} + 2C$

$+ \frac{5}{D} + 6E$, then the value of $5A$

$+ 3B + 6C + D + 3E$ is

- (1) 53.6003 (2) 53.603
 (3) 153.6003 (4) 213.0003

(SSC CGL Prelim Exam. 11.05.2003
 (First Sitting))

- 17.** If $x * y = x^2 + y^2 - xy$, then the value of $9 * 11$ is

- (1) 93 (2) 103

- (3) 113 (4) 121

(SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting))

- 18.** If $\frac{2p}{p^2 - 2p + 1} = \frac{1}{4}, p \neq 0$,

then the value of $p + \frac{1}{p}$ is

- (1) 4 (2) 5
 (3) 10 (4) 12

FCI Assistant Grade-III
 Exam. 25.02.2012 (Paper-I)
 North Zone (Ist Sitting)

- 19.** If $5^{5x+5} = 1$, then x equals

- (1) 0 (2) -1

- (3) 1 (4) $-\frac{4}{5}$

(SSC CPO S.I. Exam. 07.09.2003)

- 20.** If $3^{x+3} + 7 = 250$, then x is equal to

- (1) 5 (2) 3

- (3) 2 (4) 1

(SSC CPO S.I.Exam.07.09.2003)

ALGEBRA

21. If $\frac{1}{4} \times \frac{2}{6} \times \frac{3}{8} \times \frac{4}{10} \times \frac{5}{12} \times$

..... $\times \frac{31}{64} = \frac{1}{2^x}$, the value of x is

- (1) 31 (2) 32
 (3) 36 (4) 37

(SSC Section Officer (Commercial Audit) Exam. 16.11.2003)

22. The value of

$\frac{(243)^{\frac{n}{5}} \cdot 3^{2n+1}}{9^n \cdot 3^{n-1}}$ is

- (1) 1 (2) 9
 (3) 3 (4) 3^n

(SSC CGL Prelim Exam. 08.02.2004 (First Sitting))

23. If $x = 0.5$ and $y = 0.2$, then

value of $\sqrt{0.6} \times (3y)^x$ is equal to

- (1) 1.0 (2) 0.5
 (3) 0.6 (4) 1.1

(SSC CGL Prelim Exam. 08.02.2004 (Second Sitting))

24. If $x^{x\sqrt{x}} = (x\sqrt{x})^x$, then x equals

- (1) $\frac{4}{9}$ (2) $\frac{2}{3}$
 (3) $\frac{9}{4}$ (4) $\frac{3}{2}$

(SSC CPO S.I. Exam. 05.09.2004)

25. If $a = 7$, $b = 5$ and $c = 3$, then the value of $a^2 + b^2 + c^2 - ab - bc - ca$ is

- (1) 12 (2) -12
 (3) 0 (4) 8

(SSC CPO S.I. Exam. 05.09.2004)

26. If $7^x = \frac{1}{343}$, then the value of x is

- (1) 3 (2) -3
 (3) $\frac{1}{3}$ (4) $\frac{1}{7}$

(SSC CPO S.I. Exam. 05.09.2004)

27. If $\frac{a}{2} = \frac{b}{3} = \frac{c}{5}$, then $\frac{a+b+c}{c}$ is equal to

- (1) 2 (2) 4
 (3) 5 (4) 6

(SSC Data Entry Operator Exam. 31.08.2008)

28. If $0.13 \div p^2 = 13$, then p is equal to

- (1) 10 (2) 0.01
 (3) 0.1 (4) 100

(SSC CGL Prelim Exam. 13.11.2005 (Second Sitting))

29. If $\frac{a}{3} = \frac{b}{2}$, then value of $\frac{2a+3b}{3a-2b}$ is

- (1) $\frac{12}{5}$ (2) $\frac{5}{12}$
 (3) 1 (4) $\frac{12}{7}$

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone)))

30. For what value(s) of a is $x + \frac{1}{4}\sqrt{x} + a^2$ a perfect square?

- (1) $\pm \frac{1}{18}$ (2) $\frac{1}{8}$
 (3) $-\frac{1}{5}$ (4) $\frac{1}{4}$

(SSC CPO S.I. Exam. 03.09.2006)

31. If $a \neq b$, then which of the following statements is true?

(1) $\frac{a+b}{2} = \sqrt{ab}$

(2) $\frac{a+b}{2} < \sqrt{ab}$

(3) $\frac{a+b}{2} > \sqrt{ab}$

(4) All of the above

(SSC CPO S.I. Exam. 03.09.2006)

32. If $\frac{a}{1-a} + \frac{b}{1-b} + \frac{c}{1-c} = 1$, then the value of

$\frac{1}{1-a} + \frac{1}{1-b} + \frac{1}{1-c}$ is

- (1) 1 (2) 2
 (3) 3 (4) 4

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IInd Sitting (East Zone)) & (SSC GL Tier-I Exam. 19.05.2013))

33. If x, y are two positive real numbers and $x^{1/3} = y^{1/4}$, then which of the following relations is true?

- (1) $x^3 = y^4$ (2) $x^3 = y$
 (3) $x = y^4$ (4) $x^{20} = y^{15}$

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006 (Second Sitting))

34. If $a^{2x+2} = 1$, where a is a positive real number other than 1, then x is equal to

- (1) -2 (2) -1
 (3) 0 (4) 1

(SSC CGL Prelim Exam. 04.02.2007 (First Sitting))

35. If x is real, then the minimum value of $(x^2 - x + 1)$ is

- (1) $\frac{3}{4}$ (2) 0
 (3) 1 (4) $\frac{1}{4}$

(SSC CGL Prelim Exam. 04.02.2007 (Second Sitting))

36. If $\frac{\sqrt{7}-2}{\sqrt{7}+2} = a\sqrt{7} + b$, then the value of a is

- (1) $\frac{11}{3}$ (2) $-\frac{4}{3}$
 (3) $\frac{4}{3}$ (4) $-\frac{4\sqrt{7}}{3}$

(SSC CPO S.I. Exam. 16.12.2007)

37. If $(125)^x = 3125$, then the value of x is

- (1) $\frac{1}{5}$ (2) $\frac{3}{5}$
 (3) $\frac{5}{3}$ (4) $\frac{5}{7}$

(SSC CGL Prelim Exam. 27.07.2008 (First Sitting))

38. If $5^{\sqrt{x}} + 12^{\sqrt{x}} = 13^{\sqrt{x}}$, then x is equal to

- (1) $\frac{25}{4}$ (2) 4
 (3) 9 (4) 16

(SSC CGL Prelim Exam. 27.07.2008 (First Sitting))

39. If $2^{2x-y} = 16$ and $2^{x+y} = 32$, the value of xy is

- (1) 2 (2) 4
 (3) 6 (4) 8

(SSC CPO S.I. Exam. 06.09.2009)

40. If $\left(\frac{3}{5}\right)^3 \left(\frac{3}{5}\right)^{-6} = \left(\frac{3}{5}\right)^{2x-1}$, then x is equal to

- (1) -2 (2) 2
 (3) -1 (4) 1

(SSC CGL Tier-I Exam. 16.05.2010 (First Sitting))

ALGEBRA

- 41.** If $\frac{2x-y}{x+2y} = \frac{1}{2}$, then value of

$$\frac{3x-y}{3x+y}$$
 is :

- (1) $\frac{1}{5}$ (2) $\frac{3}{5}$
 (3) $\frac{4}{5}$ (4) 1

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (Delhi Zone))

- 42.** If a and b be positive integers such that $a^2 - b^2 = 19$, then the value of a is

- (1) 19 (2) 20
 (3) 9 (4) 10

(SSC CGL Tier-I Exam. 16.05.2010 (First Sitting))

- 43.** $\frac{\sqrt{3+x} + \sqrt{3-x}}{\sqrt{3+x} - \sqrt{3-x}} = 2$ then x is equal to

- (1) $\frac{5}{12}$ (2) $\frac{12}{5}$
 (3) $\frac{5}{7}$ (4) $\frac{7}{5}$

(SSC CGL Tier-I Exam. 16.05.2010 (First Sitting))

- 44.** If $x + \frac{1}{x} = 5$, then $\frac{2x}{3x^2 - 5x + 3}$ is equal to

- (1) 5 (2) $\frac{1}{5}$
 (3) 3 (4) $\frac{1}{3}$

(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (East Zone)))

- 45.** If $x = \frac{\sqrt{3}}{2}$, then the value of

$$\left(\frac{\sqrt{1+x} + \sqrt{1-x}}{\sqrt{1+x} - \sqrt{1-x}} \right)$$
 is

- (1) $-\sqrt{3}$ (2) -1
 (3) 1 (4) $\sqrt{3}$

(SSC SAS Exam. 26.06.2010 (Paper-1))

- 46.** If $x = \frac{\sqrt{3}+1}{\sqrt{3}-1}$ and $y = \frac{\sqrt{3}-1}{\sqrt{3}+1}$, then

value of $x^2 + y^2$ is :

- (1) 14 (2) 13
 (3) 15 (4) 10

(SSC CGL Prelim Exam. 11.05.2003 (First Sitting))

- 47.** If $4^{4x+1} = \frac{1}{64}$, then the value of x is

- (1) $\frac{1}{2}$ (2) -1
 (3) $-\frac{1}{2}$ (4) $-\frac{1}{6}$

(SSC CISF ASI Exam. 29.08.2010 (Paper-1))

- 48.** If $\frac{\sqrt{x+4} + \sqrt{x-4}}{\sqrt{x+4} - \sqrt{x-4}} = 2$ then x is equal to

- (1) 2.4 (2) 3.2
 (3) 4 (4) 5

(SSC (South Zone) Investigator Exam. 12.09.2010)

- 49.** If $\sqrt{2^x} = 256$, then the value of x is

- (1) 14 (2) 16
 (3) 18 (4) 20

(SSC CPO S.I. Exam. 12.12.2010 (Paper-I))

- 50.** If $(\sqrt{5})^7 \div (\sqrt{5})^5 = 5^p$, then the value of p is

- (1) 5 (2) 2
 (3) $\frac{3}{2}$ (4) 1

(SSC CPO S.I. Exam. 12.12.2010 (Paper-I))

- 51.** If $\sqrt{1 - \frac{x^3}{100}} = \frac{3}{5}$, then x equals

- (1) 2 (2) 4

- (3) 16 (4) $(136)^{1/3}$

(SSC CGL Tier-1 Exam. 19.06.2011 (First Sitting))

- 52.** If $a - b = 2a + 3b - ab$, then the value of (3 - 5 + 5 - 3) is

- (1) 10 (2) 6
 (3) 4 (4) 2

(SSC CGL Tier-1 Exam. 19.06.2011 (First Sitting))

- 53.** If $\sqrt{1 + \frac{x}{9}} = \frac{13}{3}$, then the value of x is

- (1) $\frac{1439}{9}$ (2) 160

- (3) $\frac{1443}{9}$ (4) 169

(SSC CGL Tier-1 Exam. 19.06.2011 (Second Sitting))

- 54.** If $\frac{4\sqrt{3} + 5\sqrt{2}}{\sqrt{48} + \sqrt{18}} = a + b\sqrt{6}$, then the values of a and b are respectively

- (1) $\frac{9}{15}, -\frac{4}{15}$ (2) $\frac{3}{11}, \frac{4}{33}$

- (3) $\frac{9}{10}, \frac{2}{5}$ (4) $\frac{3}{5}, \frac{4}{15}$

(SSC CGL Tier-1 Exam. 19.06.2011 (Second Sitting))

- 55.** If $x + y = 2z$ then the value of

$$\frac{x}{x-z} + \frac{z}{y-z}$$
 is

- (1) 1 (2) 3
 (3) $\frac{1}{2}$ (4) 2

(SSC Delhi Police S.I.(SI) Exam. 19.08.2012)

- 56.** If $a * b = a^b$, then the value of $5 * 3$ is

- (1) 125 (2) 243
 (3) 53 (4) 15

(SSC CGL Tier-1 Exam. 19.06.2011 (Second Sitting))

- 57.** If $\sqrt{0.03 \times 0.3a} = 0.3 \times 0.3 \times \sqrt{b}$,

$$\text{value of } \frac{a}{b} \text{ is}$$

- (1) 0.009 (2) 0.03
 (3) 0.9 (4) 0.08

(SSC CGL Tier-1 Exam 19.06.2011 (Second Sitting))

- 58.** If $x * y = (x+3)^2 (y-1)$, then the value of $5 * 4$ is

- (1) 192 (2) 182
 (3) 180 (4) 172

(SSC CGL Tier-1 Exam 26.06.2011 (First Sitting))

- 59.** If $9\sqrt{x} = \sqrt{12} + \sqrt{147}$, then

$$x = ?$$

- (1) 2 (2) 3
 (3) 4 (4) 5

(SSC CGL Tier-1 Exam 26.06.2011 (First Sitting))

ALGEBRA

60. If $X * Y = X^2 + Y^2 - XY$ then

$11 * 13$ is

- (1) 117 (2) 147
 (3) 290 (4) 433

(SSC CGL Tier-1 Exam 26.06.2011
 (Second Sitting)

61. If $\sqrt{1 + \frac{x}{961}} = \frac{32}{31}$, then the value of x is

- (1) 63 (2) 61
 (3) 65 (4) 64

(SSC CGL Tier-1 Exam 26.06.2011
 (Second Sitting)

62. If $\sqrt{0.04 \times 0.4 \times a} = 0.004 \times 0.4$

$\times \sqrt{b}$, then the value of $\frac{a}{b}$ is

- (1) 16×10^{-3} (2) 16×10^{-4}
 (3) 16×10^{-5} (4) 16×10^{-6}

(SSC CPO (SI, ASI & Intelligence Officer)
 Exam 28.08.2011 (Paper-I)

63. The expression $x^4 - 2x^2 + k$ will be a perfect square when the value of k is

- (1) 2 (2) 1
 (3) -1 (4) -2

(SSC Graduate Level Tier-I
 Exam. 11.11.2012, Ist Sitting)

64. If $2^{x+3} = 32$, then the value of 3^{x+1} is equal to

- (1) 27 (2) 81
 (3) 72 (4) 9

FCI Assistant Grade-III
 Exam.25.02.2012 (Paper-I)

North Zone (Ist Sitting)

65. The value of the expression $x^4 - 17x^3 + 17x^2 - 17x + 17$ at $x = 16$ is

- (1) 0 (2) 1
 (3) 2 (4) 3

FCI Assistant Grade-III
 Exam.05.02.2012 (Paper-I)

East Zone (IIInd Sitting)

66. If $\frac{x}{y} = \frac{3}{4}$, the value of $\frac{6}{7} + \frac{y-x}{y+x}$ is :

- (1) 1 (2) $\frac{2}{7}$

- (3) $\frac{3}{7}$ (4) $1\frac{3}{7}$

(SSC CPO S.I.Exam.26.05.2005)

67. If $n + \frac{2}{3}n + \frac{1}{2}n + \frac{1}{7}n = 97$ then

the value of n is

- (1) 40 (2) 42
 (3) 44 (4) 46

(SSC Data Entry Operator
 Exam. 31.08.2008)

68. If $x^2 - 3x + 1 = 0$, then the value

of $x + \frac{1}{x}$ is

- (1) 0 (2) 1
 (3) 2 (4) 3

(SSC CGL Prelim Exam. 04.02.2007
 (First Sitting)

69. If $1.5 a = 0.04 b$ then $\frac{b-a}{b+a}$ is

equal to

- (1) $\frac{73}{77}$ (2) $\frac{77}{33}$

- (3) $\frac{2}{75}$ (4) $\frac{75}{2}$

(SSC CGL Tier-I Exam. 16.05.2010
 (Second Sitting)

70. If $x = (\sqrt{2} + 1)^{-\frac{1}{3}}$, the value of

$\left(x^3 - \frac{1}{x^3}\right)$ is

- (1) 0 (2) $-\sqrt{2}$

- (3) -2 (4) $3\sqrt{2}$

(SSC SAS Exam. 26.06.2010
 (Paper-1)

71. If $\frac{x^2 - x + 1}{x^2 + x + 1} = \frac{2}{3}$, then the value

of $\left(x + \frac{1}{x}\right)$ is

- (1) 4 (2) 5
 (3) 6 (4) 8

(SSC CISF ASI
 Exam. 29.08.2010 (Paper-1)

72. If $\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = 3$, then

$$\frac{2a^2 + 3c^2 + 4e^2}{2b^2 + 3d^2 + 4f^2} = ?$$

- (1) 2 (2) 3
 (3) 4 (4) 9

(SSC CGL Tier-1 Exam. 19.06.2011
 (First Sitting)

73. If x, y and z are real numbers such that $(x-3)^2 + (y-4)^2 + (z-5)^2 = 0$ then $(x+y+z)$ is equal to

- (1) -12 (2) 0
 (3) 8 (4) 12

(SSC Data Entry Operator
 Exam. 31.08.2008)

74. If $x = 7 - 4\sqrt{3}$, then $\sqrt{x} + \frac{1}{\sqrt{x}}$

is equal to :

- (1) 1 (2) 2
 (3) 3 (4) 4

(SSC CPO S.I.Exam.26.05.2005)

75. If $(a-1)^2 + (b+2)^2 + (c+1)^2 = 0$, then the value of $2a - 3b + 7c$ is

- (1) 12 (2) 3
 (3) -11 (4) 1

(SSC CHSL DEO & LDC Exam.
 04.12.2011 (Ist Sitting (East Zone)

76. If $2x + \frac{1}{3x} = 5$, find the value of

$$\frac{5x}{6x^2 + 20x + 1}.$$

- (1) $\frac{1}{4}$ (2) $\frac{1}{6}$

- (3) $\frac{1}{5}$ (4) $\frac{1}{7}$

(SSC CHSL DEO & LDC Exam.
 04.12.2011 (IIInd Sitting (North Zone)

77. If x varies inversely as $(y^2 - 1)$ and is equal to 24 when $y = 10$, then the value of x when $y = 5$ is

- (1) 99 (2) 12
 (3) 24 (4) 100

(SSC CHSL DEO & LDC Exam.
 04.12.2011 (IIInd Sitting (East Zone)

78. If $x^2 + y^2 + 2x + 1 = 0$, then the value of $x^{31} + y^{35}$ is

- (1) -1 (2) 0
 (3) 1 (4) 2

(SSC CHSL DEO & LDC Exam.
 04.12.2011 (IIInd Sitting (North Zone)

79. If $\frac{x}{2x^2 + 5x + 2} = \frac{1}{6}$, then

value of $\left(x + \frac{1}{x}\right)$ is :

- (1) 2 (2) $\frac{1}{2}$

- (3) $-\frac{1}{2}$ (4) -2

(SSC CHSL DEO & LDC Exam.
 11.12.2011 (IIInd Sitting (Delhi Zone)

ALGEBRA

80. If a, b, c are real and

$$a^2 + b^2 + c^2 = 2(a - b - c) - 3,$$

then the value of $2a - 3b + 4c$ is

- (1) -1 (2) 0
 (3) 1 (4) 2

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (East Zone) & (SSC GL Tier-I Exam. 21.04.2013) & (SSC CHSL DEO & LDC Exam. 20.10.2013)

81. If $(3a + 1)^2 + (b - 1)^2 + (2c - 3)^2 = 0$, then the value of

$(3a + b + 2c)$ is equal to :

- (1) 3 (2) -1
 (3) 2 (4) 5

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (Delhi Zone))

82. The value of the expression

$$\frac{(a-b)^2}{(b-c)(c-a)} + \frac{(b-c)^2}{(a-b)(c-a)}$$

$$+ \frac{(c-a)^2}{(a-b)(b-c)}$$

is :

- (1) 0 (2) 3
 (3) $\frac{1}{3}$ (4) 2

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (Delhi Zone) & (SSC CHSL DEO & LDC Exam. 27.10.2013)

83. If $(a-3)^2 + (b-4)^2 + (c-9)^2 = 0$,

then the value of $\sqrt{a+b+c}$ is :

- (1) -4 (2) 4
 (3) ± 4 (4) ± 2

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (East Zone))

84. If $a^3b = abc = 180$, a, b, c are positive integers, then the value of c is

- (1) 110 (2) 1
 (3) 4 (4) 25

(SSC Graduate Level Tier-II Exam. 16.09.2012)

85. If $(x-3)^2 + (y-5)^2 + (z-4)^2 = 0$, then the value of

$$\frac{x^2}{9} + \frac{y^2}{25} + \frac{z^2}{16}$$

is

- (1) 12 (2) 9
 (3) 3 (4) 1

(SSC Graduate Level Tier-I Exam. 19.05.2013)

86. If a, b are rational numbers and $(a-1)\sqrt{2} + 3 = b\sqrt{2} + a$, the value of $(a+b)$ is

- (1) -5 (2) 3
 (3) -3 (4) 5

(SSC Graduate Level Tier-II Exam. 16.09.2012)

87. If $a = \frac{\sqrt{5}+1}{\sqrt{5}-1}$ and $b = \frac{\sqrt{5}-1}{\sqrt{5}+1}$, then the value of

$$\frac{a^2 + ab + b^2}{a^2 - ab + b^2}$$

is

- (1) $\frac{3}{4}$ (2) $\frac{4}{3}$
 (3) $\frac{3}{5}$ (4) $\frac{5}{3}$

(SSC CGL Prelim Exam. 13.11.2005 (Second Sitting))

88. If $64^{x+1} = \frac{64}{4^x}$, then the value of

- x is
 (1) 1 (2) 0
 (3) $\frac{1}{2}$ (4) 2

(SSC Assistant Grade-III Exam. 11.11.2012 (IInd Sitting))

89. If $ax^2 + bx + c = a(x-p)^2$, then the relation among a, b, c would be

- (1) $abc = 1$ (2) $b^2 = ac$
 (3) $b^2 = 4ac$ (4) $2b = a + c$

(SSC Delhi Police S.I. (SI) Exam. 19.08.2012)

90. If $a + b + c + d = 1$, then the maximum value of

$$(1+a)(1+b)(1+c)(1+d)$$

- (1) 1 (2) $\left(\frac{1}{2}\right)^3$

- (3) $\left(\frac{3}{4}\right)^3$ (4) $\left(\frac{5}{4}\right)^4$

(SSC Graduate Level Tier-I Exam. 11.11.2012, Ist Sitting)

91. x varies inversely as square of y . Given that $y = 2$ for $x = 1$, the value of x for $y = 6$ will be equal to

- (1) 3 (2) 9
 (3) $\frac{1}{3}$ (4) $\frac{1}{9}$

(SSC Multi-Tasking Staff Exam. 17.03.2013, Kolkata Region)

92. If $x = \frac{\sqrt{3}}{2}$, then

$$\frac{\sqrt{1+x}}{1+\sqrt{1+x}} + \frac{\sqrt{1-x}}{1-\sqrt{1-x}}$$

is equal to

- (1) 1 (2) $2/\sqrt{3}$
 (3) $2-\sqrt{3}$ (4) 2

(SSC CPO S.I. Exam. 03.09.2006)

93. If $a^2 + b^2 + c^2 + 3 = 2(a - b - c)$, then the value of $2a - b + c$ is :

- (1) 3 (2) 4
 (3) 0 (4) 2

(SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting)

94. If $x^2 - y^2 = 80$ and $x - y = 8$, then the average of x and y is

- (1) 2 (2) 3
 (3) 4 (4) 5

(SSC Graduate Level Tier-I Exam. 21.04.2013 IInd Sitting)

95. If for non-zero, x , $x^2 - 4x - 1$

$$= 0$$
, the value of $x^2 + \frac{1}{x^2}$ is

- (1) 4 (2) 10
 (3) 12 (4) 18

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006 (Second Sitting))

96. The third proportional to

$$\left(\frac{x}{y} + \frac{y}{x}\right)$$

and $\sqrt{x^2 + y^2}$ is

- (1) xy (2) \sqrt{xy}
 (3) $\sqrt[3]{xy}$ (4) $\sqrt[4]{xy}$

(SSC Graduate Level Tier-I Exam. 21.04.2013)

97. If $\frac{4x}{3} + 2P = 12$ for what value of P , $x = 6$?

- (1) 6 (2) 4
 (3) 2 (4) 1

(SSC Graduate Level Tier-I Exam. 19.05.2013)

98. The value of $\frac{4+3\sqrt{3}}{7+4\sqrt{3}}$ is

- (1) $5\sqrt{3} - 8$ (2) $5\sqrt{3} + 8$
 (3) $8\sqrt{3} + 5$ (4) $8\sqrt{3} - 5$

(SSC Graduate Level Tier-I Exam. 19.05.2013)

ALGEBRA

99. Let

$$a = \sqrt{6} - \sqrt{5}, b = \sqrt{5} - 2,$$

$$c = 2 - \sqrt{3}$$

Then point out the correct alternative among the four alternatives given below.

- (1) $b < a < c$ (2) $a < c < b$
 (3) $b < c < a$ (4) $a < b < c$
 (SSC CHSL DEO & LDC Exam. 20.10.2013)

100. If $x = \frac{4\sqrt{15}}{\sqrt{5} + \sqrt{3}}$, the value of

$$\frac{x + \sqrt{20}}{x - \sqrt{20}} + \frac{x + \sqrt{12}}{x - \sqrt{12}}$$

- (1) 1 (2) 2
 (3) $\sqrt{3}$ (4) $\sqrt{5}$
 (SSC CHSL DEO & LDC Exam. 27.10.2013 IIInd Sitting)

101. If $x = 5 - \sqrt{21}$, then the value of

$$\frac{\sqrt{x}}{\sqrt{32} - 2x - \sqrt{21}}$$

- (1) $\frac{1}{\sqrt{2}}(\sqrt{3} - \sqrt{7})$
 (2) $\frac{1}{\sqrt{2}}(\sqrt{7} - \sqrt{3})$
 (3) $\frac{1}{\sqrt{2}}(\sqrt{7} + \sqrt{3})$
 (4) $\frac{1}{\sqrt{2}}(7 - \sqrt{3})$
 (SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

102. If $6x - 5y = 13$, $7x + 2y = 23$ then $11x + 18y =$

- (1) -15 (2) 51
 (3) 33 (4) 15
 (SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting)

103. The value of

$$(x^{b+c})^{b-c} (x^{c+a})^{c-a} (x^{a+b})^{a-b},$$

- ($x \neq 0$) is
 (1) 1 (2) 2
 (3) -1 (4) 0
 (SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting)

104. If $\frac{x}{a} = \frac{1}{a} - \frac{1}{x}$, then the value of $x - x^2$ is :

- (1) -a (2) $\frac{1}{a}$
 (3) $-\frac{1}{a}$ (4) a

(SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting)

105. If $x + \frac{1}{x} = 99$, find the value of

- $$\frac{100x}{2x^2 + 102x + 2}$$
- (1) $\frac{1}{6}$ (2) $\frac{1}{2}$
 (3) $\frac{1}{3}$ (4) $\frac{1}{4}$

(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

106. If $\frac{4x-3}{x} + \frac{4y-3}{y} + \frac{4z-3}{z} = 0$,

- then the value of $\frac{1}{x} + \frac{1}{y} + \frac{1}{z}$ is
 (1) 9 (2) 3
 (3) 4 (4) 6

(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

107. If $\frac{xy}{x+y} = a$, $\frac{xz}{x+z} = b$ and

- $$\frac{yz}{y+z} = c$$
- , where
- a
- ,
- b
- ,
- c
- are all non-zero numbers, then
- x
- equals to
-
- (1) 0 (2)
- $\frac{1}{2}$
-
- (3) 1 (4) 2

108. If $x = 3 + \sqrt{8}$, then $x^2 + \frac{1}{x^2}$ is

- equal to
 (1) 38 (2) 36
 (3) 34 (4) 30

(SSC CGL Prelim Exam. 04.02.2007 (Ist Sitting) & (SSC CGL Prelim Exam. 27.07.2008 (IIInd Sitting) & (SSC Investigator Exam. 12.09.2010 (South Zone)

109. If x and y are positive real numbers and $xy = 8$, then the minimum value of $2x + y$ is

- (1) 9 (2) 17
 (3) 10 (4) 8
 (SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

110. If the expression $x^2 + x + 1$ is written in the form

$$\left(x + \frac{1}{2}\right)^2 + q^2$$

, then the possible values of q are

- (1) $\pm \frac{1}{3}$ (2) $\pm \frac{\sqrt{3}}{2}$
 (3) $\pm \frac{2}{\sqrt{3}}$ (4) $\pm \frac{1}{2}$

(SSC Graduate Level Tier-I Exam. 21.04.2013 IIInd Sitting)

111. If $a^2 - 4a - 1 = 0$, then value of

$$a^2 + \frac{1}{a^2} + 3a - \frac{3}{a}$$

- (1) 25 (2) 30
 (3) 35 (4) 40

(SSC Graduate Level Tier-I Exam. 21.04.2013 IIInd Sitting)

112. If $a + \frac{1}{b} = 1$ and $b + \frac{1}{c} = 1$,

then $c + \frac{1}{a}$ is equal to

- (1) 0 (2) $\frac{1}{2}$
 (3) 1 (4) 2

(SSC CGL Prelim Exam. 04.02.2007 (First Sitting))

113. The minimum value of $(x-2)(x-9)$ is

- (1) $-\frac{11}{4}$ (2) $\frac{49}{4}$
 (3) 0 (4) $-\frac{49}{4}$

(SSC Graduate Level Tier-I Exam. 21.04.2013)

ALGEBRA

- 114.** One of the factors of the expression

$4\sqrt{3}x^2 + 5x - 2\sqrt{3}$ is :

- (1) $4x + \sqrt{3}$ (2) $4x + 3$
 (3) $4x - 3$ (4) $4x - \sqrt{3}$

(SSC CAPFs SI & CISF ASI Exam. 23.06.2013)

- 115.** If $\sqrt{x} = \sqrt{3} - \sqrt{5}$, then the value of $x^2 - 16x + 6$ is

- (1) 0 (2) -2
 (3) 2 (4) 4

(SSC Graduate Level Tier-II Exam. 29.09.2013)

- 116.** If $x - \frac{1}{x} = 4$, then $\left(x + \frac{1}{x}\right)$ is equal to

- (1) $5\sqrt{2}$ (2) $2\sqrt{5}$
 (3) $4\sqrt{2}$ (4) $4\sqrt{5}$

(SSC CGL Prelim Exam. 27.07.2008 (First Sitting))

- 117.** If $x = 5 + 2\sqrt{6}$, then the value of

$\left(\sqrt{x} + \frac{1}{\sqrt{x}}\right)$ is,

- (1) $2\sqrt{2}$ (2) $3\sqrt{2}$
 (3) $2\sqrt{3}$ (4) $3\sqrt{3}$

(SSC SAS Exam 26.06.2010 (Paper-1))

- 118.** For $a > b$, if $a + b = 5$ and $ab = 6$, then the value of $(a^2 - b^2)$ is

- (1) 1 (2) 3
 (3) 5 (4) 7

(SSC (South Zone) Investigator Exam. 12.09.2010)

- 119.** If $1.5x = 0.04y$, then the value

- of $\frac{y^2 - x^2}{y^2 + 2xy + x^2}$ is
- (1) $\frac{730}{77}$ (2) $\frac{73}{77}$
 (3) $\frac{73}{770}$ (4) $\frac{74}{77}$

(SSC CGL Tier-1 Exam. 19.06.2011 (Second Sitting))

- 120.** If $a^{\frac{1}{3}} = 11$, then the value of $a^2 - 331a$ is

- (1) 1331331 (2) 1331000
 (3) 1334331 (4) 1330030

(SSC CGL Tier-1 Exam 26.06.2011 (Second Sitting))

- 121.** If $x^2 + y^2 + \frac{1}{x^2} + \frac{1}{y^2} = 4$, then

the value of $x^2 + y^2$ is

- (1) 2 (2) 4
 (3) 8 (4) 16

(SSC CPO (SI, ASI & Intelligence Officer) Exam 28.08.2011 (Paper-I))

- 122.** If $x^2 = y + z$, $y^2 = z + x$, $z^2 = x + y$, then the value of

$\frac{1}{x+1} + \frac{1}{y+1} + \frac{1}{z+1}$ is

- (1) -1 (2) 1
 (3) 2 (4) 4

(SSC CPO (SI, ASI & Intelligence Officer) Exam 28.08.2011 (Paper-I) & (SSC CHSL DEO & LDC Exam. 04.12.2011) (Ist Sitting) & (SSC CGL Tier-I Exam. 19.05.2013) (Ist Sitting))

- 123.** If $a^2 + b^2 = 2$ and $c^2 + d^2 = 1$, then the value of

$(ad - bc)^2 + (ac + bd)^2$ is

- (1) $\frac{4}{9}$ (2) $\frac{1}{2}$
 (3) 1 (4) 2

(SSC CPO (SI, ASI & Intelligence Officer) Exam 28.08.2011 (Paper-I))

- 124.** If $a^2 + b^2 + c^2 + 3 = 2(a + b + c)$ then the value of $(a + b + c)$ is

- (1) 2 (2) 3
 (3) 4 (4) 5

(FCI Assistant Grade-III Exam. 25.02.2012 (Paper-I))

North Zone (Ist Sitting)

- 125.** If $x - \frac{1}{x} = 5$,

then $x^2 + \frac{1}{x^2}$ is :

- (1) 5 (2) 25
 (3) 27 (4) 23

(FCI Assistant Grade-III Exam. 05.02.2012 (Paper-I))

East Zone (IIInd Sitting)

- 126.** If $x = 3 + 2\sqrt{2}$, then the value of

$\left(\sqrt{x} - \frac{1}{\sqrt{x}}\right)$ is :

- (1) 1 (2) 2
 (3) $2\sqrt{2}$ (4) $3\sqrt{3}$

(SSC CPO S.I. Exam. 12.01.2003) & (FCI Assistant Grade-III Exam. 05.02.2012 (Paper-I))

East Zone (IIInd Sitting)

- 127.** If $x = \sqrt{3} + \sqrt{2}$, then the value of

$\left(x^2 + \frac{1}{x^2}\right)$ is :

- (1) 4 (2) 6
 (3) 9 (4) 10

(SSC CHSL DEO & LDC Exam. 27.11.2010)

- 128.** If $x + \frac{9}{x} = 6$, then the value of

$(x^2 + \frac{9}{x^2})$ is

- (1) 8 (2) 9
 (3) 10 (4) 12

(SSC CHSL DEO & LDC Exam. 28.11.2010 (Ist Sitting))

- 129.** If $x = \frac{4ab}{a+b}$ ($a \neq b$), the value of

$\frac{x+2a}{x-2a} + \frac{x+2b}{x-2b}$ is

- (1) a (2) b
 (3) 2 ab (4) 2

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting) (East Zone))

- 130.** If $m + \frac{1}{m-2} = 4$, find the value

of $(m-2)^2 + \frac{1}{(m-2)^2}$.

- (1) -2 (2) 0
 (3) 2 (4) 4

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting) (East Zone) & (SSC GL Tier-I Exam. 21.04.2013))

- 131.** If $a^2 + b^2 + 2b + 4a + 5 = 0$, then

the value of $\frac{a-b}{a+b}$ is

- (1) 3 (2) -3
 (3) $\frac{1}{3}$ (4) $-\frac{1}{3}$

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting) (East Zone))

- 132.** If $x - y = \frac{x+y}{7} = \frac{xy}{4}$, the numerical value of xy is

- (1) $\frac{4}{3}$ (2) $\frac{3}{4}$
 (3) $\frac{1}{4}$ (4) $\frac{1}{3}$

(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting) (East Zone))

- 133.** If $x + y + z = 0$,

then $\frac{x^2}{yz} + \frac{y^2}{zx} + \frac{z^2}{xy} = ?$

- (1) $(xyz)^2$ (2) $x^2 + y^2 + z^2$
 (3) 9 (4) 3

(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting) (East Zone) & (SSC GL Tier-I Exam. 19.05.2013 (Ist Sitting)))

ALGEBRA

134. If $a + b + c = 0$, then the value of

$$\frac{1}{(a+b)(b+c)} + \frac{1}{(a+c)(b+a)} + \frac{1}{(c+a)(c+b)}$$

- (1) 1 (2) 0
 (3) -1 (4) -2

(SSC CHSL DEO & LDC Exam.
11.12.2011 (IInd Sitting (East Zone)

135. If $a + b + c = 0$, then the value of

$$\frac{a^2 + b^2 + c^2}{a^2 - bc}$$

- (1) 0 (2) 1
 (3) 2 (4) 3

(SSC Graduate Level Tier-II
Exam. 16.09.2012)

136. If $n = 7 + 4\sqrt{3}$, then the value

$$\text{of } \left(\sqrt{n} + \frac{1}{\sqrt{n}} \right)$$

- (1) $2\sqrt{3}$ (2) 4
 (3) -4 (4) $-2\sqrt{3}$
- (SSC Graduate Level Tier-II
Exam. 16.09.2012)

137. If $x = \sqrt{3} + \sqrt{2}$, then the value of

$$\left(x + \frac{1}{x} \right)$$

- (1) $2\sqrt{2}$ (2) $2\sqrt{3}$
 (3) 2 (4) 3

(SSC CHSL DEO & LDC Exam.
21.10.2012 (Ist Sitting)

138. If $p + q = 10$ and $pq = 5$, then the

numerical value of $\frac{p}{q} + \frac{q}{p}$ will be

- (1) 16 (2) 20
 (3) 22 (4) 18

(SSC CHSL DEO & LDC Exam.
21.10.2012 (Ist Sitting)

139. If $x = 3 + 2\sqrt{2}$ and $xy = 1$, then

the value of $\frac{x^2 + 3xy + y^2}{x^2 - 3xy + y^2}$ is

- (1) $\frac{30}{31}$ (2) $\frac{70}{31}$
 (3) $\frac{35}{31}$ (4) $\frac{37}{31}$

(SSC CHSL DEO & LDC Exam.
21.10.2012 (IInd Sitting)

140. If $\frac{x}{b+c} = \frac{y}{c+a} = \frac{z}{a+b}$, then

$$(1) \frac{x-y}{b-a} = \frac{y-z}{c-b} = \frac{z-x}{a-c}$$

$$(2) \frac{x}{a} = \frac{y}{b} = \frac{z}{c}$$

$$(3) \frac{x-y}{c} = \frac{y-z}{b} = \frac{z-x}{c}$$

- (4) None of the above is true

(SSC CHSL DEO & LDC Exam.
04.11.2012, Ist Sitting)

141. If $a + b + c = 0$, then the value of

$$\left(\frac{a+b}{c} + \frac{b+c}{a} + \frac{c+a}{b} \right)$$

$$\left(\frac{a}{b+c} + \frac{b}{c+a} + \frac{c}{a+b} \right)$$

- (1) 8 (2) -3
 (3) 9 (4) 0

(SSC Graduate Level Tier-I
Exam. 21.04.2013)

142. If a, b, c are non-zero,

$a + \frac{1}{b} = 1$ and $b + \frac{1}{c} = 1$, then the value of abc is :

- (1) -1 (2) 3
 (3) -3 (4) 1

(SSC Graduate Level Tier-I
Exam. 21.04.2013)

143. If $a + b + c = 2s$, then

$$\frac{(s-a)^2 + (s-b)^2 + (s-c)^2 + s^2}{a^2 + b^2 + c^2}$$

is equal to

- (1) $a^2 + b^2 + c^2$ (2) 0
 (3) 1 (4) 2

(SSC Graduate Level Tier-I
Exam. 21.04.2013)

144. If $x = 3 + 2\sqrt{2}$, the value

$$\text{of } x^2 + \frac{1}{x^2}$$

- (1) 36 (2) 30
 (3) 32 (4) 34

(SSC Graduate Level Tier-I
Exam. 19.05.2013 Ist Sitting)

145. If $x \left(3 - \frac{2}{x} \right) = \frac{3}{x}$, then the val-

ue of $x^2 + \frac{1}{x^2}$ is

- (1) $2\frac{1}{9}$ (2) $2\frac{4}{9}$

- (3) $3\frac{1}{9}$ (4) $3\frac{4}{9}$

(SSC Graduate Level Tier-I
Exam. 19.05.2013)

146. If $x^2 - 3x + 1 = 0$, then the val-

ue of $x^2 + x + \frac{1}{x} + \frac{1}{x^2}$ is

- (1) 10 (2) 2
 (3) 6 (4) 8

(SSC Graduate Level Tier-I
Exam. 19.05.2013 Ist Sitting)

147. If $a^2 + b^2 = 5ab$, then the value

$$\text{of } \left(\frac{a^2}{b^2} + \frac{b^2}{a^2} \right)$$

- (1) 32 (2) 16
 (3) 23 (4) -23

(SSC CAPFs SI & CISF ASI
Exam. 23.06.2013)

148. If $xy + yz + zx = 0$, then

$$\left(\frac{1}{x^2 - yz} + \frac{1}{y^2 - zx} + \frac{1}{z^2 - xy} \right)$$

$(x, y, z \neq 0)$ is equal to

- (1) 3 (2) 1
 (3) $x + y + z$ (4) 0

(SSC CHSL DEO & LDC
Exam. 20.10.2013)

149. If $a + b + c = 9$ (where a, b, c are real numbers), then the minimum value of $a^2 + b^2 + c^2$ is

- (1) 100 (2) 9
 (3) 27 (4) 81

(SSC CHSL DEO & LDC
Exam. 20.10.2013)

150. If $x + y + z = 13$ and $x^2 + y^2 + z^2 = 69$, then $xy + z(x + y)$ is equal to

- (1) 70 (2) 40
 (3) 50 (4) 60

(SSC CHSL DEO & LDC
Exam. 10.11.2013, IInd Sitting)

151. If $a = 0.1039$, then the value of

$$\sqrt{4a^2 - 4a + 1} + 3a$$

- (1) 0.1039 (2) 0.2078
 (3) 1.1039 (4) 2.1039

(SSC CPO S.I. Exam. 12.01.2003)

ALGEBRA

- 152.** If $a = 0.25$, $b = -0.05$, $c = 0.5$, then the value of

$$\frac{a^2 - b^2 - c^2 - 2bc}{a^2 + b^2 - 2ab - c^2} \text{ is}$$

- (1) $\frac{7}{8}$ (2) $\frac{14}{17}$
 (3) 1 (4) $\frac{25}{16}$

(SSC CPO S.I. Exam. 12.01.2003)

- 153.** If $a = 23$ and $b = -29$ then the value of $25a^2 + 40ab + 16b^2$ is :

- (1) 1 (2) -1
 (3) 0 (4) 2

FCI Assistant Grade-III Exam. 05.02.2012 (Paper-I)
 East Zone (IIInd Sitting)

- 154.** If $x - y = 2$ and $x^2 + y^2 = 20$, then value of $(x + y)^2$ is

- (1) 38 (2) 36
 (3) 16 (4) 12

(SSC CHSL DEO & LDC Exam. 28.11.2010 (IIInd Sitting))

- 155.** If $x^2 + y^2 - 4x - 4y + 8 = 0$, then the value of $x - y$ is

- (1) 4 (2) -4
 (3) 0 (4) 8

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (North Zone))

- 156.** If $x = b + c - 2a$, $y = c + a - 2b$, $z = a + b - 2c$, then the value of $x^2 + y^2 - z^2 + 2xy$ is

- (1) 0 (2) $a + b + c$
 (3) $a - b + c$ (4) $a + b - c$

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone)))

- 157.** For real a, b, c if $a^2 + b^2 + c^2 = ab$

+ $bc + ca$, then value of $\frac{a+c}{b}$ is

- (1) 1 (2) 2
 (3) 3 (4) 0

(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (Delhi Zone)) & (SSC CHSL DEO & LDC Exam. 10.11.2013))

- 158.** If $x - y = 2$, $xy = 24$, then the value of $(x^2 + y^2)$ is :

- (1) 25 (2) 36
 (3) 63 (4) 52

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IIInd Sitting))

- 159.** If the expression $\frac{x^2}{y^2} + tx + \frac{y^2}{4}$ is a perfect square, then the values of t is

- (1) ± 1 (2) ± 2
 (3) 0 (4) ± 3

(SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting))

- 160.** If $a = x + y$, $b = x - y$, $c = x + 2y$, then $a^2 + b^2 + c^2 - ab - bc - ca$ is

- (1) $4y^2$ (2) $5y^2$
 (3) $6y^2$ (4) $7y^2$

(SSC CHSL DEO & LDC Exam. 04.11.2012 (IIInd Sitting))

- 161.** If $a^2 + b^2 + c^2 = ab + bc + ca$, where a, b, c are non zero real numbers, then the value of

$$\frac{a+b}{c}$$

- (1) 2 (2) 1
 (3) 0 (4) -1

(SSC CHSL DEO & LDC Exam. 28.10.2012, Ist Sitting)

- 162.** If $a^2 + b^2 + 4c^2 = 2(a + b - 2c) - 3$ and a, b, c are real, then the value of $(a^2 + b^2 + c^2)$ is

- (1) 3 (2) $3\frac{1}{4}$

- (3) 2 (4) $2\frac{1}{4}$

(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

- 163.** If $\frac{x-a^2}{b+c} + \frac{x-b^2}{c+a} + \frac{x-c^2}{a+b}$

= $4(a + b + c)$, then x is equal to

- (1) $(a + b + c)^2$
 (2) $a^2 + b^2 + c^2$
 (3) $ab + bc + ca$
 (4) $a^2 + b^2 + c^2 - ab - bc - ca$

(SSC Graduate Level Tier-II Exam. 29.09.2013)

- 164.** Number of solutions of the two equations $4x - y = 2$ and $2y - 8x + 4 = 0$ is

- (1) zero (2) one
 (3) two
 (4) infinitely many

(SSC CHSL DEO & LDC Exam. 20.10.2013)

- 165.** If $\frac{a}{b} = \frac{4}{5}$ and $\frac{b}{c} = \frac{15}{16}$, then

$\frac{18c^2 - 7a^2}{45c^2 + 20a^2}$ is equal to

- (1) $\frac{1}{3}$ (2) $\frac{2}{5}$

- (3) $\frac{3}{4}$ (4) $\frac{1}{4}$

(SSC Graduate Level Tier-I Exam. 21.04.2013 IIInd Sitting)

- 166.** If $x \neq 0$, $y \neq 0$ and $z \neq 0$ and

$$\frac{1}{x^2} + \frac{1}{y^2} + \frac{1}{z^2} = \frac{1}{xy} + \frac{1}{yz} + \frac{1}{zx},$$

then the relation among x, y, z is

- (1) $x + y + z = 0$

- (2) $x + y = z$

$$(3) \frac{1}{x} + \frac{1}{y} + \frac{1}{z} = 0$$

- (4) $x = y = z$

(SSC Graduate Level Tier-I Exam. 21.04.2013)

- 167.** The term to be added to $121a^2 + 64b^2$ to make a perfect square is

- (1) 176 ab (2) 276 a^2b
 (3) 178 ab (4) 188 b^2a

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

- 168.** If $a = 2 + \sqrt{3}$, then the value of

$$\left(a^2 + \frac{1}{a^2} \right) \text{ is}$$

- (1) 12 (2) 14
 (3) 16 (4) 10

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

- 169.** For what value(s) of k the ex-

pression $p + \frac{1}{4}\sqrt{p + k^2}$ is a perfect square?

- (1) $\pm \frac{1}{3}$ (2) $\pm \frac{1}{4}$

- (3) $\pm \frac{1}{8}$ (4) $\pm \frac{1}{2}$

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

- 170.** If $\frac{b-c}{a} + \frac{a+c}{b} + \frac{a-b}{c} = 1$ and $a - b + c \neq 0$ then which one of the following relations is true?

$$(1) \frac{1}{c} = \frac{1}{a} + \frac{1}{b} \quad (2) \frac{1}{a} = \frac{1}{b} + \frac{1}{c}$$

$$(3) \frac{1}{b} = \frac{1}{a} - \frac{1}{c} \quad (4) \frac{1}{b} = \frac{1}{a} + \frac{1}{c}$$

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

- 171.** If $a + b = 1$, $c + d = 1$ and

$$a - b = \frac{d}{c}, \text{ then the value of } c^2 - d^2 \text{ is}$$

- (1) $\frac{a}{b}$ (2) $\frac{b}{a}$

- (3) 1 (4) -1

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))

ALGEBRA

191. If $a^2 + b^2 + c^2 = 2a - 2b - 2$, then the value of $3a - 2b + c$ is

- (1) 0 (2) 3
(3) 5 (4) 2

(SSC CGL Tier-I Exam. 19.10.2014
TF No. 022 MH 3)

192. If $a + b + c = 3$, $a^2 + b^2 + c^2 = 6$

and $\frac{1}{a} + \frac{1}{b} + \frac{1}{c} = 1$, where a ,

b , c are all non-zero, then 'abc' is equal to

- (1) $\frac{2}{3}$ (2) $\frac{3}{2}$
(3) $\frac{1}{2}$ (4) $\frac{1}{3}$

(SSC CGL Tier-I Exam. 19.10.2014
TF No. 022 MH 3)

193. If $a^2 - 4a - 1 = 0$, $a \neq 0$, then

the value of $a^2 + 3a + \frac{1}{a^2} - \frac{3}{a}$ is

- (1) 24 (2) 26
(3) 28 (4) 30

(SSC CGL Tier-I Exam. 19.10.2014
TF No. 022 MH 3)

194. If $x = 2 + \sqrt{3}$, then $x^2 + \frac{1}{x^2}$ is

equal to

- (1) 10 (2) 12
(3) -12 (4) 14

(SSC CGL Tier-I Exam. 19.10.2014
TF No. 022 MH 3)

195. If $a^2 + b^2 + c^2 = 2(a - b - c) - 3$, then the value of $(a + b + c)$ is

- (1) 0 (2) 1
(3) -1 (4) 2

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, 1st Sitting
TF No. 333 LO 2)

196. If x is a prime number and

$-1 \leq \frac{2x-7}{5} \leq 1$ then the number of values of x is

- (1) 4 (2) 3
(3) 2 (4) 5

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting
TF No. 545 QP 6)

197. If $\frac{3-5x}{2x} + \frac{3-5y}{2y} + \frac{3-5z}{2z} =$

0, the value of $\frac{2}{x} + \frac{2}{y} + \frac{2}{z}$ is

- (1) 20 (2) 5
(3) 10 (4) 15

(SSC CGL Tier-II Exam. 12.04.2015
TF No. 567 TL 9)

198. If $2s = a + b + c$, then the value of $s(s - c) + (s - a)(s - b)$ is

- (1) ab (2) abc
(3) 0 (4) $\frac{a+b+c}{2}$

(SSC CGL Tier-II Exam. 12.04.2015
TF No. 567 TL 9)

199. If $\frac{2p}{p^r - 2p + 1} = \frac{1}{4}$, then the val-

ue of $\left(p + \frac{1}{p}\right)$ is

- (1) 7 (2) $\frac{2}{5}$
(3) 1 (4) 10

(SSC CGL Tier-II Exam. 12.04.2015
TF No. 567 TL 9)

200. If $\sqrt{1 + \frac{27}{169}} = 1 + \frac{x}{13}$, then x

equals

- (1) 1 (2) 27
(3) 13 (4) $3\sqrt{3}$

(SSC CGL Tier-II Exam.
2014 12.04.2015 (Kolkata Region)

TF No. 789 TH 7)

201. If $2x = \sqrt{a} + \frac{1}{\sqrt{a}}$, $a > 0$, then

the value of $\frac{\sqrt{x^2 - 1}}{x - \sqrt{x^2 - 1}}$ is

- (1) $a + 1$ (2) $\frac{1}{2}(a + 1)$
(3) $\frac{1}{2}(a - 1)$ (4) $a - 1$

(SSC CGL Tier-II Exam.
2014 12.04.2015 (Kolkata Region)

TF No. 789 TH 7)

202. If a, b, c are real numbers and $a^2 + b^2 + c^2 = 2(a - b - c) - 3$, then the value of $a + b + c$ is

- (1) -1 (2) 1
(3) 3 (4) 0

(SSC CGL Tier-II Exam.
2014 12.04.2015 (Kolkata Region)

TF No. 789 TH 7)

203. If $\frac{a+b-c}{a+b} = \frac{b+c-a}{b+c} =$

$\frac{c+a-b}{c+a}$ and $a + b + c \neq 0$, then

- (1) $a \neq b \neq c$ (2) $a = b = c$
(3) $a = b \neq c$ (4) $a \neq b = c$

(SSC CGL Tier-II Exam.
2014 12.04.2015 (Kolkata Region)

TF No. 789 TH 7)

204. If $bc + ab + ca = abc$, then the

value of $\frac{b+c}{bc(a-1)} + \frac{a+c}{ac(b-1)} + \frac{a+b}{ab(c-1)}$ is

- (1) 0 (2) $-\frac{1}{2}$
(3) $-\frac{3}{2}$ (4) 1

(SSC CGL Tier-II Exam.
2014 12.04.2015 (Kolkata Region)
TF No. 789 TH 7)

205. If $\frac{a^2 - bc}{a^2 + bc} + \frac{b^2 - ca}{b^2 + ca} +$

$\frac{c^2 - ab}{c^2 + ab} = 1$, then the value of

$\frac{a^2}{a^2 + bc} + \frac{b^2}{b^2 + ac} + \frac{c^2}{c^2 + ab}$ is

- (1) 0 (2) 1
(3) -1 (4) 2

(SSC CGL Tier-II Exam.
2014 12.04.2015 (Kolkata Region)
TF No. 789 TH 7)

206. If $999x + 888y = 1332$

$888x + 999y = 555$,

then the value of $x + y$ is

- (1) 888 (2) 555
(3) 1 (4) 999

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
(Ist Sitting) TF No. 8037731)

207. If $a = \frac{\sqrt{x+2} + \sqrt{x-2}}{\sqrt{x+2} - \sqrt{x-2}}$, then

the value of $(a^2 - ax)$ is

- (1) 1 (2) 2
(3) -1 (4) 0

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
IIInd Sitting)

ALGEBRA

208. If $x = \frac{1}{2+\sqrt{3}}$, $y = \frac{1}{2-\sqrt{3}}$,

then the value of $8xy(x^2 + y^2)$ is
 (1) 196 (2) 290
 (3) 112 (4) 194

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015 IIInd Sitting)

209. If $a^2 + b^2 + c^2 = ab + bc + ca$,

then the value of $\frac{a+c}{b}$ is

- (1) 3 (2) 2
 (3) 0 (4) 1

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015 IIInd Sitting)

210. If $\frac{m-a^2}{b^2+c^2} + \frac{m-b^2}{c^2+a^2}$

+ $\frac{m-c^2}{a^2+b^2} = 3$, then the value of m is

- (1) $a^2 + b^2 - c^2$ (2) $a^2 + b^2$
 (3) $a^2 + b^2 + c^2$ (4) $a^2 - b^2 - c^2$
 (SSC CGL Tier-I Exam, 09.08.2015 (Ist Sitting) TF No. 1443088)

211. If $x + \frac{1}{x} = 1$ then the value of

$\frac{x^2 + 3x + 1}{x^2 + 7x + 1}$ is

- (1) 1 (2) $\frac{3}{7}$
 (3) $\frac{1}{2}$ (4) 2

(SSC CGL Tier-I Exam, 09.08.2015 (IIInd Sitting) TF No. 4239378)

212. If $p = 99$ then, the value of $p(p^2 + 3p + 3)$ is :

- (1) 989898 (2) 988899
 (3) 999999 (4) 998889
 (SSC CGL Tier-I Exam, 16.08.2015 (Ist Sitting) TF No. 3196279)

213. If $x = \frac{\sqrt{5} - \sqrt{3}}{\sqrt{5} + \sqrt{3}}$ and y

= $\frac{\sqrt{5} + \sqrt{3}}{\sqrt{5} - \sqrt{3}}$ then the value of

$$\frac{x^2 + xy + y^2}{x^2 - xy + y^2} = ?$$

(1) $\frac{63}{61}$ (2) $\frac{67}{65}$

(3) $\frac{65}{63}$ (4) $\frac{69}{67}$

(SSC CGL Tier-I Exam, 16.08.2015 (IIInd Sitting) TF No. 2176783)

214. If $x + \frac{1}{x} = 1$ then the value of

$$\frac{2}{x^2 - x + 2} = ?$$

- (1) 2 (2) 4

(3) $\frac{2}{3}$ (4) 1

(SSC CGL Tier-I Exam, 16.08.2015 (IIInd Sitting) TF No. 2176783)

215. If $x = \frac{a-b}{a+b}$, $y = \frac{b-c}{b+c}$, $z =$

$\frac{c-a}{c+a}$, then $\frac{(1-x)(1-y)(1-z)}{(1+x)(1+y)(1+z)}$

is equal to

- (1) 1 (2) 0
 (3) 2 (4) $\frac{1}{2}$

(SSC CGL Tier-I Re-Exam, 30.08.2015)

216. Let $x = \frac{\sqrt{13} + \sqrt{11}}{\sqrt{13} - \sqrt{11}}$ and $y = \frac{1}{x}$,

then the value of $3x^2 - 5xy + 3y^2$ is

- (1) 1717 (2) 1177
 (3) 1771 (4) 1171

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

217. If $a + \frac{1}{b} = b + \frac{1}{c} = c + \frac{1}{a}$,

where $a \neq b \neq c \neq 0$, then the value of $a^2 b^2 c^2$ is

- (1) -1 (2) abc
 (3) 0 (4) 1

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

218. For real a, b, c if $a^2 + b^2 + c^2 = ab + bc + ca$, the value of $\frac{a+c}{b}$

is

- (1) 3 (2) 1
 (3) 2 (4) 0

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IIInd Sitting)

219. $9x^2 + 25 - 30x$ can be expressed as the square of

- (1) $-3x - 5$ (2) $3x + 5$
 (3) $3x - 5$ (4) $3x^2 - 25$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IIInd Sitting)

220. If $\frac{x}{3} + \frac{3}{x} = 1$ then the value of x^3 is

- (1) 1 (2) 27
 (3) 0 (4) -27

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IIInd Sitting)

221. If $x + y = 2a$, then the value of

$$\frac{a}{x-a} + \frac{a}{y-a}$$
 is

- (1) 2 (2) 0
 (3) 1 (4) -1

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IIInd Sitting)

222. If $\frac{x+1}{x-1} = \frac{a}{b}$ and $\frac{1-y}{1+y} = \frac{b}{a}$,

then the value of $\frac{x-y}{1+xy}$ is

(1) $\frac{2ab}{a^2 - b^2}$ (2) $\frac{a^2 - b^2}{2ab}$

(3) $\frac{a^2 + b^2}{2ab}$ (4) $\frac{a^2 - b^2}{ab}$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (Ist Sitting) TF No. 6636838)

223. If $\frac{a}{b} + \frac{b}{a} = 2$, then the value of

$(a-b)$ is :

- (1) 1 (2) 2
 (3) -1 (4) 0

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IIInd Sitting) TF No. 7203752)

224. If $\sqrt{y} = 4x$, then $\frac{x^2}{y}$ is :

(1) 2 (2) $\frac{1}{16}$

(3) $\frac{1}{4}$ (4) 4

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IIInd Sitting) TF No. 7203752)

ALGEBRA

225. If $\frac{x}{y} = \frac{a+2}{a-2}$, then the value of

$$\frac{x^2 - y^2}{x^2 + y^2}$$
 is :

(1) $\frac{4a}{a^2 + 2}$ (2) $\frac{2a}{a^2 + 2}$

(3) $\frac{4a}{a^2 + 4}$ (4) $\frac{2a}{a^2 + 4}$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IInd Sitting) TF No. 7203752)

226. If $x(x+y+z) = 20$, $y(x+y+z) = 30$, and $z(x+y+z) = 50$, then the value of $2(x+y+z)$ is :

(1) 20 (2) -10
(3) 15 (4) 18

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)

227. If $x+y=4$, $x^2+y^2=14$ and $x>y$, then the correct value of x and y is :

(1) $2 + \sqrt{3}, 2 - \sqrt{3}$

(2) $2 - \sqrt{2}, \sqrt{3}$

(3) 3, 1

(4) $2 + \sqrt{3}, 2\sqrt{2}$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)

228. If $a^2+b^2+c^2=2(a+b+c)-3$, then the value of $a+b+c$ is :

(1) 2 (2) -1
(3) 1 (4) -2

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)

229. If for non-zero x , $x^2 - 4x - 1 = 0$,

the value of $x^2 + \frac{1}{x^2}$ is :

(1) 12 (2) 4
(3) 18 (4) 10

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IInd Sitting) TF No. 3441135)

230. If $a + \frac{1}{b} = 1$ and $b + \frac{1}{c} = 1$

then $c + \frac{1}{a}$ is equal to :

(1) $\frac{1}{2}$ (2) 2
(3) 1 (4) 0

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IInd Sitting) TF No. 3441135)

231. If $\frac{a}{b} = \frac{25}{6}$, then the value of

$$\frac{a^2 - b^2}{a^2 + b^2}$$
 is

(1) $\frac{589}{661}$ (2) $\frac{661}{589}$

(3) $\frac{625}{36}$ (4) $\frac{589}{651}$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015 (Ist Sitting) TF No. 9692918)

232. If $(x-2)(x-p) = x^2 - ax + 6$, then the value of $(a-p)$ is

(1) 0 (2) 1
(3) 2 (4) 3

(SSC CGL Tier-I (CBE) Exam.10.09.2016)

233. If $x = \sqrt{a} + \frac{1}{\sqrt{a}}$, $y = \sqrt{a} - \frac{1}{\sqrt{a}}$,

$(a > 0)$, then the value of

$(x^4 + y^4 - 2x^2y^2)$ is

(1) 16 (2) 20
(3) 10 (4) 5

(SSC CGL Tier-I (CBE) Exam.10.09.2016)

234. If $2x + \frac{1}{3x} = 5$, the value of

$$\frac{5x}{6x^2 + 20x + 1}$$
 is

(1) $\frac{1}{4}$ (2) $\frac{1}{6}$

(3) $\frac{1}{5}$ (4) $\frac{1}{7}$

(SSC CGL Tier-I (CBE) Exam.11.09.2016) (Ist Sitting)

235. If $a+b=10$ and $ab=21$, then the value of $(a-b)^2$ is

(1) 15 (2) 16
(3) 17 (4) 18

(SSC CGL Tier-I (CBE) Exam.11.09.2016) (Ist Sitting)

236. Let $0 < x < 1$. Then the correct inequality is

(1) $x < \sqrt{x} < x^2$ (2) $\sqrt{x} < x < x^2$
(3) $x^2 < x < \sqrt{x}$ (4) $\sqrt{x} < x^2 < x$

(SSC CGL Tier-II Online Exam.01.12.2016)

237. If $x = \frac{\sqrt{5}+1}{\sqrt{5}-1}$ and $y = \frac{\sqrt{5}-1}{\sqrt{5}+1}$,

the value of $\frac{x^2 + xy + y^2}{x^2 - xy + y^2}$ is

(1) $\frac{3}{4}$ (2) $\frac{4}{3}$

(3) $\frac{3}{5}$ (4) $\frac{5}{3}$

(SSC CGL Tier-II Online Exam.01.12.2016)

238. If $a+b+c=m$ and $\frac{1}{a} + \frac{1}{b}$

+ $\frac{1}{c} = 0$, then average of a^2 , b^2 and c^2 is

(1) m^2 (2) $\frac{m^2}{3}$

(3) $\frac{m^2}{9}$ (4) $\frac{m^2}{27}$

(SSC CPO SI, ASI Online Exam.05.06.2016) (IInd Sitting)

239. If $x = \frac{8ab}{a+b}$ ($a \neq b$), then the

value of $\frac{x+4a}{x-4a} + \frac{x+4b}{x-4b}$ is :

(1) 0 (2) 1
(3) 2 (4) 4

(SSC CPO SI, ASI Online Exam.05.06.2016) (IInd Sitting)

240. The value of $(2a+b)^2 - (2a-b)^2$ is :

(1) $8ab$ (2) $-8ab$
(3) $8a^2 + 2b^2$ (4) $8a^2 - 2b^2$

(SSC CPO SI, ASI Online Exam.05.06.2016) (IInd Sitting)

241. If $a+b+c=0$ then the value of

$$\frac{a^2 + b^2 + c^2}{ab + bc + ca}$$
 is

(1) 2 (2) -2
(3) 0 (4) 4

(SSC CPO SI, ASI Online Exam.05.06.2016) (IInd Sitting)

242. If $a+b=2c$, find $\frac{a}{a-c} + \frac{c}{b-c}$.

(1) 0 (2) 1
(3) 2 (4) -1

(SSC CPO SI, ASI Online Exam.05.06.2016) (IInd Sitting)

ALGEBRA

243. If $2x + \frac{1}{4x} = 1$, then the value

of $x^2 + \frac{1}{64x^2}$ is

- (1) 0 (2) 1
 (3) $\frac{1}{4}$ (4) 2

(SSC CHSL (10+2) Tier-I (CBE)
Exam. 08.09.2016) (Ist Sitting)

244. The value of $\frac{a}{a-b} + \frac{b}{b-a}$ is

- (1) $\frac{(a+b)}{(a-b)}$ (2) -1
 (3) $2ab$ (4) 1

(SSC CGL Tier-I (CBE)
Exam. 09.09.2016) (Ist Sitting)

245. If $a + \frac{1}{b} = 1$ and $b + \frac{1}{c} = 1$

then $c + \frac{1}{a}$ is equal to

- (1) 1 (2) 0
 (3) -1 (4) 2

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 05.06.2016)
(Ist Sitting)

246. If $\frac{a}{b} = \frac{1}{2}$, find the value of the

expression $\frac{(2a-5b)}{(5a+3b)}$

- (1) -32 (2) 11
 (3) $\frac{-8}{11}$ (4) 17

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 05.06.2016)
(Ist Sitting)

247. If $\frac{1}{x^2} + x^2$ represents the radi-

us of circle P and $\frac{1}{x} + x = 17$,
which of the following best approximates the circumference of circle P ?

- (1) 287π (2) 547π
 (3) 574π (4) 278π

(SSC CPO SI & ASI, Online
Exam. 06.06.2016) (IIInd Sitting)

248. What is the value of m in the quadratic equation $x^2 + mx + 24$

= 0 if one of its roots is $\frac{3}{2}$

- (1) $-\frac{45}{2}$ (2) 16
 (3) $-\frac{21}{2}$ (4) $-\frac{35}{2}$

(SSC CPO SI & ASI, Online
Exam. 06.06.2016) (IIInd Sitting)

249. If $ab = 21$ and $\frac{(a+b)^2}{(a-b)^2} = \frac{25}{4}$,

then the value of $a^2 + b^2 + 3ab$ is

- (1) 115 (2) 121
 (3) 125 (4) 127

(SSC CGL Tier-I (CBE)
Exam. 27.08.2016) (Ist Sitting)

250. If $a + \frac{1}{a-2} = 4$, then the value

of $(a-2)^2 + \left(\frac{1}{a-2}\right)^2$ is :

- (1) 0 (2) 2
 (3) -2 (4) 4

(SSC CGL Tier-I (CBE)
Exam. 27.08.2016) (IIInd Sitting)

251. If $x = \frac{6pq}{p+q}$, then the value of

$\frac{x+3p}{x-3p} + \frac{x+3q}{x-3q}$ is

- (1) 6 (2) 8
 (3) 2 (4) 3

(SSC CGL Tier-I (CBE)
Exam. 27.08.2016) (IIInd Sitting)

252. If $x + \frac{1}{9x} = 4$, then the value

$9x^2 + \frac{1}{9x^2}$ is

- (1) 140 (2) 142
 (3) 144 (4) 146

(SSC CGL Tier-I (CBE)
Exam. 28.08.2016) (IIInd Sitting)

253. If $x\left(3 - \frac{2}{x}\right) = \frac{3}{x}$, then the value

of $x^2 + \frac{1}{x^2}$ will be

- (1) $3\frac{1}{9}$ (2) $3\frac{2}{9}$
 (3) $2\frac{1}{9}$ (4) $2\frac{4}{9}$

(SSC CGL Tier-I (CBE)
Exam. 28.08.2016) (IIInd Sitting)

254. If $x^2 + \frac{1}{x^2} = 2$, then the value

of $x - \frac{1}{x}$ is

- (1) -2 (2) 0
 (3) 1 (4) -1

(SSC CGL Tier-I (CBE)
Exam. 29.08.2016) (IIInd Sitting)

255. If $9x^2 + 16y^2 = 60$ and $3x + 4y = 6$, then the value of xy is

- (1) -1 (2) 1
 (3) -2 (4) 2

(SSC CGL Tier-I (CBE)
Exam. 29.08.2016) (IIInd Sitting)

256. If $p^2 + q^2 = 7pq$, then the value

of $\frac{p}{q} + \frac{q}{p}$ is equal to

- (1) 9 (2) 5
 (3) 7 (4) 3

(SSC CGL Tier-I (CBE)
Exam. 30.08.2016) (Ist Sitting)

257. If $x = 99$, then the value of $2(x^2 + 3x + 3)$ is equal to

- (1) 1000001 (2) 1000000
 (3) 999999 (4) 9999999

(SSC CGL Tier-I (CBE)
Exam. 30.08.2016) (Ist Sitting)

258. If $\frac{2p}{p^2 - 2p + 1} = \frac{1}{4}$, then the val-

ue of $p + \frac{1}{p}$ will be

- (1) 8 (2) 10
 (3) 12 (4) None of these

(SSC CGL Tier-I (CBE)
Exam. 31.08.2016) (Ist Sitting)

259. If $(a-b) = 3$ and $(a^2 + b^2) = 25$, then the value of (ab) is

- (1) 16 (2) 8
 (3) 10 (4) 15

(SSC CGL Tier-I (CBE)
Exam. 31.08.2016) (Ist Sitting)

260. If $a + \frac{1}{a} = 1$, then the value of

$\frac{a^2 - a + 1}{a^2 + a + 1}$ is ($a \neq 0$)

- (1) 1 (2) -1
 (3) 0 (4) 2

(SSC CGL Tier-I (CBE)
Exam. 02.09.2016) (Ist Sitting)

ALGEBRA

261. If $x - \frac{1}{x} = 2$, then what is the

value of $x^2 + \frac{1}{x^2}$?

- (1) 4 (2) 5
(3) 3 (4) 6

(SSC CGL Tier-I (CBE))

Exam. 02.09.2016 (IInd Sitting)

262. If $a + b = 2c$, then the value of

$\frac{a}{a-c} + \frac{c}{b-c}$ is equal to (where $a \neq b \neq c$)

- (1) -1 (2) 1
(3) 0 (4) $\frac{1}{2}$

(SSC CGL Tier-I (CBE))

Exam. 04.09.2016 (Ist Sitting)

263. If $x + \frac{1}{x} = 5$, then the value of

$\frac{x}{1+x+x^2}$ is

- (1) $\frac{1}{5}$ (2) $\frac{1}{6}$
(3) 5 (4) 6

(SSC CGL Tier-I (CBE))

Exam. 04.09.2016 (Ist Sitting)

264. If $\frac{a^2}{b+c} = \frac{b^2}{c+a} = \frac{c^2}{a+b} = 1$ then find the value of

$\frac{2}{1+a} + \frac{2}{1+b} + \frac{2}{1+c}$.

- (1) 0 (2) 1
(3) 2 (4) 3

(SSC CGL Tier-I (CBE))

Exam. 04.09.2016 (Ist Sitting)

265. If $5x + \frac{1}{x} = 10$, then $x^2 + \frac{1}{25x^2}$ is equal to

- (1) $2\frac{1}{5}$ (2) $3\frac{1}{5}$
(3) $3\frac{3}{5}$ (4) $2\frac{3}{5}$

(SSC CGL Tier-I (CBE))

Exam. 06.09.2016 (Ist Sitting)

266. If $4r = h + \sqrt{r^2 + h^2}$ then $r : h$ is

- ? ($r \neq 0$)
(1) 17:8 (2) 8:17
(3) 8:15 (4) 15:8

(SSC CGL Tier-I (CBE))

Exam. 06.09.2016 (Ist Sitting)

267. If $p = 99$, then the value of $p(p^2 + 3p + 3)$ will be

- (1) 999999 (2) 1000000
(3) 1000001 (4) 999998

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (Ist Sitting)

268. If $\frac{x}{a+b} + 1 = \frac{x}{a-b} + \frac{a-b}{a+b}$, then x is equal to

- (1) $2a - b$ (2) $a + b$
(3) $a - b$ (4) $2a + b$

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (Ist Sitting)

269. If $x^2 + y^2 = 29$ and $xy = 10$, where $x > 0$, $y > 0$, $x > y$ then

the value of $\frac{x+y}{x-y}$ is

- (1) $-\frac{7}{3}$ (2) $\frac{7}{3}$
(3) $\frac{3}{7}$ (4) $-\frac{3}{7}$

(SSC CGL Tier-I (CBE))

Exam. 30.08.2016 (IInd Sitting)

270. If $4x^2 - 12x + k$ is a perfect square, then the value of k is

- (1) 2 (2) 9
(3) 12 (4) 10

(SSC CGL Tier-I (CBE))

Exam. 31.08.2016 (IInd Sitting)

271. The value of

$$\left(\frac{1}{(p-n)(n-q)} + \frac{1}{(n-q)(q-p)} + \frac{1}{(q-p)(p-n)} \right)$$

is

- (1) 1 (2) 0
(3) $p+q+n$ (4) $\frac{2n}{p+q}$

(SSC CGL Tier-I (CBE))

Exam. 01.09.2016 (IIInd Sitting)

272. If $\frac{a^2}{b+c} = \frac{b^2}{c+a} = \frac{c^2}{a+b} = 1$

then $\frac{1}{1+a} + \frac{1}{1+b} + \frac{1}{1+c}$ is

- (1) 1 (2) 2
(3) 3 (4) 4

(SSC CGL Tier-I (CBE))

Exam. 01.09.2016 (IIInd Sitting)

273. If $a^2 + 1 = 9a$, ($a \neq 0$) then the

value of $(a)^2 + \frac{1}{(a)^2}$ is

- (1) 81 (2) 18
(3) 79 (4) 83

(SSC CGL Tier-I (CBE))

Exam. 02.09.2016 (IIInd Sitting)

274. If $p = 99$, then the value of $p(p^2 + 3p + 3)$ is

- (1) 9999 (2) 999999
(3) 99999 (4) 9999999

(SSC CGL Tier-II (CBE))

Exam. 30.11.2016

275. If $x + \frac{1}{x} = c + \frac{1}{c}$ then the value

of x is

- (1) $c\frac{1}{c}$ (2) c, c^2
(3) $c, 2c$ (4) 0, 1

(SSC CGL Tier-II (CBE))
Exam. 30.11.2016

276. If $x^2 + y^2 + 6x + 5 = 4(x - y)$ then $(x - y)$ is

- (1) 1 (2) -1
(3) 0 (4) 4

(SSC CGL Tier-II (CBE))
Exam. 30.11.2016

277. If $\left(x - \frac{1}{3x}\right) = \frac{1}{3}$, the value of 3

$\left(x - \frac{1}{3x}\right)$ is :

- (1) -1 (2) 1
(3) -2 (4) 2

(SSC CGL Tier-I (CBE))

Exam. 28.08.2016 (IST Sitting)

278. If $\frac{a}{q-r} = \frac{b}{r-p} = \frac{c}{p-q}$, find the value of $(pa + qb + rc)$.

- (1) 0 (2) 1
(3) 2 (4) -1

(SSC CGL Tier-I (CBE))

Exam. 29.08.2016 (IST Sitting)

279. If $\frac{3a+4b}{3c+4d} = \frac{3a-4b}{3c-4d}$, then

- (1) $ab = cd$ (2) $ad = bc$
(3) $ac = bd$ (4) $a = b = c = d$

(SSC CGL Tier-I (CBE))

Exam. 30.08.2016 (IIIrd Sitting)

280. If $\left(x + \frac{1}{x}\right) = 2$ then $\left(x^2 + \frac{1}{x^2}\right)$

is equal to

- (1) 0 (2) 2
(3) 4 (4) 8

(SSC CGL Tier-I (CBE))

Exam. 31.08.2016 (IIIrd Sitting)

281. If $a + b = 17$ and $a - b = 9$, then the value of $(4a^2 + 4b^2)$ is :

- (1) 710 (2) 720
(3) 730 (4) 740

(SSC CGL Tier-I (CBE))

Exam. 31.08.2016 (IIIrd Sitting)

282. If $x + y = \sqrt{3}$ and $x - y = \sqrt{2}$, then the value of $8xy(x^2 + y^2)$ is :

- (1) 6 (2) $\sqrt{6}$
(3) 5 (4) $\sqrt{5}$

(SSC CGL Tier-I (CBE))

Exam. 31.08.2016 (IIIrd Sitting)

283. If $a^2 + 1 = a$, then the value of a^3 is

- (1) 0 (2) 1
(3) -1 (4) 2

(SSC CGL Tier-I (CBE))

Exam. 01.09.2016 (IIIrd Sitting)

ALGEBRA

284. If $x + 3y = -3x + y$, then $\frac{x^2}{2y^2}$ is equal to

- (1) $\frac{1}{8}$
- (2) $\frac{1}{2}$
- (3) $\frac{1}{4}$
- (4) 4

(SSC CGL Tier-I (CBE))

Exam. 01.09.2016 (IIInd Sitting)

285. If $(a+b-6)^2 + a^2 + b^2 + 1 + 2b = 2ab + 2a$, then the value of a is

- (1) 7
- (2) 6
- (3) 3.5
- (4) 2.5

(SSC CGL Tier-I (CBE))

Exam. 01.09.2016 (IIInd Sitting)

286. If $\left(a + \frac{1}{a}\right)^2 = 3$, then the value

of $\left(a^2 + \frac{1}{a^2}\right)$ will be

- (1) 0
- (2) 1
- (3) 2
- (4) 3

(SSC CGL Tier-I (CBE))

Exam. 02.09.2016 (IIInd Sitting)

287. If $\left\{\frac{1}{2}(a-b)\right\}^2 + ab = p(a+b)^2$, then the value of p is :

- (1) $p = 4$
- (2) $p = \frac{1}{2}$
- (3) $p = \frac{1}{4}$
- (4) $p = 2$

(SSC CGL Tier-I (CBE))

Exam. 02.09.2016 (IIInd Sitting)

288. The maximum value of $5 + 20x - 4x^2$, when x is a real number is :

- (1) 1
- (2) 5
- (3) 25
- (4) 30

(SSC CGL Tier-I (CBE))

Exam. 04.09.2016 (IIInd Sitting)

289. If $x = at^2$ and $y = 2at$ then

- (1) $x^2 = 4ay$
- (2) $y^2 = 4ax$
- (3) $x^2 + y^2 = a^2$
- (4) $x^2 - y^2 = a^2$

(SSC CGL Tier-I (CBE))

Exam. 06.09.2016 (IIInd Sitting)

290. If $\left(a + \frac{1}{b}\right) = 1$ and $\left(b + \frac{1}{c}\right) = 1$,

then the value of $\left(c + \frac{1}{a}\right)$ is :

- (1) 0
- (2) 1
- (3) -1
- (4) 2

(SSC CGL Tier-I (CBE))

Exam. 06.09.2016 (IIInd Sitting)

291. If $(a-2) + \frac{1}{(a+2)} = -1$, then

the value of $(a+2)^2 + \frac{1}{(a+2)^2}$

is :

- (1) 7
- (2) 11
- (3) 23
- (4) 27

(SSC CGL Tier-I (CBE))

Exam. 06.09.2016 (IIInd Sitting)

292. If $a^2 = b + c$, $b^2 = c + a$, $c^2 = a + b$, then the value of

$3\left(\frac{1}{a+1} + \frac{1}{b+1} + \frac{1}{c+1}\right)$ is :

- (1) 1
- (2) $\frac{1}{3}$
- (3) 3
- (4) 4

(SSC CGL Tier-I (CBE))

Exam. 06.09.2016 (IIInd Sitting)

293. If $x^2 + 5x + 6 = 0$, then the value

of $\frac{2x}{x^2 - 7x + 6}$ is :

- (1) $\frac{1}{6}$
- (2) $\frac{1}{3}$
- (3) $-\frac{1}{6}$
- (4) $-\frac{1}{3}$

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (IIInd Sitting)

294. If $a + b = 5$ and $a - b = 3$, then the value of $(a^2 + b^2)$ is :

- (1) 17
- (2) 18
- (3) 19
- (4) 20

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (IIInd Sitting)

295. If $\left(x + \frac{1}{x}\right) = 5$, then find the val-

ue of $\frac{6x}{x^2 + x + 1}$

- (1) 3
- (2) 2
- (3) 1
- (4) 0

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (IIInd Sitting)

296. If $\frac{3}{(x+2)(2x+1)} = \frac{a}{2x+1} + \frac{b}{x+2}$

be an identify, then the value of b is :

- (1) 0
- (2) -1
- (3) 2
- (4) 3

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (IIInd Sitting)

297. If $a + \frac{1}{b} = 1$, $b + \frac{1}{c} = 1$, then the

value of (abc) is :

- (1) 0
- (2) -1
- (3) 1
- (4) ab

(SSC CGL Tier-I (CBE))

Exam. 08.09.2016 (IIInd Sitting)

298. If $2x - \frac{1}{2x} = 5$, $x \neq 0$ then the

value of $\left(x^2 + \frac{1}{16x^2} - 2\right)$ is :

- (1) $\frac{19}{4}$
- (2) $\frac{23}{4}$
- (3) $\frac{27}{4}$
- (4) $\frac{31}{4}$

(SSC CGL Tier-I (CBE))

Exam. 08.09.2016 (IIInd Sitting)

299. If $a(x+y) = b(x-y) = 2ab$, then the value of $2(x^2 + y^2)$ is :

- (1) $2(a^2 - b^2)$
- (2) $2(a^2 + b^2)$
- (3) $4(a^2 - b^2)$
- (4) $4(a^2 + b^2)$

(SSC CGL Tier-I (CBE))

Exam. 08.09.2016 (IIInd Sitting)

300. If $\left(x + \frac{1}{x}\right) = 6$, then value of $\left(x^2 + \frac{1}{x^2}\right)$ is :

- (1) 23
- (2) 16
- (3) 34
- (4) 32

(SSC CGL Tier-I (CBE))

Exam. 08.09.2016 (IIInd Sitting)

301. If $x^2 - 3x + 1 = 0$, ($x \neq 0$), then the

value of $\left(x + \frac{1}{x}\right)$ is

- (1) 1
- (2) 0
- (3) 3
- (4) 2

(SSC CGL Tier-I (CBE))

Exam. 09.09.2016 (IIInd Sitting)

302. If $\frac{2+a}{a} + \frac{2+b}{b} + \frac{2+c}{c} = 4$,

then the value of $\left(\frac{ab+bc+ca}{abc}\right)$ is

- (1) 2
- (2) 1
- (3) 0
- (4) $\frac{1}{2}$

(SSC CGL Tier-I (CBE))

Exam. 09.09.2016 (IIInd Sitting)

303. If $\left(x + \frac{1}{x}\right) = 5$, then the value of

$\frac{5x}{x^2 + 5x + 1}$ is :

- (1) $\frac{1}{3}$
- (2) $\frac{1}{4}$
- (3) $\frac{1}{2}$
- (4) $\frac{1}{5}$

(SSC CGL Tier-I (CBE))

Exam. 09.09.2016 (IIInd Sitting)

304. If $\left(p^2 + \frac{1}{p^2}\right) = 47$, the value of

$\left(p + \frac{1}{p}\right)$ is :

- (1) 5
- (2) 6
- (3) 7
- (4) 8

(SSC CGL Tier-I (CBE))

Exam. 10.09.2016 (IIInd Sitting)

ALGEBRA

305. If $\frac{a}{1-2a} + \frac{b}{1-2b} + \frac{c}{1-2c} = \frac{1}{2}$, then the value of $\frac{1}{1-2a} + \frac{1}{1-2b} + \frac{1}{1-2c}$ is :

- (1) 1 (2) 2
(3) 3 (4) 4

(SSC CGL Tier-I (CBE)
Exam. 10.09.2016 (IIIrd Sitting)

306. If $\left(4x + \frac{1}{x}\right) = 5$, $x \neq 0$, then the value of $\frac{5x}{4x^2 + 10x + 1}$ is

- (1) $\frac{1}{2}$ (2) $\frac{1}{3}$
(3) $\frac{2}{3}$ (4) 3

(SSC CGL Tier-I (CBE)
Exam. 11.09.2016 (IIIrd Sitting)

307. If $(a+b)^2 = 100$ and $(a-b) = 4$, then ab equals to :

- (1) 116 (2) 84
(3) 21 (4) 53

(SSC CGL Tier-I (CBE)
Exam. 27.10.2016 (Ist Sitting)

308. If $\frac{x^2 + 3x + 1}{x^2 - 3x + 1} = \frac{1}{2}$, then the value of $\left(x + \frac{1}{x}\right)$ is :

- (1) 9 (2) -9
(3) 1 (4) 2

(SSC CGL Tier-I (CBE)
Exam. 27.10.2016 (Ist Sitting)

309. What should be added to $8(3x-4y)$ to obtain $(18x-18y)$?

- (1) $6x - 14y$ (2) $14y + 6x$
(3) $14y - 6x$ (4) $6xy$

(SSC CHSL (10+2) Tier-I (CBE)
Exam. 15.01.2017) (IIInd Sitting)

310. If $4(2x+3) > 5-x$ and $5x-3(2x-7) > 3x-1$, then x can take which of the following values?

- (1) 6 (2) -1
(3) 5 (4) -6

(SSC CHSL (10+2) Tier-I (CBE)
Exam. 15.01.2017) (IIInd Sitting)

311. If $5x-40 = 3x$, then the numerical value of $(2x-11)$ is

- (1) 29 (2) 39
(3) 19 (4) 9

(SSC CHSL (10+2) Tier-I (CBE)
Exam. 15.01.2017) (IIInd Sitting)

312. Which of the following equations has equal roots?

- (1) $3x^2 - 6x + 2 = 0$
(2) $3x^2 - 6x + 3 = 0$
(3) $x^2 - 8x + 8 = 0$
(4) $4x^2 - 8x + 2 = 0$

(SSC CHSL (10+2) Tier-I (CBE)
Exam. 15.01.2017) (IIInd Sitting)

313. If $2x - 3(4 - 2x) < 4x - 5 < 4x + \frac{2x}{3}$, then x can take which of the following values?

- (1) 2 (2) 8
(3) 0 (4) -8

(SSC CHSL (10+2) Tier-I (CBE)
Exam. 16.01.2017) (IIInd Sitting)

314. If $a - b = 11$ and $ab = 24$, then the value of $(a^2 + b^2)$ is

- (1) 169 (2) 37
(3) 73 (4) 48

(SSC CHSL (10+2) Tier-I (CBE)
Exam. 16.01.2017) (IIInd Sitting)

315. The simplified form of $(x + 3)^2 + (x - 1)^2$ is

- (1) $(x^2 + 2x + 5)$ (2) $2(x^2 + 2x + 5)$
(3) $(x^2 - 2x + 5)$ (4) $2(x^2 - 2x + 5)$

(SSC CHSL (10+2) Tier-I (CBE)
Exam. 16.01.2017) (IIInd Sitting)

316. If $a + \frac{1}{b} = 1$ and $b + \frac{1}{c} = 1$,

then the value of $c + \frac{1}{a}$ is

- (1) 0 (2) 2
(3) 1 (4) 3

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

317. If $a + b + c + d = 4$ then the

value of $\frac{1}{(1-a)(1-b)(1-c)} + \frac{1}{(1-b)(1-c)(1-d)} + \frac{1}{(1-c)(1-d)(1-a)}$

+ $\frac{1}{(1-d)(1-a)(1-b)}$ is

- (1) 0 (2) 1
(3) 4 (4) $1+abcd$

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

318. If $a = \frac{1}{a-5}$ ($a > 0$), then the

value of $a + \frac{1}{a}$ is

- (1) $\sqrt{29}$ (2) $-\sqrt{27}$
(3) $-\sqrt{29}$ (4) $\sqrt{27}$

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

319. If $a + \frac{1}{b} = b + \frac{1}{c} = c + \frac{1}{a}$ (where

$a \neq b \neq c$), then abc is equal to

- (1) +1 (2) -1
(3) +1 and -1
(4) None of the options

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

320. If $ax + by = 1$ and $bx + ay = \frac{2ab}{a^2 + b^2}$ then $(x^2 + y^2)(a^2 + b^2)$

is equal to

- (1) 1 (2) 2
(3) 0.5 (4) 0

(SSC CGL Tier-II (CBE)

Exam. 12.01.2017)

TYPE-II

1. If $x = \sqrt{3} + \sqrt{2}$, then the value

of $\left(x^3 + \frac{1}{x^3}\right)$ is

- (1) $6\sqrt{3}$ (2) $12\sqrt{3}$
(3) $18\sqrt{3}$ (4) $24\sqrt{3}$

(SSC CGL Prelim Exam. 04.02.2007
(Second Sitting)

2. If $x + y = 7$, then the value of x^3 + y^3 + 21 xy is

- (1) 243 (2) 143
(3) 343 (4) 443

(SSC CGL Prelim Exam. 04.02.2007
(Second Sitting)

3. If $\frac{1}{x^3} + \frac{1}{y^3} = \frac{1}{z^3}$, then

$\{(x+y-z)^3 + 27xyz\}$ equals :

- (1) -1 (2) 1
(3) 0 (4) 27

(SSC CPO S.I. Exam. 16.12.2007)

4. If $4b^2 + \frac{1}{b^2} = 2$, then the value

of $8b^3 + \frac{1}{b^3}$ is

- (1) 0 (2) 1
(3) 2 (4) 5

(SSC CPO S.I. Exam. 09.11.2008)

5. If $2p + \frac{1}{p} = 4$, then value of

$p^3 + \frac{1}{8p^3}$ is

- (1) 4 (2) 5
(3) 8 (4) 15

(SSC CGL Tier-I Exam. 16.05.2010
(Second Sitting)

6. If $a^4 + b^4 = a^2b^2$, then $(a^6 + b^6)$ equals

- (1) 0 (2) 1
(3) $a^2 + b^2$ (4) $a^2b^4 + a^4b^2$

(SSC CPO S.I. Exam. 12.12.2010
(Paper-I))

ALGEBRA

- 7.** If $x + \frac{1}{x} = \sqrt{3}$ then the value of $x^{18} + x^{12} + x^6 + 1$ is
 (1) 0 (2) 1
 (3) 2 (4) 3

(SSC CPO (SI, ASI & Intelligence Officer)
 Exam 28.08.2011 (Paper-I)

- 8.** If $x + \frac{1}{x} = 2, x \neq 0$ then value of

$$x^2 + \frac{1}{x^3}$$

is equal to

- (1) 1 (2) 2
 (3) 3 (4) 4

FCI Assistant Grade-III
 Exam. 25.02.2012 (Paper-I)
 North Zone (1st Sitting)

- 9.** If $\frac{a}{b} + \frac{b}{a} = 1, a \neq 0, b \neq 0$ the value of $a^3 + b^3$ is

- (1) 0 (2) 1
 (3) -1 (4) 2

(SSC CGL Prelim Exam. 04.02.2007
 (IIInd Sitting) & (FCI Assistant Grade-III
 Exam. 25.02.2012 (Paper-I) North Zone
 (1st Sitting) & (SSC GL Tier-I
 Exam. 19.05.2013 (1st Sitting)

- 10.** If $x + \frac{1}{x} = 3$, then the value of

$$\frac{x^3 + 1}{x^2 - x + 1}$$

is :

- (1) $\frac{3}{2}$ (2) $\frac{5}{2}$
 (3) $\frac{7}{2}$ (4) $\frac{11}{2}$

(SSC CHSL DEO & LDC
 Exam. 27.11.2010)

- 11.** If $a + \frac{1}{a} + 1 = 0$ ($a \neq 0$) then the value of $(a^4 - a)$ is :

- (1) 0 (2) 1
 (3) 2 (4) -1

(SSC CHSL DEO & LDC
 Exam. 27.11.2010)

- 12.** If $x = a + \frac{1}{a}$ and $y = a - \frac{1}{a}$, then the value of $x^4 + y^4 - 2x^2y^2$ is
 (1) 24 (2) 18
 (3) 16 (4) 12

(SSC CHSL DEO & LDC
 Exam. 28.11.2010 (IIInd Sitting)

- 13.** If $x + \frac{1}{2x} = 2$, find the value of $8x^3 + \frac{1}{x^3}$.

- (1) 48 (2) 88
 (3) 40 (4) 44

(SSC CHSL DEO & LDC
 Exam. 04.12.2011 (1st Sitting
 (North Zone)

- 14.** If for two real constants a and b , the expression $ax^3 + 3x^2 - 8x + b$ is exactly divisible by $(x+2)$ and $(x-2)$, then

- (1) $a = 2, b = 12$
 (2) $a = 12, b = 2$
 (3) $a = 2, b = -12$
 (4) $a = -2, b = 12$

(SSC CHSL DEO & LDC
 Exam. 04.12.2011 (IIInd Sitting
 (North Zone)

- 15.** If $x^2 - 3x + 1 = 0$, then the value

$$of x^3 + \frac{1}{x^3}$$

- (1) 9 (2) 18
 (3) 27 (4) 1

(SSC CHSL DEO & LDC
 Exam. 04.12.2011 (IIInd Sitting
 (North Zone)

- 16.** If $x + \frac{1}{4x} = \frac{3}{2}$, find the value of

$$8x^3 + \frac{1}{8x^3}.$$

- (1) 18 (2) 36
 (3) 24 (4) 16

(SSC CHSL DEO & LDC Exam.
 04.12.2011 (1st Sitting (East Zone)

- 17.** If $\frac{1}{x+y} = \frac{1}{x} + \frac{1}{y}$ ($x \neq 0, y \neq 0, x \neq y$) then, the value of $x^3 - y^3$ is

- (1) 0 (2) 1
 (3) -1 (4) 2

(SSC CHSL DEO & LDC
 Exam. 11.12.2011 (1st Sitting
 (Delhi Zone)

- 18.** If $x = a(b-c), y = b(c-a)$ and $z = c(a-b)$, then

$$\left(\frac{x}{a}\right)^3 + \left(\frac{y}{b}\right)^3 + \left(\frac{z}{c}\right)^3 =$$

- (1) $\frac{xyz}{3abc}$ (2) $3xyzabc$

- (3) $\frac{3xyz}{abc}$ (4) $\frac{xyz}{abc}$

(SSC CHSL DEO & LDC
 Exam. 11.12.2011 (1st Sitting
 (Delhi Zone)

- 19.** If $xy(x+y) = 1$, then the value of

$$\frac{1}{x^3y^3} - x^3 - y^3$$

- (1) 0 (2) 1
 (3) 3 (4) -2

(SSC CHSL DEO & LDC
 Exam. 11.12.2011 (IIInd Sitting
 (Delhi Zone) & (SSC GL Tier-I
 Exam. 21.04.2013)

- 20.** If $x^4 + \frac{1}{x^4} = 119$ and $x > 1$, then

$$the value of x^3 - \frac{1}{x^3}$$

- (1) 54 (2) 18
 (3) 72 (4) 36

(SSC CHSL DEO & LDC
 Exam. 11.12.2011 (1st Sitting
 (East Zone)

- 21.** If $3x + \frac{1}{2x} = 5$, then the value

$$of 8x^3 + \frac{1}{27x^3}$$

- (1) $118\frac{1}{2}$ (2) $30\frac{10}{27}$

- (3) 0 (4) 1

(SSC CHSL DEO & LDC
 Exam. 11.12.2011 (IIInd Sitting
 (East Zone)

- 22.** If $x + y = z$, then the expression $x^3 + y^3 - z^3 + 3xyz$ will be equal to :

- (1) 0 (2) $3xyz$
 (3) $-3xyz$ (4) z^3

(SSC CHSL DEO & LDC
 Exam. 11.12.2011 (IIInd Sitting
 (East Zone)

- 23.** If $\left(x + \frac{1}{x}\right)^2 = 3$,

then the value of

$$(x^{72} + x^{66} + x^{54} + x^{36} + x^{24} + x^6 + 1)$$

- (1) 1 (2) 2

- (3) 3 (4) 4

(SSC Graduate Level Tier-II
 Exam. 16.09.2012)

- 24.** If $\left(x + \frac{1}{x}\right)^2 = 3$, then the value

$$of x^{206} + x^{200} + x^{90} + x^{84} + x^{18} + x^{12} + x^6 + 1$$

- (1) 0 (2) 1

- (3) 84 (4) 206

(SSC Graduate Level Tier-II
 Exam. 16.09.2012)

ALGEBRA

25. If $a + \frac{1}{a} = \sqrt{3}$, then the value of

$$a^6 - \frac{1}{a^6} + 2 \text{ will be}$$

- (1) 1 (2) 2

- (3) $3\sqrt{3}$ (4) 5

(SSC CHSL DEO & LDC Exam.
21.10.2012 (Ist Sitting)

26. If $x^3 + y^3 = 35$ and $x + y = 5$, then

the value of $\frac{1}{x} + \frac{1}{y}$ will be :

- (1) $\frac{1}{3}$ (2) $\frac{5}{6}$

- (3) 6 (4) $\frac{2}{3}$

(SSC CHSL DEO & LDC Exam.
21.10.2012 (IIInd Sitting)

27. If $a^3 - b^3 = 56$ and $a - b = 2$, then value of $a^2 + b^2$ will be :

- (1) 48 (2) 20

- (3) 22 (4) 5

(SSC CHSL DEO & LDC Exam.
21.10.2012 (IIInd Sitting)

28. If $(a^2 + b^2)^3 = (a^3 + b^3)^2$, then

$\frac{a}{b} + \frac{b}{a}$ is

- (1) $\frac{1}{3}$ (2) $\frac{2}{3}$

- (3) $-\frac{1}{3}$ (4) $-\frac{2}{3}$

(SSC CHSL DEO & LDC Exam.
28.10.2012 (Ist Sitting)

29. If $x + \frac{1}{x} = 5$, then the value of

$$\frac{x^4 + 3x^3 + 5x^2 + 3x + 1}{x^4 + 1}$$

- (1) $\frac{43}{23}$ (2) $\frac{47}{21}$

- (3) $\frac{41}{23}$ (4) $\frac{45}{21}$

(SSC CHSL DEO & LDC Exam.
28.10.2012 (Ist Sitting)

30. If x is real, $x + \frac{1}{x} \neq 0$ and $x^3 + \frac{1}{x^3} = 0$, then the value of

$$\left(x + \frac{1}{x}\right)^4$$

- (1) 4 (2) 9
(3) 16 (4) 25

(SSC Graduate Level Tier-I
Exam. 11.11.2012 (Ist Sitting)

31. If $x + \frac{1}{x} = 3$, then the value of

$$\left(x^5 + \frac{1}{x^5}\right) \text{ is}$$

- (1) 322 (2) 126

- (3) 123 (4) 113

(SSC Graduate Level Tier-I
Exam. 11.11.2012 (Ist Sitting)
& (SSC CHSL DEO & LDC
Exam. 27.10.2013 (IIInd Sitting)

32. If $x - \frac{1}{x} = 3$, then value of

$$x^3 - \frac{1}{x^3} \text{ is}$$

- (1) 32 (2) 36

- (3) 40 (4) 49

(SSC Assistant Grade-III
Exam. 11.11.2012 (IIInd Sitting)

33. If $m^4 + \frac{1}{m^4} = 119$, then

$$m - \frac{1}{m} = ?$$

- (1) ± 3 (2) 4

- (3) ± 2 (4) ± 1

(SSC Assistant Grade-III
Exam. 11.11.2012 (IIInd Sitting)

34. If $x + y + z = 6$, then the value of $(x - 1)^3 + (y - 2)^3 + (z - 3)^3$ is

- (1) $3(x - 1)(y + 2)(z - 3)$

- (2) $3(x + 1)(y - 2)(z - 3)$

- (3) $3(x - 1)(y - 2)(z + 3)$

- (4) $3(x - 1)(y - 2)(z - 3)$

(SSC Delhi Police S.I.(SI)
Exam. 19.08.2012)

35. If $x^2 + 1 = 2x$, then the value of

$$\frac{x^4 + \frac{1}{x^2}}{x^2 - 3x + 1} \text{ is}$$

- (1) 0 (2) 1

- (3) 2 (4) -2

(SSC Delhi Police S.I.(SI)
Exam. 19.08.2012)

36. If $x = \sqrt{3} + \sqrt{2}$, then the value

$$\text{of } x^3 - \frac{1}{x^3} \text{ is :}$$

- (1) $14\sqrt{2}$ (2) $14\sqrt{3}$

- (3) $22\sqrt{2}$ (4) $10\sqrt{2}$

(SSC CHSL DEO & LDC Exam.
04.11.2012, Ist Sitting)

37. If $x > 1$ and $x^2 + \frac{1}{x^2} = 83$, then

$$x^3 - \frac{1}{x^3} \text{ is}$$

- (1) 764 (2) 750

- (3) 756 (4) 760

(SSC FCI Assistant Grade-III Main
Exam. 07.04.2013)

38. If $\left(a + \frac{1}{a}\right)^2 = 3$, then $a^3 + \frac{1}{a^3} = ?$

- (1) $2\sqrt{3}$ (2) 2

- (3) $3\sqrt{3}$ (4) 0

(SSC FCI Assistant Grade-III Main
Exam. 07.04.2013)

39. If $\frac{x}{x^2 - 2x + 1} = \frac{1}{3}$, then the

value of $x^3 + \frac{1}{x^3}$ is :

- (1) 81 (2) 110

- (3) 125 (4) 27

(SSC Graduate Level Tier-I
Exam. 21.04.2013, Ist Sitting)

40. If, $\left(x + \frac{1}{x}\right) = 4$, then the value

of $x^4 + \frac{1}{x^4}$ is :

- (1) 64 (2) 194

- (3) 81 (4) 124

(SSC Graduate Level Tier-I
Exam. 21.04.2013, Ist Sitting)

41. If $x + y + z = 6$ and $x^2 + y^2 + z^2 = 20$ then the value of $x^3 + y^3 + z^3 - 3xyz$ is

- (1) 64 (2) 70

- (3) 72 (4) 76

(SSC Graduate Level Tier-I
Exam. 21.04.2013)

42. If $x = 1 - \sqrt{2}$, the value

of $\left(x - \frac{1}{x}\right)^3$ is

- (1) -8 (2) 8

- (3) $2\sqrt{2}$ (4) 1

(SSC Graduate Level Tier-I
Exam. 19.05.2013 Ist Sitting)

43. If $x = a - b$, $y = b - c$, $z = c - a$, then the numerical value of the algebraic expression

$x^3 + y^3 + z^3 - 3xyz$ will be

- (1) $a + b + c$ (2) 0

- (3) $4(a + b + c)$

- (4) $3abc$

(SSC CAPFs SI & CISF ASI
Exam. 23.06.2013)

ALGEBRA

44. If $x = \frac{\sqrt{3} - \sqrt{2}}{\sqrt{3} + \sqrt{2}}$ and $y = \frac{\sqrt{3} + \sqrt{2}}{\sqrt{3} - \sqrt{2}}$, then the value of

$x^3 + y^3$ is :

- (1) 950 (2) 730
 (3) 650 (4) 970
 (SSC CAPFs SI & CISF ASI Exam. 23.06.2013)

45. If $(x - a)(x - b) = 1$ and $a - b + 5 = 0$, then the value of

$$(x - a)^3 - \frac{1}{(x - a)^3}$$

- (1) -125 (2) 1
 (2) 125 (4) 140
 (SSC Graduate Level Tier-II Exam. 29.09.2013)

46. If $a^2 + b^2 + c^2 = 2(a - b - c) - 3$, then the value of $4a - 3b + 5c$ is

- (1) 2 (2) 3
 (3) 5 (4) 6
 (SSC Graduate Level Tier-II Exam. 29.09.2013)

47. If $2x + \frac{2}{x} = 3$, then the value of

$$x^3 + \frac{1}{x^3} + 2$$

- (1) $-\frac{9}{8}$ (2) $-\frac{25}{8}$
 (3) $\frac{7}{8}$ (4) 11
 (SSC Graduate Level Tier-II Exam. 29.09.2013)

48. If $a + b + c = 15$ and $a^2 + b^2 + c^2 = 83$ then the value of $a^3 + b^3 + c^3 - 3abc$

- (1) 200 (2) 180
 (3) 190 (4) 210
 (SSC CHSL DEO & LDC Exam. 27.10.2013 IIInd Sitting)

49. If $a - b = 3$ and $a^3 - b^3 = 117$ then $|a + b|$ is equal to

- (1) 3 (2) 5
 (3) 7 (4) 9
 (SSC CHSL DEO & LDC Exam. 27.10.2013 IIInd Sitting)

50. If $x + \frac{1}{x+1} = 1$, then

$$(x+1)^5 + \frac{1}{(x+1)^5}$$

- equals
 (1) 1 (2) 2
 (3) 4 (4) 8
 (SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

51. If $\frac{1}{a} - \frac{1}{b} = \frac{1}{a-b}$, then the value of $a^3 + b^3$ is

- (1) 0 (2) -1
 (3) 1 (4) 2

(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

52. If $a + b + c = 0$, then $a^3 + b^3 + c^3$ is equal to

- (1) $a + b + c$ (2) abc
 (3) $2abc$ (4) $3abc$

(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

53. If $a = 4.965$, $b = 2.343$ and $c = 2.622$, then the value of $a^3 - b^3 - c^3 - 3abc$ is :

- (1) -2 (2) -1
 (3) 0 (4) 9.9^3

(SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))

54. If $a = 1.21$, $b = 2.12$ and $c = -3.33$, then the value of $a^3 + b^3 + c^3 - 3abc$ is

- (1) 0 (2) 1
 (3) 2 (4) 3

(SSC CGL Prelim Exam. 24.02.2002 (Middle Zone))

55. If $p = 999$, then the value of

$$\sqrt[3]{p(p^2 + 3p + 3) + 1}$$

- (1) 1000 (2) 999
 (3) 998 (4) 1002

(SSC CGL Prelim Exam. 11.05.2003 & 27.07.2008 (Second Sitting))

56. If $a = 4.36$, $b = 2.39$ and $c = 1.97$, then the value of $a^3 - b^3 - c^3 - 3abc$ is

- (1) 3.94 (2) 2.39
 (3) 0 (4) 1

(SSC CGL Prelim Exam. 13.11.2005 (Second Sitting))

57. $\left(x + \frac{1}{x}\right)\left(x - \frac{1}{x}\right)\left(x^2 + \frac{1}{x^2} - 1\right)$

$$\left(x^2 + \frac{1}{x^2} + 1\right)$$

is equal to

(1) $x^6 + \frac{1}{x^6}$ (2) $x^8 + \frac{1}{x^8}$

(3) $x^8 - \frac{1}{x^8}$ (4) $x^6 - \frac{1}{x^6}$

(SSC CPO S.I. Exam. 03.09.2006)

58. If $a = 11$ and $b = 9$, then the

value of $\left(\frac{a^2 + b^2 + ab}{a^3 - b^3}\right)$ is

- (1) $\frac{1}{2}$ (2) 2

- (3) $\frac{1}{20}$ (4) 20

(SSC CGL Tier-I Exam. 16.05.2010 (First Sitting))

59. If $a = \sqrt{7 + 2\sqrt{12}}$ and b

$= \sqrt{7 - 2\sqrt{12}}$, then $(a^3 + b^3)$ is

equal to

- (1) 40 (2) 44
 (3) 48 (4) 52

(SSC SAS Exam. 26.06.2010 (Paper-1))

60. If the sum of $\frac{a}{b}$ and its reciprocal is 1 and $a \neq 0$, $b \neq 0$, then the value of $a^3 + b^3$ is

- (1) 2 (2) -1
 (3) 0 (4) 1

(SSC CPO (SI, ASI & Intelligence Officer) Exam 28.08.2011 (Paper-I))

61. If $x = 2 - 2^{1/3} + 2^{2/3}$, then the value of $x^3 - 6x^2 + 18x + 18$ is

- (1) 22 (2) 33
 (3) 40 (4) 45

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (North Zone)))

62. If $a^3 - b^3 - c^3 - 3abc = 0$, then

- (1) $a = b = c$
 (2) $a + b + c = 0$
 (3) $a + c = b$
 (4) $a = b + c$

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (North Zone)))

63. If p , q , r are all real numbers, then $(p - q)^3 + (q - r)^3 + (r - p)^3$ is equal to

- (1) $(p - q)(q - r)(r - p)$
 (2) $3(p - q)(q - r)(r - p)$

- (3) 0 (4) 1

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone)) (IIInd Sitting (North Zone)))

64. If $a = 2.361$, $b = 3.263$ and $c = 5.624$, then the value of $a^3 + b^3 - c^3 + 3abc$ is

- (1) 35.621 (2) 0
 (3) 19.277 (4) 1

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting (East Zone)))

ALGEBRA

65. If $a + b + c = 6$, $a^2 + b^2 + c^2 = 14$ and $a^3 + b^3 + c^3 = 36$, then the value of abc is

- (1) 3 (2) 6
 (3) 9 (4) 12

(SSC Graduate Level Tier-II Exam. 16.09.2012)

66. If $a + b = 1$ and $a^3 + b^3 + 3ab = k$, then the value of k is

- (1) 1 (2) 3
 (3) 5 (4) 7

(SSC CHSL DEO & LDC Exam. 04.11.2012 (IIInd Sitting))

67. If $a = 34$, $b = c = 33$, then the value of $a^3 + b^3 + c^3 - 3abc$ is

- (1) 0 (2) 111
 (3) 50 (4) 100
 (SSC CHSL DEO & LDC Exam. 28.10.2012, Ist Sitting)

68. If $x = y = 333$ and $z = 334$, then the value of $x^3 + y^3 + z^3 - 3xyz$ is

- (1) 0 (2) 667
 (3) 1000 (4) 2334
 (SSC Graduate Level Tier-II Exam. 29.09.2013)

69. Out of the given responses, one of the factors of $(a^2 - b^2)^3 + (b^2 - c^2)^3 + (c^2 - a^2)^3$ is

(1) $(a + b)(a - b)$
 (2) $(a + b)(a + b)$
 (3) $(a - b)(a - b)$
 (4) $(b - c)(b - c)$

(SSC Graduate Level Tier-II Exam. 29.09.2013)

70. If $a = \frac{b^2}{b-a}$ then the value of $a^3 + b^3$ is

- (1) $6ab$ (2) 0
 (3) 1 (4) 2
 (SSC CHSL DEO & LDC Exam. 20.10.2013)

71. If $p = 99$, then value of $p(p^2 + 3p + 3)$ is

(1) 999 (2) 9999
 (3) 99999 (4) 999999
 (SSC CGL Prelim Exam. 04.02.2007 (Second Sitting))

72. If $p = 101$, then the value of

- $\sqrt[3]{p(p^2 - 3p + 3) - 1}$ is
- (1) 100 (2) 101
 (3) 102 (4) 1000
 (SSC SAS Exam. 26.06.2010 (Paper-1))

73. If $p = 124$,

$$\sqrt[3]{p(p^2 + 3p + 3) + 1} = ?$$

- (1) 5 (2) 7
 (3) 123 (4) 125

(SSC CGL Tier-1 Exam. 19.06.2011 (First Sitting))

74. If $p - 2q = 4$, then the value of $p^3 - 8q^3 - 24pq - 64$ is :

- (1) 2 (2) 0
 (3) 3 (4) -1

(SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting)

75. If $x = 19$ and $y = 18$, then the

$$\text{value of } \frac{x^2 + y^2 + xy}{x^3 - y^3} \text{ is}$$

- (1) 1 (2) 37
 (3) 324 (4) 361

(SSC CISF ASI Exam. 29.08.2010 (Paper-1))

76. If $x + \frac{1}{x} = 2$ and x is real, then the

$$\text{value of } x^{17} + \frac{1}{x^{19}} \text{ is}$$

- (1) 1 (2) 0
 (3) 2 (4) -2

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (North Zone)))

77. The value of $(x + y + z)^3 - (y + z - x)^3 - (z + x - y)^3 - (x + y - z)^3$ is :

- (1) $12xyz$ (2) $24xyz$
 (3) $36xyz$ (4) 0

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IIInd Sitting))

78. If $x = -1$, then the value of

$$\frac{1}{x^{99}} + \frac{1}{x^{98}} + \frac{1}{x^{97}} + \frac{1}{x^{96}} + \frac{1}{x^{95}} + \frac{1}{x^{94}} + \frac{1}{x} - 1$$

is

- (1) 1 (2) 0
 (3) -2 (4) -1

(SSC Multi-Tasking Staff Exam. 17.03.2013, Kolkata Region)

79. If $\frac{1}{\sqrt[3]{4} + \sqrt[3]{2} + 1} = a\sqrt[3]{4} + b\sqrt[3]{2} + c$

and a, b, c are rational numbers, then $a + b + c$ is equal to

- (1) 0 (2) 1
 (3) 2 (4) 3

(SSC Graduate Level Tier-I Exam. 21.04.2013 IIInd Sitting)

80. If $x = \sqrt[3]{2 + \sqrt{3}}$, then the value

$$\text{of } x^3 + \frac{1}{x^3} \text{ is}$$

- (1) 8 (2) 9
 (3) 2 (4) 4

(SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting)

81. If $x = \sqrt[3]{5} + 2$, then the value of $x^3 - 6x^2 + 12x - 13$ is

- (1) -1 (2) 1
 (3) 2 (4) 0

(SSC Graduate Level Tier-II Exam. 29.09.2013)

82. If $x + y = a$ and $xy = b^2$, then the value of $x^3 - x^2y - xy^2 + y^3$ in terms of a and b is :

- (1) $(a^2 + 4b^2)a$ (2) $a^3 - 3b^2$
 (3) $a^3 - 4b^2a$ (4) $a^3 + 3b^2$

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting (Delhi Zone)))

83. If $x - \frac{1}{x} = 1$, then the value of

$$\frac{x^4 - \frac{1}{x^2}}{3x^2 + 5x - 3} \text{ is}$$

- (1) $\frac{1}{4}$ (2) $\frac{1}{2}$

- (3) $\frac{3}{4}$ (4) 0

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

84. If $x + y = 15$, then $(x - 10)^3 + (y - 5)^3$ is

- (1) 25 (2) 125
 (3) 625 (4) 0

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

85. If $x^2 + \frac{1}{x^2} = 66$, then the value of

$$\frac{x^2 - 1 + 2x}{x} = ?$$

- (1) ± 8 (2) 10, - 6
 (3) 6, -10 (4) ± 4

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

86. If $a^2 + a + 1 = 0$, then the value of a^9 is

- (1) 2 (2) 3
 (3) 1 (4) 0

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

ALGEBRA

87. If $x + \frac{2}{x} = 1$, then the value of

$$\frac{x^2 + x + 2}{x^2(1-x)}$$

- (1) 1 (2) -1
 (3) 2 (4) -2
 (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

88. If $x = k^3 - 3k^2$ and $y = 1 - 3k$, then for what value of k , will be $x = y$?

- (1) 0 (2) 1
 (3) -1 (4) 2
 (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

89. Find the value of

$$\sqrt{(x^2 + y^2 + z)(x + y - 3z)} \div 3\sqrt{xy^3z^2}$$

when $x = +1$, $y = -3$, $z = -1$.

- (1) 1 (2) 0
 (3) -1 (4) $\frac{1}{2}$
 (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

90. The simplest form of the expression

$$\frac{p^2 - p}{2p^3 + 6p^2} \div \frac{p^2 - 1}{p^2 + 3p} \div \frac{p^2}{p + 1}$$

- (1) $2p^2$ (2) $\frac{1}{2p^2}$
 (3) $p + 3$ (4) $\frac{1}{p + 3}$
 (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))

91. If $x + \frac{1}{x} = 2$, then the value of

$$\left(x^2 + \frac{1}{x^2}\right) \left(x^3 + \frac{1}{x^3}\right)$$

- (1) 20 (2) 4
 (3) 8 (4) 16
 (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))

92. If a , b , c be all positive integers, then the least positive value of $a^3 + b^3 + c^3 - 3abc$ is

- (1) 1 (2) 2
 (3) 4 (4) 3
 (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))

93. When $f(x) = 12x^3 - 13x^2 - 5x + 7$ is divided by $(3x + 2)$, then the remainder is

- (1) 2 (2) 0
 (3) -1 (4) 1
 (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))

94. If $ab + bc + ca = 0$, then the value of

$$\frac{1}{a^2 - bc} + \frac{1}{b^2 - ac} + \frac{1}{c^2 - ab}$$

- (1) 2 (2) -1
 (3) 0 (4) 1
 (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IIInd Sitting))

95. If the equation $2x^2 - 7x + 12 = 0$ has two roots α and β , then the

value of $\frac{\alpha}{\beta} + \frac{\beta}{\alpha}$ is

- (1) $\frac{7}{2}$ (2) $\frac{1}{24}$
 (3) $\frac{7}{24}$ (4) $\frac{97}{24}$
 (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IIInd Sitting))

96. If $x^3 + \frac{3}{x} = 4(a^3 + b^3)$ and

$$3x + \frac{1}{x^3} = 4(a^3 - b^3)$$

- then $a^2 - b^2$ is equal to
 (1) 4 (2) 0
 (3) 1 (4) 2
 (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IIInd Sitting))

97. If $x = 6 + \frac{1}{x}$, then the value of

$$x^4 + \frac{1}{x^4}$$

- (1) 1448 (2) 1442
 (3) 1444 (4) 1446
 (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IIInd Sitting))

98. If $x + \frac{1}{x} = 5$, then $x^6 + \frac{1}{x^6}$ is

- (1) 12098 (2) 12048
 (3) 14062 (4) 12092
 (SSC CGL Tier-I Exam. 19.10.2014 (Ist Sitting))

99. If $x^2 - 3x + 1 = 0$, then the value

$$\text{of } \frac{x^6 + x^4 + x^2 + 1}{x^3}$$

- will be
 (1) 18 (2) 15
 (3) 21 (4) 30
 (SSC CGL Tier-I Exam. 19.10.2014 (Ist Sitting))

100. If $x^4 + \frac{1}{x^4} = 119$ and $x > 1$,

then find the positive value of
 $x^3 - \frac{1}{x^3}$.

- (1) 25 (2) 27
 (3) 36 (4) 49
 (SSC CGL Tier-I Exam. 19.10.2014 (Ist Sitting))

101. If $\frac{p}{a} + \frac{q}{b} + \frac{r}{c} = 1$ and $\frac{a}{p} + \frac{b}{q} + \frac{c}{r} = 0$, where p, q, r and a, b, c are non-zero, then the value of

$$\frac{p^2}{a^2} + \frac{q^2}{b^2} + \frac{r^2}{c^2}$$

- is
 (1) -1 (2) 0
 (3) 1 (4) 2
 (SSC CGL Tier-I Exam. 19.10.2014)

102. If x is a rational number and

$$\frac{(x+1)^3 - (x-1)^3}{(x+1)^2 - (x-1)^2} = 2$$

sum of numerator and denominator of x is

- (1) 3 (2) 4
 (3) 5 (4) 7
 (SSC CGL Tier-I Exam. 19.10.2014)

103. If $x = \sqrt{5} + 2$, then the value

$$\frac{2x^2 - 3x - 2}{3x^2 - 4x - 3}$$

is equal to
 (1) 0.185 (2) 0.525
 (3) 0.625 (4) 0.785
 (SSC CGL Tier-I Exam. 19.10.2014)

104. If $a = 2.234$, $b = 3.121$ and $c = -5.355$, then the value of $a^3 + b^3 + c^3 - 3abc$ is

- (1) -1 (2) 0
 (3) 1 (4) 2
 (SSC CGL Tier-I Exam. 19.10.2014)

105. If $x^2 + y^2 + 1 = 2x$, then the value of $x^3 + y^5$ is

- (1) 2 (2) 0
 (3) -1 (4) 1
 (SSC CGL Tier-I Exam. 19.10.2014)

ALGEBRA

106. If $3(a^2 + b^2 + c^2) = (a + b + c)^2$, then the relation between a , b and c is

- (1) $a = b = c$ (2) $a = b \neq c$
 (3) $a < b < c$ (4) $a > b > c$

(SSC CGL Tier-I Exam. 19.10.2014)

107. If $x(x - 3) = -1$, then the value of $x^3(x^3 - 18)$ is

- (1) -1 (2) 2
 (3) 1 (4) 0

(SSC CGL Tier-I Exam. 26.10.2014)

108. If $a^2 + b^2 + c^2 = ab + bc + ac$

then the value of $\frac{a+c}{b}$ is

- (1) 0 (2) 2
 (3) 1 (4) -1

(SSC CGL Tier-II Exam. 21.09.2014)

109. If $ab + bc + ca = 0$ then the value

of $\left(\frac{1}{a^2 - bc} + \frac{1}{b^2 - ca} + \frac{1}{c^2 - ab}\right)$

is

- (1) 0 (2) 1
 (3) 3 (4) $a + b + c$

(SSC CGL Tier-II Exam. 21.09.2014)

110. If $3x + \frac{3}{x} = 1$ then $x^3 + \frac{1}{x^3} + 1$ is

- (1) 0 (2) $\frac{1}{27}$
 (3) $\frac{5}{27}$ (4) $\frac{28}{27}$

(SSC CGL Tier-II Exam. 21.09.2014)

111. The factors of

$(a^2 + 4b^2 + 4b - 4ab - 2a - 8)$ are

- (1) $(a - 2b - 4)(a - 2b + 2)$
 (2) $(a - b + 2)(a - 4b - 4)$
 (3) $(a + 2b - 4)(a + 2b + 2)$
 (4) $(a + 2b - 1)(a - 2b + 1)$

(SSC CGL Tier-II Exam. 21.09.2014)

112. The value of

$$\frac{1}{a^2 + ax + x^2} - \frac{1}{a^2 - ax + x^2}$$

+ $\frac{2ax}{a^4 + a^2x^2 + x^4}$ is

- (1) 2 (2) 1
 (3) -1 (4) 0

(SSC CGL Tier-II Exam. 21.09.2014)

113. If $x = 11$, then the value of

$$x^6 - 12x^4 + 12x^3 - 12x^2 + 12x - 1$$

- (1) 5 (2) 10

- (3) 15 (4) 20

(SSC CGL Tier-II Exam. 21.09.2014)

114. If $p = 99$, then the value of

$$p(p^2 + 3p + 3)$$

- (1) 10000000 (2) 999000

- (3) 999999 (4) 990000

(SSC CGL Tier-II Exam. 21.09.2014)

115. An example of an equality relation of two expressions in x , which is not an identity is

$$(1) (x + 3)^2 = x^2 + 6x + 9$$

$$(2) (x + 2y)^3 = x^3 + 8y^3 + 6xy(x + 2y)$$

$$(3) (x + 2)^2 = x^2 + 2x + 4$$

$$(4) (x + 3)(x - 3) = x^2 - 9$$

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

116. The numerical value of

$$\frac{(a-b)^2}{(b-c)(c-a)} + \frac{(b-c)^2}{(c-a)(a-b)} +$$

$$\frac{(c-a)^2}{(a-b)(b-c)}$$
 is ($a \neq b \neq c$)

- (1) 0 (2) 1

- (3) $\frac{1}{3}$ (4) 3

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

117. If $\left(a + \frac{1}{a}\right)^2 = 3$, then the value

$$\text{of } a^3 + \frac{1}{a^3}$$
 is

- (1) 0 (2) 1
 (3) 2 (4) 6

(SSC CHSL DEO & LDC Exam. 02.11.2014 (IInd Sitting))

118. If $a + \frac{1}{a} = \sqrt{3}$, then the value

$$\text{of } a^{18} + a^{12} + a^6 + 1$$
 is

- (1) 0 (2) 1
 (3) -1 (4) 4

(SSC CHSL DEO & LDC Exam. 02.11.2014 (IInd Sitting))

119. If $x = 997$, $y = 998$ and $z = 999$, then the value of $x^2 + y^2 + z^2 - xy - yz - zx$ is

- (1) 0 (2) 1
 (3) -1 (4) 3

(SSC CHSL DEO & LDC Exam. 02.11.2014 (IInd Sitting))

120. If $x + \frac{1}{x} = 3$, then the value of

$$\frac{3x^2 - 4x + 3}{x^2 - x + 1}$$
 is

- (1) $\frac{4}{3}$ (2) $\frac{3}{2}$

- (3) $\frac{5}{2}$ (4) $\frac{5}{3}$

(SSC CHSL DEO & LDC Exam. 9.11.2014)

121. If $x = 3 + 2\sqrt{2}$, then

$$\frac{x^6 + x^4 + x^2 + 1}{x^3}$$
 is equal to

- (1) 216 (2) 192
 (3) 198 (4) 204

(SSC CHSL CGLDEO & LDC Exam. 9.11.2014)

122. If $x = p + \frac{1}{p}$ and $y = p - \frac{1}{p}$

then the value of $x^4 - 2x^2y^2 + y^4$ is

- (1) 24 (2) 4
 (3) 16 (4) 8

(SSC CHSL DEO & LDC Exam. 9.11.2014)

123. If $a + b + c = 0$, then the value of $(a + b - c)^2 + (b + c - a)^2 + (c + a - b)^2$ is

- (1) 0 (2) 8 abc
 (3) 4 $(a^2 + b^2 + c^2)$
 (4) 4 $(ab + bc + ca)$

(SSC CHSL DEO & LDC Exam. 16.11.2014)

124. If $p^3 + 3p^2 + 3p = 7$, then the value of $p^2 + 2p$ is

- (1) 4 (2) 3
 (3) 5 (4) 6

(SSC CHSL DEO & LDC Exam. 16.11.2014)

125. If $x = 2015$, $y = 2014$ and $z = 2013$, then value of

$$x^2 + y^2 + z^2 - xy - yz - zx$$

- (1) 3 (2) 4
 (3) 6 (4) 2

(SSC CHSL DEO & LDC Exam. 16.11.2014)

126. If $3a^2 = b^2 \neq 0$, then the value of

$$\frac{(a+b)^3 - (a-b)^3}{(a+b)^2 + (a-b)^2}$$
 is

- (1) $\frac{3b}{2}$

- (2) b

- (3) $\frac{b}{2}$ (4) $\frac{2b}{3}$

(SSC CHSL DEO & LDC Exam. 16.11.2014)

ALGEBRA

127. If $x > 1$ and $x + \frac{1}{x} = 2\frac{1}{12}$, then

the value of $x^4 - \frac{1}{x^4}$ is

- (1) $\frac{58975}{20736}$ (2) $\frac{59825}{20736}$
 (3) $\frac{57985}{20736}$ (4) $\frac{57895}{20736}$

(SSC CHSL DEO & LDC Exam. 16.11.2014)

128. The value of $\frac{4x^3 - x}{(2x+1)(6x-3)}$

when $x = 9999$ is

- (1) 1111 (2) 2222
 (3) 3333 (4) 6666

(SSC CHSL DEO Exam. 02.11.2014 (Ist Sitting))

129. If $a^3 + b^3 = 9$ and $a + b = 3$, then

the value of $\frac{1}{a} + \frac{1}{b}$ is

- (1) $\frac{1}{2}$ (2) $\frac{3}{2}$
 (3) $\frac{5}{2}$ (4) -1

(SSC CHSL DEO Exam. 02.11.2014 (Ist Sitting))

130. If $t^2 - 4t + 1 = 0$, then the value

of $t^3 + \frac{1}{t^3}$ is

- (1) 44 (2) 48
 (3) 52 (4) 64

(SSC CHSL DEO Exam. 16.11.2014 (Ist Sitting))

131. If $\sqrt[3]{a} + \sqrt[3]{b} = \sqrt[3]{c}$, then the simplest value of $(a+b-c)^3 + 27abc$ is

- (1) -1 (2) 3
 (3) -3 (4) 0

(SSC CHSL DEO Exam. 16.11.2014 (Ist Sitting))

132. If $p = \frac{5}{18}$, then

$$27p^3 - \frac{1}{216} - \frac{9}{2}p^2 + \frac{1}{4}p$$

is equal to

- (1) $\frac{4}{27}$ (2) $\frac{5}{27}$
 (3) $\frac{8}{27}$ (4) $\frac{10}{27}$

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014 TF No. 999 KPO)

133. If $x + \frac{1}{x} = 2$, then

$$x^{2013} + \frac{1}{x^{2014}} = ?$$

- (1) 0 (2) 1
 (3) -1 (4) 2

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014 TF No. 999 KPO)

134. If $a = 331$, $b = 336$ and $c = -667$, then the value of $a^3 + b^3 + c^3 - 3abc$ is

- (1) 1 (2) 6
 (3) 3 (4) 0

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014 TF No. 999 KPO)

135. If $a = 4.965$, $b = 2.343$ and $c = 2.622$, then the value of $a^3 - b^3 - c^3 - 3abc$ is

- (1) -2 (2) -1
 (3) 0 (4) 9.93

(SSC CGL Tier-I Exam. 19.10.2014 TF No. 022 MH 3)

136. If $x + y + z = 0$, then the value of

$$\frac{x^2 + y^2 + z^2}{x^2 - yz}$$

- (1) -1 (2) 0
 (3) 1 (4) 2

(SSC CGL Tier-I Exam. 19.10.2014 TF No. 022 MH 3)

137. If $x + \frac{1}{x} = 0$, then the value of

$$x^5 + \frac{1}{x^5}$$

- (1) 2 (2) -1
 (3) 1 (4) 0

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, Ist Sitting TF No. 333 LO 2)

138. If $a^2 + b^2 + c^2 - ab - bc - ca = 0$, then

- (1) $a = b = c$ (2) $a \neq b = c$
 (3) $a = b \neq c$ (4) $a \neq b \neq c$

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, Ist Sitting TF No. 333 LO 2)

139. If $x^4 + \frac{1}{x^4} = 119$, then the val-

ues of $x^3 + \frac{1}{x^3}$ are

- (1) $\pm 10\sqrt{13}$ (2) $\pm \sqrt{13}$
 (3) $\pm 16\sqrt{13}$ (4) $\pm 13\sqrt{13}$

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, Ist Sitting TF No. 333 LO 2)

140. If $x + \frac{1}{x} = \sqrt{3}$, then the value

of $x^{30} + x^{24} + x^{18} + x^{12} + x^6 + 1$ is

- (1) $\sqrt{3}$ (2) $-\sqrt{3}$

- (3) 1 (4) 0

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, Ist Sitting TF No. 333 LO 2)

141. If $m + n = -2$, then the value of $m^3 + n^3 - 6mn$ is

- (1) 8 (2) 4

- (3) -8 (4) -4

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting TF No. 545 QP 6)

142. If $u_n = \frac{1}{n} - \frac{1}{n+1}$ then the val-

ue of $u_1 + u_2 + u_3 + u_4 + u_5$ is

- (1) $\frac{1}{2}$ (2) $\frac{1}{3}$

- (3) $\frac{2}{5}$ (4) $\frac{5}{6}$

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting TF No. 545 QP 6)

143. If $x = 5$, $y = 6$ and $z = -11$, then the value of $x^3 + y^3 + z^3$ is

- (1) -890 (2) -970

- (3) -870 (4) -990

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting TF No. 545 QP 6)

144. If $p + m = 6$ and $p^3 + m^3 = 72$, then the value of pm is

- (1) 6 (2) 12

- (3) 9 (4) 8

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

145. If average of two numbers x and

$\frac{1}{x}$ (where $x \neq 0$) is A, what will

be the average of x^3 and $\frac{1}{x^3}$?

- (1) $4A^3 - 2A$ (2) $4A^3 - 3A$

- (3) $4A^3 - 4A$ (4) $4A^3 - A$

(SSC CGL Tier-II Exam. 2014 12.04.2015 (Kolkata Region TF No. 789 TH 7)

ALGEBRA

146. If $a = 2 + \sqrt{3}$, then the value of

$$\frac{a^6 + a^4 + a^2 + 1}{a^3} \text{ is}$$

- (1) 45 (2) 65
 (3) 42 (4) 56

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

147. If $x = \sqrt{5} + \sqrt{3}$ and

$y = \sqrt{5} - \sqrt{3}$, then the value of ($x^4 - y^4$) is

- (1) $64\sqrt{15}$ (2) 16
 (3) 544 (4) $32\sqrt{15}$

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

148. If $x + y + z = 6$, then the value of $(x - 1)^3 + (y - 2)^3 + (z - 3)^3$ is

- (1) $3(x - 1)(y - 2)(z - 3)$
 (2) $3xyz$
 (3) $(x - 1)(y - 2)(z - 3)$
 (4) $2(x - 1)(y - 2)(z - 3)$

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

149. If $p^4 = 119 - \frac{1}{p^4}$ then the value

of $p^3 - \frac{1}{p^3}$ is

- (1) 24 (2) 32
 (3) 36 (4) 18

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

150. If $x + \left(\frac{1}{x}\right) = 2$, then the value of

$x^7 + \left(\frac{1}{x^5}\right)$ is

- (1) 2^{12} (2) 2
 (3) 2^5 (4) 2^7

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015 (Ist Sitting) TF No. 8037731)

151. If $x = 332$, $y = 333$, $z = 335$, then the value of $x^3 + y^3 + z^3 - 3xyz$ is

- (1) 10000 (2) 7000
 (3) 8000 (4) 9000

(SSC CGL Tier-I Exam, 09.08.2015 (Ist Sitting) TF No. 1443088)

152. If $m = -4$, $n = -2$, then the value of

$$m^3 - 3m^2 + 3m + 3n + 3n^2 + n^3$$

- (1) - 126 (2) 124
 (3) - 124 (4) 126

(SSC CGL Tier-I Exam, 09.08.2015 (Ist Sitting) TF No. 1443088)

153. If $x + \frac{1}{x} = 2$ then the value of

$$x^{12} - \frac{1}{x^{12}}$$

- (1) 2 (2) - 4
 (3) 0 (4) 4

(SSC CGL Tier-I Exam, 09.08.2015 (IIInd Sitting) TF No. 4239378)

154. Given that $x^3 + y^3 = 72$ and $xy = 6$ with $x > y$. Then the value of $(x - y)$ is

- (1) 4 (2) - 4
 (3) 2 (4) - 2

(SSC CGL Tier-I Exam, 09.08.2015 (IIInd Sitting) TF No. 4239378)

155. If $x = 2$ then the value of

$$x^3 + 27x^2 + 243x + 631$$

- (1) 1233 (2) 1211
 (3) 1231 (4) 1321

(SSC CGL Tier-I Exam, 16.08.2015 (Ist Sitting) TF No. 3196279)

156. If $\frac{x^{24} + 1}{x^{12}} = 7$ then the value of

$$\frac{x^{72} + 1}{x^{36}}$$

- (1) 433 (2) 322
 (3) 343 (4) 432

(SSC CGL Tier-I Exam, 16.08.2015 (Ist Sitting) TF No. 3196279)

157. The HCF of $x^8 - 1$ and $x^4 + 2x^3 - 2x - 1$ is :

- (1) $x^2 + 1$ (2) $x^2 - 1$
 (3) $x + 1$ (4) $x - 1$

(SSC CGL Tier-I Exam, 16.08.2015 (Ist Sitting) TF No. 3196279)

158. If $x^2 + y^2 + z^2 = 2(x + z - 1)$, then the value of :

$$x^3 + y^3 + z^3 = ?$$

- (1) 2 (2) 0
 (3) -1 (4) 1

(SSC CGL Tier-I Exam, 16.08.2015 (IIInd Sitting) TF No. 2176783)

159. If $x^2 + x = 5$ then the value of

$$(x + 3)^3 + \frac{1}{(x + 3)^3}$$

- (1) 140 (2) 110
 (3) 130 (4) 120

(SSC CGL Tier-I Exam, 16.08.2015 (IIInd Sitting) TF No. 2176783)

160. If $x = z = 225$ and $y = 226$ then the value of :

$$x^3 + y^3 + z^3 - 3xyz$$

- (1) 765 (2) 676
 (3) 576 (4) 674

(SSC CGL Tier-I Exam, 16.08.2015 (IIInd Sitting) TF No. 2176783)

161. If $4a - \frac{4}{a} + 3 = 0$ then the value

$$\text{of : } a^3 - \frac{1}{a^3} + 3 = ?$$

- (1) $\frac{3}{16}$ (2) $\frac{7}{16}$

- (3) $\frac{21}{64}$ (4) $\frac{21}{16}$

(SSC CGL Tier-I Exam, 16.08.2015 (IIInd Sitting) TF No. 2176783)

162. If $a + b - c = 0$ then the value of

$$2b^2c^2 + 2c^2a^2 + 2a^2b^2 - a^4 - b^4 - c^4$$

- (1) 7 (2) 0
 (3) 14 (4) 28

(SSC CGL Tier-I Exam, 16.08.2015 (IIInd Sitting) TF No. 2176783)

163. If $\frac{p^2}{q^2} + \frac{q^2}{p^2} = 1$, then the value

$$\text{of } (p^6 + q^6) \text{ is}$$

- (1) 0 (2) 1
 (3) 2 (4) 3

(SSC CGL Tier-I Re-Exam, 30.08.2015)

164. If $(m + 1) = \sqrt{n} + 3$, the value of

$$\frac{1}{2} \left(\frac{m^3 - 6m^2 + 12m - 8}{\sqrt{n}} - n \right)$$

is

- (1) 0 (2) 1
 (3) 2 (4) 3

(SSC CGL Tier-I Re-Exam, 30.08.2015)

ALGEBRA

- 165.** If $(3x - 2y) : (2x + 3y) = 5 : 6$, then one of the values of

$$\left(\frac{\sqrt[3]{x} + \sqrt[3]{y}}{\sqrt[3]{x} - \sqrt[3]{y}} \right)^2 \text{ is}$$

- (1) $\frac{1}{5}$ (2) 5
 (3) 25 (4) $\frac{1}{25}$

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

- 166.** If $a - \frac{1}{a-3} = 5$, then the value

$$\text{of } (a-3)^3 - \frac{1}{(a-3)^3} \text{ is}$$

- (1) 5 (2) 7
 (3) 2 (4) 14

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

- 167.** If $\left(\frac{p^{-1}q^2}{p^3q^{-2}} \right)^{\frac{1}{3}} \div \left(\frac{p^6q^{-3}}{p^{-2}q^3} \right)^{\frac{1}{3}} = p^a q^b$, then the value of $a+b$, where p and q are different positive primes, is

- (1) -1 (2) 2
 (3) 1 (4) 0

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

- 168.** If $a + b = 1$, find the value of $a^3 + b^3 - ab - (a^2 - b^2)^2$.

- (1) -1 (2) 1
 (3) 0 (4) 2

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

- 169.** If $x = a^{\frac{1}{2}} + a^{-\frac{1}{2}}$, $y = a^{\frac{1}{2}} - a^{-\frac{1}{2}}$ then value of $(x^4 - x^2y^2 - 1) + (y^4 - x^2y^2 + 1)$ is

- (1) 16 (2) 13
 (3) 12 (4) 14

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

- 170.** If $x^2 + y^2 + z^2 = xy + yz + zx$, then the value of

$$\frac{3x^4 + 7y^4 + 5z^4}{5x^2y^2 + 7y^2z^2 + 3z^2x^2} \text{ is}$$

- (1) 2 (2) 1
 (3) 0 (4) -1

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

- 171.** If $x - \sqrt{3} - \sqrt{2} = 0$ and

$$y - \sqrt{3} + \sqrt{2} = 0, \text{ then the value}$$

$$\text{of } (x^3 - 20\sqrt{2}) - (y^3 + 20\sqrt{2}) \text{ is}$$

- (1) 0 (2) 1
 (3) 3 (4) 2

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

- 172.** If $p^3 - q^3 = (p-q) ((p-q)^2 - pq)$, then find the value of x

- (1) 3 (2) -3
 (3) 1 (4) -1

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IIInd Sitting)

- 173.** If $x + y + z = 6$ and $xy + yz + zx = 10$ then the value of $x^3 + y^3 + z^3 - 3xyz$ is :

- (1) 36 (2) 48
 (3) 42 (4) 40

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (Ist Sitting) TF No. 6636838)

- 174.** If $x - \frac{1}{x} = 2$, then the value of

$$x^3 - \frac{1}{x^3} \text{ is :}$$

- (1) 15 (2) 2
 (3) 14 (4) 11

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (Ist Sitting) TF No. 6636838)

- 175.** If $a^2 + a + 1 = 0$, then the value of $a^5 + a^4 + 1$ is :

- (1) a^2 (2) 1
 (3) 0 (4) $a + 1$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (Ist Sitting) TF No. 6636838)

- 176.** If $x = a(b-c)$, $y = b(c-a)$, $z = c(a-b)$, then the value of

$$\left(\frac{x}{a} \right)^3 + \left(\frac{y}{b} \right)^3 + \left(\frac{z}{c} \right)^3 \text{ is :}$$

- (1) $\frac{2xyz}{abc}$ (2) $\frac{xyz}{abc}$

- (3) 0 (4) $\frac{3xyz}{abc}$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IIInd Sitting) TF No. 7203752)

- 177.** If $x = y = z$, then $\frac{(x+y+z)^2}{x^2+y^2+z^2}$

is equal to

- (1) 4 (2) 2
 (3) 3 (4) 1

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IIInd Sitting) TF No. 7203752)

- 178.** The simplified value of following is :

$$\left(\frac{3}{15} a^5 b^6 c^3 \times \frac{5}{9} a b^5 c^4 \right) \div \frac{10}{27} a^2 b c^3$$

$$(1) \frac{9a^2bc^4}{10} \quad (2) \frac{3ab^4c^3}{10}$$

$$(3) \frac{3a^4b^{10}c^4}{10} \quad (4) \frac{1a^4b^4c^{10}}{10}$$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IIInd Sitting) TF No. 3441135)

- 179.** If $(2a-1)^2 + (4b-3)^2 + (4c+5)^2 = 0$, then the value

$$\text{of } \frac{a^3 + b^3 + c^3 - 3abc}{a^2 + b^2 + c^2} \text{ is}$$

- (1) $1\frac{3}{8}$ (2) $2\frac{3}{8}$

- (3) $3\frac{3}{8}$ (4) 0

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IIInd Sitting) TF No. 3441135)

- 180.** If $x + \frac{1}{x} = 3$, then the value of

$$x^5 + \frac{1}{x^5} \text{ is}$$

- (1) 110 (2) 132
 (3) 122 (4) 123

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015 (Ist Sitting) TF No. 9692918)

- 181.** When $2x + \frac{2}{x} = 3$, then value of

$$\left(x^3 + \frac{1}{x^3} + 2 \right) \text{ is}$$

- (1) $\frac{2}{7}$ (2) $\frac{7}{8}$

- (3) $\frac{7}{2}$ (4) $\frac{8}{7}$

(SSC CGL Tier-I (CBE) Exam. 10.09.2016)

ALGEBRA

- 182.** If $x = \sqrt[3]{x^2 + 11} - 2$, then the value of $(x^3 + 5x^2 + 12x)$ is
 (1) 0 (2) 3
 (3) 7 (4) 11
 (SSC CGL Tier-I (CBE)
 Exam.10.09.2016)

- 183.** If x , y , and z are real numbers such that $(x-3)^2 + (y-4)^2 + (z-5)^2 = 0$ then, $(x+y+z)$ is equal to
 (1) -12 (2) 0
 (3) 8 (4) 12
 (SSC CGL Tier-I (CBE)
 Exam.11.09.2016) (Ist Sitting)

- 184.** If $(x-4)(x^2 + 4x + 16) = x^3 - p$, then p is equal to
 (1) 27 (2) 8
 (3) 64 (4) 0
 (SSC CGL Tier-I (CBE)
 Exam.11.09.2016) (Ist Sitting)

- 185.** The simplified value of
 $\left(1 - \frac{2xy}{x^2 + y^2}\right) \div \left(\frac{x^3 - y^3}{x-y} - 3xy\right)$ is
 (1) $\frac{1}{x^2 - y^2}$ (2) $\frac{1}{x^2 + y^2}$
 (3) $\frac{1}{x-y}$ (4) $\frac{1}{x+y}$
 (SSC CGL Tier-II Online
 Exam.01.12.2016)

- 186.** If $a+b+c=0$ then the value of
 $\frac{1}{(a+b)(b+c)} + \frac{1}{(b+c)(c+a)} + \frac{1}{(c+a)(a+b)}$ is
 (1) 0 (2) 1
 (3) 3 (4) 2
 (SSC CGL Tier-II Online
 Exam.01.12.2016)

- 187.** If $x^2 + y^2 + 2x + 1 = 0$, then the value of $x^{31} + y^{35}$ is
 (1) -1 (2) 0
 (3) 1 (4) 2
 (SSC CGL Tier-II Online
 Exam.01.12.2016)

- 188.** If $\left(x - \frac{1}{x}\right)^2 = 3$, then the value of $\left(x^6 + \frac{1}{x^6}\right)$ equals
 (1) 90 (2) 100
 (3) 110 (4) 120
 (SSC CGL Tier-II Online
 Exam.01.12.2016)

- 189.** If $x^4 + 2x^3 + ax^2 + bx + 9$ is a perfect square, where a and b are positive real numbers, then the values of a and b are
 (1) $a = 5, b = 6$
 (2) $a = 6, b = 7$
 (3) $a = 7, b = 6$
 (4) $a = 7, b = 8$

- (SSC CGL Tier-II Online
 Exam.01.12.2016)
- 190.** If $a^2 + b^2 + c^2 = 16$, $x^2 + y^2 + z^2 = 25$ and $ax + by + cz = 20$, then the value of $\frac{a+b+c}{x+y+z}$ is
 (1) $\frac{3}{5}$ (2) $\frac{5}{3}$
 (3) $\frac{4}{5}$ (4) $\frac{5}{4}$

- (SSC CGL Tier-II Online
 Exam.01.12.2016)
- 191.** The value of x which satisfies the equation $\frac{x+a^2+2c^2}{b+c} + \frac{x+b^2+2a^2}{c+a} + \frac{x+c^2+2b^2}{a+b} = 0$ is
 (1) $(a^2 + b^2 + c^2)$
 (2) $-(a^2 + b^2 + c^2)$
 (3) $(a^2 + 2b^2 + c^2)$
 (4) $-(a^2 + b^2 + 2c^2)$

- (SSC CGL Tier-II Online
 Exam.01.12.2016)
- 192.** If $a^3 = 117 + b^3$ and $a = 3 + b$, then the value of $(a+b)$ is :
 (1) ± 7 (2) ± 49
 (3) ± 13 (4) 0
 (SSC CGL Tier-II Online
 Exam.01.12.2016)

- 193.** If $\left(a + \frac{1}{a}\right) = -2$, then the value of $a^{1000} + a^{-1000}$ is
 (1) 2 (2) 0
 (3) 1 (4) $\frac{1}{2}$

- (SSC CGL Tier-II Online
 Exam.01.12.2016)
- 194.** If $a^2 = b + c$, $b^2 = a + c$, $c^2 = b + a$, then what will be the value of

$$\frac{1}{a+1} + \frac{1}{b+1} + \frac{1}{c+1} ?$$

- (1) -1 (2) 2
 (3) 1 (4) 0
 (SSC CPO SI, ASI Online
 Exam.05.06.2016) (IIInd Sitting)

- 195.** If a, b, c and d satisfy the equations

$$a + 7b + 3c + 5d = 0,$$

$$8a + 4b + 6c + 2d = -4$$

$$2a + 6b + 4c + 8d = 4,$$

$$5a + 3b + 7c + d = -4,$$

then $(a+d)/(b+c) = ?$

- (1) 0 (2) 1

- (3) -1 (4) -4

(SSC CPO Exam. 06.06.2016)
 (Ist Sitting)

$$196. \text{ If } \frac{x}{(b-c)(b+c-2a)}$$

$$= \frac{y}{(c-a)(c+a-2b)}$$

$$= \frac{z}{(a-b)(a+b-2c)} \text{ then}$$

$(x+y+z)$ is

- (1) $a+b+c$ (2) 0

- (3) $a^2 + b^2 + c^2$ (4) 2

(SSC CPO Exam. 06.06.2016)
 (Ist Sitting)

- 197.** If $a + \frac{1}{a} = 3$ then $a^3 + 1 \frac{1}{a^3}$ is

- (1) 27 (2) 24
 (3) 19 (4) 25

(SSC CPO Exam. 06.06.2016)
 (Ist Sitting)

- 198.** If $c + \frac{1}{c} = 3$, then the value of $(c$

$$- 3)^7 + \frac{1}{c^7}$$
 is

- (1) 2 (2) 0
 (3) 3 (4) 1

(SSC CHSL (10+2) Tier-I (CBE)
 Exam. 08.09.2016) (Ist Sitting)

- 199.** If $x = \sqrt[3]{7} + 3$ then the value of $x^3 - 9x^2 + 27x - 34$ is :

- (1) 0 (2) 1
 (3) 2 (4) -1

(SSC CAPFs (CPO) SI & ASI,
 Delhi Police Exam. 20.03.2016)
 (IIInd Sitting)

- 200.** If $p(x+y)^2 = 5$ and $q(x-y)^2 = 3$, then the simplified value of $p^2(x+y)^2 + 4pqxy - q^2(x-y)^2$ is :

- (1) $-(p+q)$ (2) $2(p+q)$

- (3) $p+q$ (4) $-2(p+q)$

(SSC CAPFs (CPO) SI & ASI,
 Delhi Police Exam. 20.03.2016)
 (IIInd Sitting)

ALGEBRA

- 201.** If $x + \frac{1}{x} = -2$ then the value of $x^p + x^q$ is :

(where p is an even number and q is an odd number)

- (1) -2 (2) 2
(3) 1 (4) 0

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 20.03.2016)
(IInd Sitting)

- 202.** If $(2a - 3)^2 + (3b + 4)^2 + (6c + 1)^2 = 0$, then the value of

$$\frac{a^3 + b^3 + c^3 - 3abc}{a^2 + b^2 + c^2} + 3$$

- (1) $abc + 3$ (2) 6
(3) 0 (4) 3

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 05.06.2016)
(Ist Sitting)

- 203.** If $a + b + c = 1$, $ab + bc + ca = -1$ and $abc = -1$, then the value of $a^3 + b^3 + c^3$ is :

- (1) 1 (2) -1
(3) 2 (4) -2

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 05.06.2016)
(Ist Sitting)

- 204.** If for a non-zero x , $3x^2 + 5x + 3 = 0$, then the value of

$$x^3 + \frac{1}{x^3}$$

- (1) $\frac{10}{27}$ (2) $-\left(\frac{10}{27}\right)$

- (3) $\frac{2}{3}$ (4) $-\left(\frac{2}{3}\right)$

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 05.06.2016)
(Ist Sitting)

- 205.** What will be the value of $x^3 + y^3 + z^3 - 3xyz$ when $x + y + z = 9$ and $x^2 + y^2 + z^2 = 31$?

- (1) 27 (2) 3
(3) 54 (4) 9

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 05.06.2016)
(Ist Sitting)

- 206.** What is

$$\frac{(x^2 - y^2)^3 + (y^2 - z^2)^3 + (z^2 - x^2)^3}{(x - y)^3 + (y - z)^3 + (z - x)^3}$$

- (1) $\frac{(x+y)(y+z)}{(x+z)}$

- (2) $(x+y)^3 (y+z)^3 (z+x)^3$
(3) $(x+y) (y+z) (z+x)$
(4) $(x+y) (y+z)$

(SSC CPO SI & ASI, Online
Exam. 06.06.2016) (IInd Sitting)

- 207.** If $\frac{x^3 + 3y^2x}{y^3 + 3x^2y} = \frac{35}{19}$, what is $\frac{x}{y}$

$$=$$

- (1) $\frac{7}{6}$ (2) $\frac{5}{6}$

- (3) $\frac{5}{1}$ (4) $\frac{7}{1}$

(SSC CPO SI & ASI, Online
Exam. 06.06.2016) (IInd Sitting)

- 208.** Given $(a - b) = 2$, $(a^3 - b^3) = 26$ then $(a + b)^2$ is

- (1) 9 (2) 4
(3) 16 (4) 12

(SSC CGL Tier-I (CBE)
Exam. 27.08.2016) (Ist Sitting)

- 209.** If $x + y + z = 9$ then the value of $(x - 4)^3 + (y - 2)^3 + (z - 3)^3 - 3(x - 4)(y - 2)(z - 3)$ is

- (1) 6 (2) 9
(3) 0 (4) 1

(SSC CGL Tier-I (CBE)
Exam. 27.08.2016) (Ist Sitting)

- 210.** If $a = 2$, $b = -3$ then the value of $27a^3 - 54a^2b + 36ab^2 - 8b^3$ is

- (1) 1562 (2) 1616
(3) 1676 (4) 1728

(SSC CGL Tier-I (CBE)
Exam. 28.08.2016) (IInd Sitting)

- 211.** If $a^3 + \frac{1}{a^3} = 2$, then value of

$$\frac{a^2 + 1}{a}$$

is (a is a positive num-
ber.)

- (1) 1 (2) 2
(3) 3 (4) 4

(SSC CGL Tier-I (CBE)
Exam. 28.08.2016) (IInd Sitting)

- 212.** If $pq(p+q) = 1$, then the value of

$$\frac{1}{p^3q^3} - p^3 - q^3$$

is equal to

- (1) 1 (2) 2
(3) 3 (4) 4

(SSC CGL Tier-I (CBE)
Exam. 29.08.2016) (IInd Sitting)

- 213.** If $x + \frac{1}{x} = \sqrt{3}$, then the value

$$of x^3 + \frac{1}{x^3}$$

is equal to

- (1) 1 (2) $3\sqrt{3}$
(3) 0 (4) 3

(SSC CGL Tier-I (CBE)
Exam. 30.08.2016) (Ist Sitting)

- 214.** If $\frac{a}{b} + \frac{b}{a} = 1$, the value of $a^3 + b^3$ is equal to

- (1) 0 (2) 1
(3) 2 (4) 3

(SSC CGL Tier-I (CBE)
Exam. 30.08.2016) (Ist Sitting)

- 215.** If $l + m + n = 9$ and $l^2 + m^2 + n^2 = 31$, then the value of $(lm + mn + nl)$ will be

- (1) 22 (2) 50
(3) 25 (4) -25

(SSC CGL Tier-I (CBE)
Exam. 31.08.2016) (Ist Sitting)

- 216.** If $\left(x + \frac{1}{x}\right)^2 = 3$, then the value

$$of \left(x^3 + \frac{1}{x^3}\right)$$

- (1) 0 (2) 1
(3) 2 (4) -1

(SSC CGL Tier-I (CBE)
Exam. 31.08.2016) (Ist Sitting)

- 217.** If $x = \frac{3}{2}$, then the value of $27x^3 - 54x^2 + 36x - 11$ is

- (1) $11\frac{3}{8}$ (2) $11\frac{5}{8}$

- (3) $12\frac{3}{8}$ (4) $12\frac{5}{8}$

(SSC CGL Tier-I (CBE)
Exam. 01.09.2016) (Ist Sitting)

- 218.** If $a + b + c = 6$ and $ab + bc + ca = 11$, then the value of $bc(b+c) + ca(c+a) + ab(a+b) + 3abc$ is

- (1) 33 (2) 66
(3) 55 (4) 23

(SSC CGL Tier-I (CBE)
Exam. 01.09.2016) (Ist Sitting)

- 219.** If $\left(a + \frac{1}{a}\right)^2 = 3$, then the value

$$of a^6 - \frac{1}{a^6}$$

- will be

- (1) 1 (2) 3
(3) 0 (4) 2

(SSC CGL Tier-I (CBE)
Exam. 01.09.2016) (Ist Sitting)

- 220.** If $m + n = 1$, then the value of $m^3 + n^3 + 3mn$ is equal to

- (1) 0 (2) 1
(3) 2 (4) 3

(SSC CGL Tier-I (CBE)
Exam. 02.09.2016) (Ist Sitting)

ALGEBRA

221. If $x^4 + \frac{1}{x^4} = 119$, then the value of $\left(x - \frac{1}{x}\right)$ is

- (1) 6 (2) 12
 (3) 11 (4) 3
 (SSC CGL Tier-I (CBE)
 Exam. 02.09.2016) (Ist Sitting)

222. If $x^3 + \frac{1}{x^3} = 110$, then find the

- value of $x + \frac{1}{x}$.
 (1) 2 (2) 3
 (3) 4 (4) 5
 (SSC CGL Tier-I (CBE)
 Exam. 02.09.2016) (IIInd Sitting)

223. If $x^2 + y^2 + z^2 = 14$ and $xy + yz + zx = 11$, then the value of $(x + y + z)^2$ is

- (1) 16 (2) 25
 (3) 36 (4) 49
 (SSC CGL Tier-I (CBE)
 Exam. 03.09.2016) (IIInd Sitting)

224. If $x = \sqrt[3]{28}$, $y = \sqrt[3]{27}$, then the

- value of $x + y - \frac{1}{x^2 + xy + y^2}$ is
 (1) 8 (2) 7
 (3) 6 (4) 5
 (SSC CGL Tier-I (CBE)
 Exam. 03.09.2016) (IIInd Sitting)

225. If $x = 12$ and $y = 4$, then the

- value of $(x + y)^{\frac{x}{y}}$ is
 (1) 48 (2) 1792
 (3) 4096 (4) 570
 (SSC CGL Tier-I (CBE)
 Exam. 03.09.2016) (IIInd Sitting)

226. If $2x + \frac{2}{x} = 3$, then the value of

- $x^3 + \frac{1}{x^3} + 2$ is
 (1) $\frac{3}{4}$ (2) $\frac{4}{5}$
 (3) $\frac{5}{8}$ (4) $\frac{7}{8}$

(SSC CGL Tier-I (CBE)
 Exam. 04.09.2016) (Ist Sitting)

227. If $a + b = 3$, then the value of $a^3 + b^3 + 9ab - 27$ is
 (1) 24 (2) 25
 (3) 0 (4) 27
 (SSC CGL Tier-I (CBE)
 Exam. 06.09.2016) (Ist Sitting)

228. If $x + \frac{1}{x} = 2$, then the value of

- $x^2 + \frac{2}{x^6}$ is equal to ?
 (1) 0 (2) 1
 (3) 2 (4) 3
 (SSC CGL Tier-I (CBE)
 Exam. 06.09.2016) (Ist Sitting)

229. If $\frac{a}{b} + \frac{b}{a} = 1$, then the value of $a^3 + b^3$ will be

- (1) 1 (2) 0
 (3) -1 (4) 2
 (SSC CGL Tier-I (CBE)
 Exam. 07.09.2016) (Ist Sitting)

230. If $a - b = 1$ and $a^3 - b^3 = 61$, then the value of ab will be

- (1) -20 (2) 20
 (3) 30 (4) 60
 (SSC CGL Tier-I (CBE)
 Exam. 07.09.2016) (Ist Sitting)

231. If $p^3 - q^3 = (p - q) [(p + q)^2 - xpq]$ then the value of x is

- (1) 1 (2) -1
 (3) 2 (4) -2
 (SSC CGL Tier-I (CBE)
 Exam. 30.08.2016) (IIInd Sitting)

232. If $a^2 = by + cz$, $b^2 = cz + ax$, $c^2 =$

- $ax + by$, then the value of $\frac{x}{a+x}$
 + $\frac{y}{b+y}$ + $\frac{z}{c+z}$ is

- (1) 1 (2) $a + b + c$
 (3) $\frac{1}{a} + \frac{1}{b} + \frac{1}{c}$ (4) 0
 (SSC CGL Tier-I (CBE)
 Exam. 30.08.2016) (IIInd Sitting)

233. If $p^3 - q^3 = (p - q) [(p - q)^2 + xpq]$ then value of x is

- (1) 1 (2) -1
 (3) 3 (4) 2
 (SSC CGL Tier-I (CBE)
 Exam. 31.08.2016) (IIInd Sitting)

234. If $\left(a + \frac{1}{a}\right)^2 = 3$, then the value of $a^{18} + a^{12} + a^6 + 1$ is

- (1) 3 (2) 1
 (3) 0 (4) 2
 (SSC CGL Tier-I (CBE)
 Exam. 31.08.2016) (IIInd Sitting)

235. If $x + 5 + \frac{1}{x+1} = 6$, then the

value of $(x + 1)^3 + \frac{1}{(x+1)^3}$ is

- (1) 2 (2) 0
 (3) -2 (4) 4
 (SSC CGL Tier-I (CBE)
 Exam. 02.09.2016) (IIInd Sitting)

236. If $a + b + c = 15$ and $\frac{1}{a} + \frac{1}{b}$

+ $\frac{1}{c} = \frac{71}{abc}$, then the value of a^3

- + $b^3 + c^3 - 3abc$ is
 (1) 160 (2) 180
 (3) 200 (4) 220
 (SSC CGL Tier-I (CBE)
 Exam. 02.09.2016) (IIInd Sitting)

237. If k is the largest possible real number such that $p^4 + q^4 = (p^2 + kpq + q^2)(p^2 - kpq + q^2)$, then the value of k is

- (1) 1 (2) $-\sqrt{2}$
 (3) 2 (4) $\sqrt{2}$
 (SSC CGL Tier-I (CBE)
 Exam. 02.09.2016) (IIInd Sitting)

238. A complete factorisation of $(x^4 + 64)$ is

- (1) $(x^2 + 8)^2$
 (2) $(x^2 + 8)(x^2 - 8)$
 (3) $(x^2 - 4x + 8)(x^2 - 4x - 8)$
 (4) $(x^2 + 4x + 8)(x^2 - 4x + 8)$
 (SSC CGL Tier-II (CBE)
 Exam. 30.11.2016)

239. If $a + b = 1$, then $a^4 + b^4 - a^3 - b^3 - 2a^2b^2 + ab$ is equal to

- (1) 1 (2) 2
 (3) 4 (4) 0
 (SSC CGL Tier-II (CBE)
 Exam. 30.11.2016)

240. If $a = 299$, $b = 298$, $c = 297$ then the value of $2a^3 + 2b^3 + 2c^3 - 6abc$ is

- (1) 5154 (2) 5267
 (3) 5364 (4) 5456
 (SSC CGL Tier-II (CBE)
 Exam. 30.11.2016)

241. If $x + \frac{1}{x} = \sqrt{3}$ the value of $(x^{18} +$

- $x^{12} + x^6 + 1)$ is
 (1) 0 (2) 1
 (3) 2 (4) 3
 (SSC CGL Tier-II (CBE)
 Exam. 30.11.2016)

ALGEBRA

242. If $x = 1 + \sqrt{2} + \sqrt{3}$, then the value of $(2x^4 - 8x^3 - 5x^2 + 26x - 28)$ is

- (1) $2\sqrt{2}$ (2) $3\sqrt{3}$
 (3) $5\sqrt{5}$ (4) $6\sqrt{6}$

(SSC CGL Tier-II (CBE)
Exam. 30.11.2016)

243. If $x + y = 1 + xy$, then $x^3 + y^3 - x^3y^3$ is equal to :

- (1) 0 (2) 1
 (3) -1 (4) 2

(SSC CGL Tier-I (CBE)
Exam. 27.10.2016 (Ist Sitting)

244. If $p = 3 + \frac{1}{p}$, the value of

$$\left(p^4 + \frac{1}{p^4} \right)$$

- (1) 81 (2) 27
 (3) 120 (4) 119

(SSC CGL Tier-I (CBE)

Exam. 28.08.2016 (Ist Sitting)

245. If $x^2 - xy + y^2 = 2$ and $x^4 + x^2y^2 + y^4 = 6$, then the value of $(x^2 + xy + y^2)$ is :

- (1) 1 (2) 12
 (3) 3 (4) 36

(SSC CGL Tier-I (CBE)

Exam. 28.08.2016 (Ist Sitting)

246. If $\left(a + \frac{1}{a} \right)^2 = 3$, the value of

$$\left(a^3 + \frac{1}{a^3} \right)$$

- (1) 0 (2) $3\left(a + \frac{1}{a}\right)$

$$(3) 3\left(a^2 + \frac{1}{a^2}\right)$$

- (4) 1

(SSC CGL Tier-I (CBE)

Exam. 29.08.2016 (Ist Sitting)

247. If $\frac{a^2 + b^2}{c^2} = \frac{b^2 + c^2}{a^2} = \frac{c^2 + a^2}{b^2}$

$$= \frac{1}{k}, (k \neq 0) \text{ then } k = ?$$

- (1) 2 (2) 1

- (3) 0 (4) $\frac{1}{2}$

(SSC CGL Tier-I (CBE)

Exam. 29.08.2016 (Ist Sitting)

248. If $\left(2x + \frac{2}{9x} \right) = 4$, then the value

$$\text{of } \left(27x^3 + \frac{1}{27x^3} \right) \text{ is :}$$

- (1) 180 (2) 198
 (3) 234 (4) 252

(SSC CGL Tier-I (CBE)

Exam. 29.08.2016 (Ist Sitting)

249. If $xy(x + y) = m$, then the value of $(x^3 + y^3 + 3m)$ is :

- (1) $\frac{m^3}{xy}$ (2) $\frac{m^3}{(x+y)^3}$

- (3) $\frac{m^3}{x^3y^3}$ (4) mx^3y^3

(SSC CGL Tier-I (CBE)

Exam. 30.08.2016 (IIInd Sitting)

250. If $p + \frac{1}{p+2} = 1$, then the value

- of $(p+2)^3 + \frac{1}{(p+2)^3} - 3$ is :

- (1) 12 (2) 16
 (3) 18 (4) 15

(SSC CGL Tier-I (CBE)

Exam. 30.08.2016 (IIInd Sitting)

251. If $\left(x + \frac{1}{x} \right) \neq 0$ and $\left(x^3 + \frac{1}{x^3} \right) = 0$

then the value $\left(x + \frac{1}{x} \right)^4$ is

- (1) 9 (2) 12
 (3) 15 (4) 16

(SSC CGL Tier-I (CBE)

Exam. 31.08.2016 (IIInd Sitting)

252. If $2x - \frac{2}{x} = 1 (x \neq 0)$, then the

value of $\left(x^3 - \frac{1}{x^3} \right)$ is

- (1) $\frac{13}{4}$ (2) $\frac{13}{8}$
 (3) $\frac{17}{4}$ (4) $\frac{17}{8}$

(SSC CGL Tier-I (CBE)

Exam. 02.09.2016 (IIInd Sitting)

253. Sum of the factors of $4b^2c^2 - (b^2 + c^2 - a^2)^2$ is :

- (1) $a + b + c$ (2) $2(a + b + c)$
 (3) 0 (4) 1

(SSC CGL Tier-I (CBE)

Exam. 02.09.2016 (IIInd Sitting)

254. If $(4a - 3)^2 = 0$, then the value of $64a^3 - 48a^2 + 12a + 13$ is :

- (1) 0 (2) 11
 (3) 22 (4) 33

(SSC CGL Tier-I (CBE)

Exam. 03.09.2016 (IIInd Sitting)

255. If $a = 101$, then the value of $a(a^2 - 3a + 3)$ is :

- (1) 1000000 (2) 1010101
 (3) 1000001 (4) 999999

(SSC CGL Tier-I (CBE)

Exam. 03.09.2016 (IIInd Sitting)

256. If $\left(x + \frac{1}{x} \right) = -2$, then the value

of $\left(x^7 + \frac{1}{x^7} \right)$ is

- (1) 1 (2) -1
 (3) 0 (4) -2

(SSC CGL Tier-I (CBE)

Exam. 03.09.2016 (IIInd Sitting)

257. If $a^2 + b^2 + c^2 = 14$ and $a + b + c = 6$, then the value of $(ab + bc + ca)$ is,

- (1) 11 (2) 12
 (3) 13 (4) 14

(SSC CGL Tier-I (CBE)

Exam. 03.09.2016 (IIInd Sitting)

258. If $\frac{a}{b} + \frac{b}{a} = 1$, then the value of $(a^3 + b^3)$ is :

- (1) 1 (2) 0
 (3) -1 (4) 2

(SSC CGL Tier-I (CBE)

Exam. 03.09.2016 (IIInd Sitting)

259. If $(a + b) = 5$, then the value of $(a - 3)^7 + (b - 2)^7$ is :

- (1) 2^7 (2) 3^7
 (3) 1 (4) 0

(SSC CGL Tier-I (CBE)

Exam. 04.09.2016 (IIInd Sitting)

260. If $(x^2 - 2x + 1) = 0$, then the value

of $\left(x^4 + \frac{1}{x^4} \right)$ is :

- (1) 0 (2) 1
 (3) 2 (4) 3

(SSC CGL Tier-I (CBE)

Exam. 04.09.2016 (IIInd Sitting)

261. If $a^2 + b^2 + c^2 = 83$ and $a + b + c = 15$, then the value of $(ab + bc + ca)$ is :

- (1) 69 (2) 70
 (3) 71 (4) 72

(SSC CGL Tier-I (CBE)

Exam. 04.09.2016 (IIInd Sitting)

262. If $m - n = 2$ and $mn = 15$, ($m, n > 0$) then the value of $(m^2 - n^2)$ is :

- (1) 1856 (2) 1658
 (3) 1586 (4) 1568

(SSC CGL Tier-I (CBE)

Exam. 04.09.2016 (IIInd Sitting)

263. If $xy + yz + zx = 1$, then the value of $\frac{1+y^2}{(x+y)(y+z)}$ is :

- (1) 2 (2) 3
 (3) 4 (4) 1

(SSC CGL Tier-I (CBE)

Exam. 06.09.2016 (IIInd Sitting)

264. If $x^2 - 4x + 1 = 0$, then the value

of $\left(\frac{x^6 + 1}{x^3} \right)$ is :

- (1) 48 (2) 52
 (3) 55 (4) 58

(SSC CGL Tier-I (CBE)

Exam. 06.09.2016 (IIInd Sitting)

ALGEBRA

- 265.** If $x = a + \frac{1}{a}$ and $y = a - \frac{1}{a}$, then the value of $x^4 + y^4 - 2x^2y^2$ is :
 (1) 4 (2) 8
 (3) 16 (4) 64
 (SSC CGL Tier-I (CBE)

Exam. 07.09.2016 (IIInd Sitting)

- 266.** If $a^3 - b^3 = 56$ and $a - b = 2$, what is the value of $(a^2 + b^2)$?
 (1) 12 (2) 20
 (3) 28 (4) 32
 (SSC CGL Tier-I (CBE)

Exam. 09.09.2016 (IIInd Sitting)

- 267.** If $x + y + z = 1$, $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} = 1$ and $xyz = -1$, then $x^3 + y^3 + z^3$ is equal to
 (1) -1 (2) 1
 (3) -2 (4) 2
 (SSC CGL Tier-I (CBE)

Exam. 09.09.2016 (IIInd Sitting)

- 268.** If $\frac{1}{a}(a^2 + 1) = 3$, then the value of $\left(\frac{a^6 + 1}{a^3}\right)$ is :
 (1) 9 (2) 18
 (3) 27 (4) 1
 (SSC CGL Tier-I (CBE)

Exam. 09.09.2016 (IIIrd Sitting)

- 269.** The third proportional of the following numbers $(x - y)^2$, $(x^2 - y^2)^2$ is :
 (1) $(x + y)^3(x - y)^2$
 (2) $(x + y)^4(x - y)^2$
 (3) $(x + y)^2(x - y)^2$
 (4) $(x + y)^2(x - y)^3$
 (SSC CGL Tier-I (CBE)

Exam. 10.09.2016 (IIInd Sitting)

- 270.** If $(x - 5)^2 + (y - 2)^2 + (z - 9)^2 = 0$, then value of $(x + y - z)$ is :
 (1) 16 (2) -1
 (3) -2 (4) 12
 (SSC CGL Tier-I (CBE)

Exam. 10.09.2016 (IIIrd Sitting)

- 271.** If $\left(x + \frac{1}{x}\right) = 3$ then $\left(x^8 + \frac{1}{x^8}\right)$ is equal to
 (1) 2201 (2) 2203
 (3) 2207 (4) 2213
 (SSC CGL Tier-I (CBE)

Exam. 10.09.2016 (IIIrd Sitting)

- 272.** If $x = 999$, $y = 1000$, $z = 1001$, then the value of

$$\frac{x^3 + y^3 + z^3 - 3xyz}{x - y + z}$$

- is :
 (1) 1000 (2) 9000
 (3) 1 (4) 9
 (SSC CGL Tier-I (CBE)

Exam. 10.09.2016 (IIIrd Sitting)

- 273.** If $a + b + c = 0$, then the value of $(a^3 + b^3 + c^3)$ is
 (1) abc (2) 2abc
 (3) 3abc (4) 0
 (SSC CGL Tier-I (CBE)

Exam. 11.09.2016 (IIInd Sitting)

- 274.** If $\frac{1}{p} + \frac{1}{q} = \frac{1}{p+q}$, then the value of $(p^3 - q^3)$ is
 (1) $p - q$ (2) pq
 (3) 1 (4) 0
 (SSC CGL Tier-I (CBE)

Exam. 11.09.2016 (IIInd Sitting)

- 275.** If $x = 93$, $y = 93$, $z = 94$ then the value of $(x^2 - y^2 + 10xz + 10yz)$ is
 (1) 104784 (2) 147840
 (3) 174840 (4) 184740
 (SSC CGL Tier-I (CBE)

Exam. 11.09.2016 (IIInd Sitting)

- 276.** If $x = 222$, $y = 223$, $z = 225$ then the value of $(x^3 + y^3 + z^3 + 3xyz)$ is :
 (1) 4590 (2) 4690
 (3) 4950 (4) 4960
 (SSC CGL Tier-I (CBE)

Exam. 11.09.2016 (IIIrd Sitting)

- 277.** If $\frac{a}{b} + \frac{b}{a} = 1$, then the value of $a^3 + b^3 - 2$ is
 (1) 0 (2) -2
 (3) -1 (4) 2
 (SSC CGL Tier-I (CBE)

Exam. 27.10.2016 (Ist Sitting)

- 278.** If $x + \frac{1}{x} = \sqrt{3}$, then the value of $\left(x^3 + \frac{1}{x^3}\right)$ is :
 (1) $\sqrt{3}$ (2) $\frac{1}{\sqrt{3}}$
 (3) 0 (4) 1
 (SSC CGL Tier-I (CBE)

Exam. 27.10.2016 (Ist Sitting)

- 279.** If $a + b = 3$, then the value of $a^3 + b^3 + 9ab$ is :
 (1) 27 (2) 9
 (3) 16 (4) 81
 (SSC CGL Tier-I (CBE)

Exam. 27.10.2016 (Ist Sitting)

- 280.** If $6x^2 - 12x + 1 = 0$, then the value of $27x^3 + \frac{1}{8x^3}$ is
 (1) 162 (2) 189
 (3) 207 (4) 225
 (SSC CGL Tier-I (CBE)

Exam. 27.10.2016 (Ist Sitting)

- 281.** If $x^2 + \frac{1}{x^2} = 98$ ($x > 0$), then the value of $\left(x^3 + \frac{1}{x^3}\right)$ is
 (1) 970 (2) 1030
 (3) -970 (4) -1030
 (SSC CGL Tier-II (CBE)

Exam. 12.01.2017

- 282.** If $x = y + z$ then $x^3 - y^3 - z^3$ is
 (1) 0 (2) $3xyz$
 (3) $-3xyz$ (4) 1
 (SSC CGL Tier-II (CBE)

Exam. 12.01.2017

- 283.** If $x = 11$, the value of $x^5 - 12x^4 + 12x^3 - 12x^2 + 12x - 1$ is
 (1) 11 (2) 10
 (3) 12 (4) -10
 (SSC CGL Tier-II (CBE)

Exam. 12.01.2017

- 284.** If x , y , z are the three factors of $a^3 - 7a - 6$, then value of $(x + y + z)$ will be
 (1) $3a$ (2) 3
 (3) 6 (4) a
 (SSC CGL Tier-II (CBE)

Exam. 12.01.2017

TYPE-III

- 1.** If $(2^x)(2^y) = 8$ and $(9^x)(3^y) = 81$, then (x, y) is :
 (1) (1,2) (2) (2, 1)
 (3) (1,1) (4) (2, 2)

FCI Assistant Grade-III

Exam. 05.02.2012 (Paper-I)

East Zone (IIInd Sitting)

- 2.** The lines $2x + y = 5$ and $x + 2y = 4$ intersect at the point :
 (1) (1,2) (2) (2,1)
 (3) $(\frac{5}{2}, 0)$ (4) (0,2)

FCI Assistant Grade-III

Exam. 05.02.2012 (Paper-I)

East Zone (IIInd Sitting)

- 3.** The graph of the linear equation $3x + 4y = 24$ is a straight line intersecting x -axis and y -axis at the points A and B respectively.
 P(2, 0) and Q $\left(0, \frac{3}{2}\right)$ are two

points on the sides OA and OB respectively of $\triangle OAB$, where O is the origin of the co-ordinate system. Given that AB = 10 cm, then PQ =
 (1) 20 cm (2) 2.5 cm
 (3) 40 cm (4) 5 cm

(SSC Graduate Level Tier-II

Exam. 16.09.2012)

ALGEBRA

- 4.** The length of the intercept of the graph of the equation $9x - 12y = 108$ between the two axes is
 (1) 15 units (2) 9 units
 (3) 12 units (4) 18 units

(SSC Graduate Level Tier-II Exam. 16.09.2012)

- 5.** The x -intercept on the graph of $7x - 3y = 2$ is

- (1) $\frac{3}{4}$ (2) $\frac{3}{7}$
 (3) $\frac{2}{5}$ (4) $\frac{2}{7}$

(SSC CHSL DEO & LDC Exam. 21.10.2012 (Ist Sitting))

- 6.** If $2x + y = 6$ and $x = 2$ are two linear equations, then graph of two equations meet at a point :

- (1) (2,0) (2) (0,2)
 (3) (2,2) (4) (1,2)

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IIInd Sitting))

- 7.** An equation whose graph passes through the origin, out of the given equations $2x + 3y = 2$, $2x - 3y = 3$, $-2x + 3y = 5$ and $2x + 3y = 0$ is :

- (1) $2x - 3y = 3$
 (2) $-2x + 3y = 5$
 (3) $2x + 3y = 0$
 (4) $2x + 3y = 2$

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IIInd Sitting))

- 8.** If a linear equation is of the form $x = k$ where k is a constant, then graph of the equation will be

- (1) a line parallel to x -axis
 (2) a line cutting both the axes
 (3) a line making positive acute angle with x -axis
 (4) a line parallel to y -axis

(SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting))

- 9.** The graph of the equation $2x - 3y = 6$ intersects the y -axis at the point

- (1) (-2, 0) (2) (0, -2)
 (3) (2, 3) (4) (2, -3)

(SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting))

- 10.** The graph of the equations $25x + 75y = 225$ and $x = 9$ meet at the point

- (1) (0,9) (2) (9,0)
 (3) (3,0) (4) (0,3)

(SSC CHSL DEO & LDC Exam. 04.11.2012 (IIInd Sitting))

- 11.** The area bounded by the lines $x = 0$, $y = 0$, $x + y = 1$, $2x + 3y = 6$ (in square units) is

- (1) 2 (2) $2\frac{1}{3}$

- (3) $2\frac{1}{2}$ (4) 3

(SSC Graduate Level Tier-I Exam. 11.11.2012 (Ist Sitting))

- 12.** The graph of the equation $4x - 5y = 20$ intersects the x -axis at the point

- (1) (2, 0) (2) (5, 0)
 (3) (4, 5) (4) (0, 5)

(SSC Delhi Police S.I.(SI) Exam. 19.08.2012)

- 13.** The graph of $2x + 1 = 0$ and $3y - 9 = 0$ intersect at the point

- (1) $(-\frac{1}{2}, -3)$ (2) $(-\frac{1}{2}, 3)$

- (3) $(\frac{1}{2}, -3)$ (4) None of these

(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting))

- 14.** An equation of the form $ax + by + c = 0$ where $a \neq 0$, $b \neq 0$, $c = 0$ represents a straight line which passes through

- (1) (0, 0) (2) (3, 2)
 (3) (2, 4) (4) None of these

(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting))

- 15.** The linear equation such that each point on its graph has an ordinate four times its abscissa is :

- (1) $y + 4x = 0$ (2) $y = 4x$
 (3) $x = 4y$ (4) $x + 4y = 0$

(SSC CAPFs SI & CISF ASI Exam. 23.06.2013)

- 16.** If the graph of the equations $3x + 2y = 18$ and $3y - 2x = 1$ intersect at the point (p, q) , then the value of $p + q$ is

- (1) 7 (2) 6
 (3) 5 (4) 4

(SSC CHSL DEO & LDC Exam. 27.10.2013 IIInd Sitting))

- 17.** If the graph of the equations $x + y = 0$ and $5y + 7x = 24$ intersect at (m, n) , then the value of $m + n$ is

- (1) 2 (2) 1
 (3) 0 (4) -1

(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting))

- 18.** The area of the triangle formed by the graph of $3x + 4y = 12$, x -axis and y -axis (in sq. units) is

- (1) 4 (2) 12
 (3) 6 (4) 8

(SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting))

- 19.** Equation of the straight line parallel to x -axis and also 3 units below x -axis is :

- (1) $x = -3$ (2) $y = 3$
 (3) $y = -3$ (4) $x = 3$

(SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting))

- 20.** The straight line $2x + 3y = 12$ passes through :

- (1) 1st, 2nd and 3rd quadrant
 (2) 1st, 2nd and 4th quadrant
 (3) 2nd, 3rd and 4th quadrant
 (4) 1st, 3rd and 4th quadrant

(SSC Graduate Level Tier-I Exam. 19.05.2013))

- 21.** The graphs of $x = a$ and $y = b$ intersect at

- (1) (a, b) (2) (b, a)
 (3) $(-a, b)$ (4) $(a, -b)$

(SSC CGL Tier-I Exam. 19.10.2014 (Ist Sitting))

- 22.** The area in sq. unit. of the triangle formed by the graphs of $x = 4$, $y = 3$ and $3x + 4y = 12$ is

- (1) 12 (2) 8
 (3) 10 (4) 6

(SSC CGL Tier-I Exam. 19.10.2014))

- 23.** The equations

- $3x + 4y = 10$
 $-x + 2y = 0$
- have the solution (a, b) . The value of $a + b$ is

- (1) 1 (2) 2
 (3) 3 (4) 4

(SSC CGL Tier-I Exam. 19.10.2014))

- 24.** Area of the triangle formed by the graph of the straight lines $x - y = 0$, $x + y = 2$ and the x -axis is

- (1) 1 sq unit (2) 2 sq units
 (3) 4 sq units (4) None of these

(SSC CGL Tier-II Exam. 21.09.2014))

- 25.** If $2\left(x^2 + \frac{1}{x^2}\right) - \left(x - \frac{1}{x}\right) - 7 = 0$, then two values of x are

- (1) 1, 2 (2) $2, -\frac{1}{2}$
 (3) 0, 1 (4) $\frac{1}{2}, 1$

(SSC CHSL DEO & LDC Exam. 02.11.2014 (IIInd Sitting))

ALGEBRA

26. The total area (in sq. unit) of the triangles formed by the graph of $4x + 5y = 40$, x -axis, y -axis and $x = 5$ and $y = 4$ is

- (1) 10 (2) 20
(3) 30 (4) 40

(SSC CGL Tier-I Exam. 19.10.2014
TF No. 022 MH 3)

27. For what value of k , the system of equations $kx + 2y = 2$

and $3x + y = 1$ will be coincident?

- (1) 2 (2) 3
(3) 5 (4) 6

(SSC CGL Tier-I Exam. 19.10.2014
TF No. 022 MH 3)

28. The area (in square units) of the triangle formed by the graphs of the equations $x = 4$, $y = 3$ and $3x + 4y = 12$; is

- (1) 24 (2) 12
(3) 6 (4) 3

(SSC CGL Tier-II Exam. 12.04.2015
TF No. 567 TL 9 and SSC CGL
Tier-I Exam, 16.08.2015
(IInd Sitting) TF No. 2176783)

29. If the ordinate and abscissa of the point $(k, 2k-1)$ be equal, then the value of k is

- (1) 0 (2) -1
(3) 1 (4) $\frac{1}{2}$

(SSC CGL Tier-II Exam. 12.04.2015
TF No. 567 TL 9)

30. The graph of $3x + 4y - 24 = 0$ forms a triangle OAB with the coordinate axes, where O is the origin. Also the graph of $x + y + 4 = 0$ forms a triangle OCD with the coordinate axes. Then the area of $\triangle OCD$ is equal to

- (1) $\frac{1}{2}$ of area of $\triangle OAB$
(2) $\frac{1}{3}$ of area of $\triangle OAB$
(3) $\frac{2}{3}$ of area of $\triangle OAB$
(4) the area of $\triangle OAB$

(SSC CGL Tier-II Exam.
2014 12.04.2015 (Kolkata Region)
TF No. 789 TH 7)

31. The angle between the graph of the linear equation

$$239x - 239y + 5 = 0 \text{ and the } x\text{-axis is}$$

- (1) 0° (2) 60°
(3) 30° (4) 45°

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
(1st Sitting) TF No. 8037731)

32. The length of the portion of the straight line $3x + 4y = 12$ intercepted between the axes is

- (1) 5 (2) 3
(3) 4 (4) 7

(SSC CGL Tier-I Exam, 09.08.2015
(1st Sitting) TF No. 1443088)

33. $2x - ky + 7 = 0$ and $6x - 12y + 15 = 0$ has no solution for

- (1) $k = -1$ (2) $k = -4$
(3) $k = 4$ (4) $k = 1$

(SSC CGL Tier-I Exam, 09.08.2015
(1st Sitting) TF No. 1443088)

34. Among the equations

$x + 2y + 9 = 0$; $5x - 4 = 0$; $2y - 13 = 0$; $2x - 3y = 0$, the equation of the straight line passing through origin is

- (1) $2x - 3y = 0$
(2) $x + 2y + 9 = 0$
(3) $5x - 4 = 0$
(4) $2y - 13 = 0$

(SSC CGL Tier-I Exam, 16.08.2015
(1st Sitting) TF No. 3196279)

35. If the number of vertices, edges and faces of a rectangular parallelopiped are denoted by v , e and f respectively, the value of $(v - e + f)$ is

- (1) 0 (2) 2
(3) 4 (4) 1

(SSC CGL Tier-I Exam, 16.08.2015
(1st Sitting) TF No. 3196279)

36. The area of the triangle formed by the graphs of the equations $x = 0$, $2x + 3y = 6$ and $x + y = 3$ is :

- (1) 3 sq. unit (2) $4 \frac{1}{2}$ sq. unit

- (3) $1 \frac{1}{2}$ sq. unit (4) 1 sq. unit

(SSC CGL Tier-I Exam, 16.08.2015
(1st Sitting) TF No. 3196279)

37. If $5x + 9y = 5$ and $125x^3 + 729y^3 = 120$ then the value of the product of x and y is

- (1) $\frac{1}{9}$ (2) $\frac{1}{135}$
(3) 45 (4) 135

(SSC CGL Tier-I Exam, 16.08.2015
(1st Sitting) TF No. 3196279)

38. A point in the 4th quadrant is 6 unit away from x -axis and 7 unit away from y -axis. The point is at

- (1) (7, -6) (2) (-7, 6)
(3) (-6, -7) (4) (-6, 7)

(SSC CGL Tier-I
Re-Exam, 30.08.2015)

39. The straight line $y = 3x$ must pass through the point :

- (1) (0, 0) (2) (0, 1)
(3) (1, 2) (4) (2, 0)

(SSC CHSL (10+2) LDC, DEO
& PA/SA Exam, 06.12.2015
(1st Sitting) TF No. 1375232)

40. If (2, 0) is a solution of the linear equation $2x + 3y = k$, then the value of k is

- (1) 6 (2) 5
(3) 2 (4) 4

(SSC CHSL (10+2) LDC, DEO
& PA/SA Exam, 20.12.2015
(1st Sitting) TF No. 9692918)

41. The graph of linear equation $y = x$ passes through the point

- (1) $\left(0, \frac{3}{2}\right)$ (2) (1, 1)

- (3) $\left(-\frac{1}{2}, \frac{1}{2}\right)$ (4) $\left(\frac{3}{2}, -\frac{3}{2}\right)$

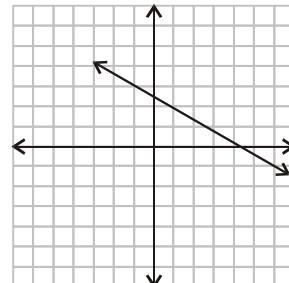
(SSC CHSL (10+2) LDC, DEO
& PA/SA Exam, 20.12.2015
(1st Sitting) TF No. 9692918)

42. What is the area of the region bounded by straight line $9x + 4y = 36$, x -axis and the y -axis?

- (1) 12 sq. units
(2) 18 sq. units
(3) 16 sq. units
(4) 15 sq. units

(SSC CPO Exam. 06.06.2016)
(1st Sitting)

43. The slope of the given line is:



- (1) Positive (2) Negative
(3) Undefined (4) Zero

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 05.06.2016)
(1st Sitting)

ALGEBRA

- 44.** What is the area of the triangle formed by points (0,0), (3,4), (4,3) ?

- (1) 4 units² (2) $\frac{7}{2}$ units²
 (3) $\frac{5}{2}$ units² (4) $\frac{5}{3}$ units²

(SSC CPO SI & ASI, Online Exam. 06.06.2016) (IIInd Sitting)

- 45.** The area of a triangle with vertices A (0, 8), O (0,0) and B (5, 0) is :

- (1) 8 sq. units (2) 13 sq. units
 (3) 20 sq. units (4) 40 sq. units

(SSC CGL Tier-I (CBE) Exam. 09.09.2016 (IIIrd Sitting))

- 46.** What is the equation of the line

whose y -intercept is $-\frac{3}{4}$ and

making an angle of 45° with the positive x -axis?

- (1) $4x - 4y = 3$ (2) $4x - 4y = -3$
 (3) $3x - 3y = 4$ (4) $3x - 3y = -4$
 (SSC CHSL (10+2) Tier-I (CBE) Exam. 15.01.2017) (IIInd Sitting)

- 47.** In what ratio does the point T (3, 0) divide the segment joining the points S (4, -2) and U (1, 4)?

- (1) 2 : 1 (2) 1 : 2
 (3) 2 : 3 (4) 3 : 2
 (SSC CHSL (10+2) Tier-I (CBE) Exam. 15.01.2017) (IIInd Sitting)

- 48.** P (4, (2) and R (-2, 0) are vertices of a rhombus PQRS. What is the equation of diagonal QS ?

- (1) $x - 3y = -2$ (2) $3x + y = 4$
 (3) $3x + y = -4$ (4) $x - 3y = 2$
 (SSC CHSL (10+2) Tier-I (CBE) Exam. 16.01.2017) (IIInd Sitting)

- 49.** Point P is the midpoint of segment AB. Co-ordinates of point P are (2,1) and that of point A are (11,5). The co-ordinates of point B are

- (1) (-7,-3) (2) (6.5,(3)
 (3) (7,(3) (4) (-6.5,-(3)
 (SSC CHSL (10+2) Tier-I (CBE) Exam. 16.01.2017) (IIInd Sitting)

TYPE-IV

- 1.** If $\frac{a}{b} = \frac{2}{3}$ and $\frac{b}{c} = \frac{4}{5}$, then the ratio $\frac{a+b}{b+c}$ equal to :

- (1) $\frac{20}{27}$ (2) $\frac{27}{20}$
 (3) $\frac{6}{8}$ (4) $\frac{8}{6}$

(SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))

- 2.** If $a : b = 2 : 3$ and $b : c = 4 : 5$, find $a^2 : b^2 : bc$

- (1) 4 : 9 : 45 (2) 16 : 36 : 45
 (3) 16 : 36 : 20 (4) 4 : 36 : 40

(SSC CGL Prelim Exam. 24.02.2002 (First Sitting))

- 3.** If $A : B = \frac{1}{2} : \frac{3}{8}$,

$B : C = \frac{1}{3} : \frac{5}{9}$ and $C : D = \frac{5}{6} : \frac{3}{4}$

then the ratio A : B : C : D is

- (1) 6 : 4 : 8 : 10
 (2) 6 : 8 : 9 : 10
 (3) 8 : 6 : 10 : 9
 (4) 4 : 6 : 8 : 10

(SSC CGL Prelim Exam. 24.02.2002 (First Sitting))

- 4.** If $x : y = 3 : 2$, then the ratio $2x^2 + 3y^2 : 3x^2 - 2y^2$ is equal to :

- (1) 12 : 5 (2) 6 : 5
 (3) 30 : 19 (4) 5 : 3

(SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))

- 5.** If $A : B : C = 2 : 3 : 4$, then

$\frac{A}{B} : \frac{B}{C} : \frac{C}{A}$ is equal to :

- (1) 8 : 9 : 16 (2) 8 : 9 : 12
 (3) 8 : 9 : 24 (4) 4 : 9 : 16

(SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))

- 6.** If $A : B = 1 : 2$, $B : C = 3 : 4$ and $C : D = 5 : 6$, find $D : C : B : A$

- (1) 6 : 5 : 4 : 2
 (2) 6 : 3 : 2 : 1
 (3) 6 : 4 : 2 : 1
 (4) 48 : 40 : 30 : 15

(SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))

- 7.** If $\frac{2a - 5b}{3a + 6b} = \frac{4}{7}$ then $a : b$ is

equal to
 (1) 21 : 36 (2) 2 : 59
 (3) 59 : 2 (4) 36 : 21

(SSC CGL Prelim Exam. 24.02.2002 (Middle Zone))

- 8.** If $\frac{a}{b} = \frac{7}{9}, \frac{b}{c} = \frac{3}{5}$, then the value

of $a : b : c$ is
 (1) 7 : 9 : 15 (2) 7 : 9 : 5
 (3) 21 : 35 : 45 (4) 7 : 3 : 15

(SSC CPO S.I.Exam.12.01.2003)

- 9.** If $x : y = 7 : 3$, then the value of

$$\frac{xy + y^2}{x^2 - y^2}$$

- (1) $\frac{3}{4}$ (2) $\frac{4}{3}$

- (3) $\frac{3}{7}$ (4) $\frac{7}{3}$

(SSC CPO S.I.Exam.12.01.2003)

- 10.** If $\frac{3a + 5b}{3a - 5b} = 5$, then $a : b$ is

equal to :

- (1) 2 : 1 (2) 5 : 3
 (3) 3 : 2 (4) 5 : 2

(SSC CPO S.I. Exam. 26.05.2005)

- 11.** If $p : q = r : s = t : u = 2 : 3$, then $(mp + nr + ot) : (mq + ns + ou)$ equals :

- (1) 3 : 2 (2) 2 : 3
 (3) 1 : 3 (4) 1 : 2

(SSC CPO S.I.Exam.26.05.2005)

- 12.** If $x : y = 3 : 4$, then $(7x + 3y) : (7x - 3y)$ is equal to :

- (1) 5 : 2 (2) 4 : 3
 (3) 11 : 3 (4) 37 : 19

(SSC CPO S.I. Exam. 26.05.2005)

- 13.** If $a : b : c = (y - z) : (z - x) : (x - y)$ then the value of $ax + by + cz$ is

- (1) 1 (2) 3
 (3) 0 (4) -1

(SSC (South Zone) Investigator Exam. 12.09.2010)

- 14.** If 50% of $(p - q) = 30\%$ of $(p + q)$, then $p : q$ is equal to

- (1) 5 : 3 (2) 4 : 1
 (3) 3 : 5 (4) 1 : 4

(SSC (South Zone) Investigator Exam.12.09.2010)

ALGEBRA

- 15.** If $x : y = 2 : 1$, then $(5x^2 - 13xy + 6y^2)$ is equal to

(1) $\frac{3}{4}$ (2) $\frac{4}{3}$
 (3) 0 (4) $\frac{55}{4}$

(SSC CPO Sub-Inspector Exam. 12.12.2010 (Paper-I))

- 16.** If $y : x = 4 : 15$, then the value of

$$\left(\frac{x-y}{x+y} \right) \text{ is}$$

(1) $\frac{11}{19}$ (2) $\frac{19}{11}$
 (3) $\frac{4}{11}$ (4) $\frac{15}{19}$

FCI Assistant Grade-III Exam. 25.02.2012 (Paper-I)

North Zone (1st Sitting)

- 17.** If $x : y = 3 : 4$, then the value

$$\text{of } \frac{5x-2y}{7x+2y} =$$

(1) $\frac{7}{25}$ (2) $\frac{7}{23}$
 (3) $\frac{7}{29}$ (4) $\frac{7}{17}$

(SSC Multi-Tasking (Non-Technical) Staff Exam. 20.02.2011)

- 18.** If $x^2 + 9y^2 = 6xy$, then $x : y$ is

(1) 1 : 3 (2) 3 : 2
 (3) 3 : 1 (4) 2 : 3

(SSC Constable (GD) Exam. 12.05.2013 1st Sitting)

- 19.** If $a+b+c=4\sqrt{3}$ and $a^2+b^2+c^2=16$, then the ratio $a : b : c$ is

(1) 1 : 1 : 1 (2) 1 : $\sqrt{2}$: $\sqrt{3}$
 (3) 1 : 2 : 3 (4) None of these

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (1st Sitting))

- 20.** If $4x+5y=83$ and $3x:2y=21:22$, then $(y-x)$ equals

(1) 3 (2) 4
 (3) 7 (4) 11

(SSC CGL Tier-II Exam. 21.09.2014)

- 21.** If $\frac{x}{xa+yb+zc} = \frac{y}{ya+zb+xc} =$

$\frac{z}{za+xb+yc}$ and $x+y+z \neq 0$,

then each ratio is

(1) $\frac{1}{a-b-c}$ (2) $\frac{1}{a+b-c}$

(3) $\frac{1}{a-b+c}$ (4) $\frac{1}{a+b+c}$

(SSC CHSL DEO & LDC Exam. 9.11.2014)

- 22.** If $x : y = 3 : 2$, then the value of

$$\frac{x+y}{x-y} \text{ is}$$

(1) 5 : 1 (2) 1 : 3
 (3) 1 : 5 (4) 3 : 1

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

- 23.** If $a^2 + b^2 + c^2 - ab - bc - ca = 0$, Then $a : b : c$ is :

(1) 1 : 1 : 2 (2) 1 : 1 : 1
 (3) 1 : 2 : 1 (4) 2 : 1 : 1

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 15.11.2015 (1st Sitting) TF No. 6636838)

- 24.** If $a^2 + 13b^2 + c^2 - 4ab - 6bc = 0$, then $a : b : c$ is

(1) 1 : 2 : 3 (2) 2 : 3 : 1
 (3) 2 : 1 : 3 (4) 1 : 3 : 2

(SSC CGL Tier-I (CBE) Exam. 28.08.2016 (1ST Sitting))

- 25.** If $(2x-y)^2 + (3y-2z)^2 = 0$, then the ratio $x : y : z$ is :

(1) 1 : 3 : 2 (2) 1 : 2 : 3
 (3) 3 : 1 : 2 (4) 3 : 2 : 1

(SSC CGL Tier-I (CBE) Exam. 03.09.2016 (Ind Sitting))

TYPE-V

- 1.** In how many ways can a committee schedule three speakers for three different meetings if they are all available on any of five possible dates?

(1) 10 (2) 36
 (3) 60 (4) 120

(SSC CPO S.I. Exam. 05.09.2004)

- 2.** How many even three-digit numbers can be formed from the digits 1, 2, 5, 6 and 9 without repeating any of the digits?

(1) 120 (2) 48
 (3) 40 (4) 24

(SSC CPO S.I. Exam. 07.09.2003)

- 3.** If ten friends shake hands mutually, then the total number of hand shakes is

(1) 45 (2) 50
 (3) 90 (4) 100

(SSC CPO S.I. Exam. 05.09.2004)

- 4.** The total number of integers between 200 and 400, each of which either begins with 3 or ends with 3 or both, is

(1) 10 (2) 100
 (3) 110 (4) 120

(SSC CGL Prelim Exam. 04.02.2007 (First Sitting))

TYPE-VI

- 1.** If $[p]$ means the greatest integer less than or equal to p , then

$\left[-\frac{1}{4} \right] + \left[4 \frac{1}{4} \right] + [3]$ is equal to

(1) 4 (2) 5
 (3) 6 (4) 7

(SSC Section Officer (Commercial Audit) Exam. 16.11.2003)

- 2.** If \oplus is an operation such that

$a \oplus b = 2a$ when $a > b$
 $= a + b$ when $a < b$
 $= a^2$ when $a = b$,

then, $\left[\frac{(5 \oplus 7) + (4 \oplus 4)}{3(5 \oplus 5) - (15 \oplus 11) - 3} \right]$ is equal to :

(1) $\frac{1}{3}$ (2) $\frac{14}{23}$
 (3) $\frac{2}{3}$ (4) $\frac{14}{13}$

(SSC CPO S.I. Exam. 16.12.2007)

- 3.** If \star is an operation such that a

$\star b = a + b$ when $a > 0, b > 0$

$a \star b = \sqrt{a^2 + b^2}$ for all other values of a and b . The value of

$\frac{8 \star (7 - 13) - (3 \star 1)}{(3 - 6) \star (9 - 5)}$ is

(1) $\frac{1}{5}$ (2) $\frac{4}{5}$

(3) $\frac{6}{5}$ (4) $\frac{2}{5}$

(SSC CPO S.I. Exam. 09.11.2008)

- 4.** The expression $x^4 - 2x^2 + k$ will be a perfect square when the value of k is

(1) 2 (2) 1
 (3) -1 (4) -2

(SSC Graduate Level Tier-I Exam. 11.11.2012 (1st Sitting))

ALGEBRA

73. (4)	74. (4)	75. (4)	76. (4)
77. (1)	78. (1)	79. (2)	80. (3)
81. (1)	82. (2)	83. (3)	84. (2)
85. (3)	86. (4)	87. (2)	88. (2)
89. (3)	90. (4)	91. (4)	92. (2)
93. (4)	94. (4)	95. (4)	96. (1)
97. (3)	98. (1)	99. (4)	100. (2)
101. (2)	102. (2)	103. (1)	104. (4)
105. (3)	106. (3)	107. (3)	108. (3)
109. (4)	110. (2)	111. (2)	112. (3)
113. (4)	114. (4)	115. (3)	116. (2)
117. (3)	118. (3)	119. (2)	120. (2)
121. (1)	122. (2)	123. (4)	124. (2)
125. (3)	126. (2)	127. (4)	128. (3)
129. (4)	130. (3)	131. (3)	132. (1)
133. (4)	134. (2)	135. (3)	136. (2)
137. (2)	138. (4)	139. (4)	140. (1)
141. (3)	142. (1)	143. (3)	144. (4)
145. (2)	146. (1)	147. (3)	148. (4)
149. (3)	150. (3)	151. (3)	152. (1)
153. (1)	154. (2)	155. (3)	156. (1)
157. (2)	158. (4)	159. (1)	160. (4)
161. (1)	162. (4)	163. (1)	164. (4)
165. (4)	166. (4)	167. (1)	168. (2)
169. (3)	170. (3)	171. (2)	172. (2)
173. (3)	174. (3)	175. (1)	176. (2)
177. (4)	178. (1)	179. (1)	180. (2)
181. (4)	182. (1)	183. (3)	184. (4)
185. (4)	186. (2)	187. (2)	188. (1)
189. (2)	190. (2)	191. (3)	192. (2)
193. (4)	194. (4)	195. (3)	196. (4)
197. (3)	198. (1)	199. (4)	200. (1)
201. (3)	202. (1)	203. (2)	204. (4)
205. (4)	206. (3)	207. (3)	208. (3)
209. (2)	210. (3)	211. (3)	212. (3)
213. (1)	214. (1)	215. (1)	216. (1)
217. (4)	218. (3)	219. (3)	220. (4)
221. (2)	222. (1)	223. (4)	224. (2)
225. (3)	226. (1)	227. (1)	228. (2)
229. (3)	230. (3)	231. (1)	232. (3)
233. (1)	234. (4)	235. (2)	236. (3)
237. (2)	238. (2)	239. (3)	240. (1)

SHORT ANSWERS

TYPE-I

1. (1)	2. (3)	3. (2)	4. (4)
5. (3)	6. (3)	7. (3)	8. (2)
9. (4)	10. (2)	11. (3)	12. (4)
13. (2)	14. (3)	15. (3)	16. (3)
17. (2)	18. (3)	19. (2)	20. (3)
21. (3)	22. (2)	23. (3)	24. (3)
25. (1)	26. (2)	27. (1)	28. (3)
29. (1)	30. (2)	31. (3)	32. (4)
33. (4)	34. (2)	35. (1)	36. (2)
37. (3)	38. (2)	39. (3)	40. (3)
41. (2)	42. (4)	43. (2)	44. (2)
45. (4)	46. (1)	47. (2)	48. (4)
49. (2)	50. (4)	51. (2)	52. (1)
53. (2)	54. (4)	55. (1)	56. (1)
57. (3)	58. (1)	59. (2)	60. (2)
61. (1)	62. (3)	63. (2)	64. (1)
65. (2)	66. (1)	67. (2)	68. (4)
69. (1)	70. (3)	71. (2)	72. (4)

Importance : In almost every competitive exam 1-2 questions are always asked on Trigonometry and being simple questions, marks can be scored easily.

Scope of questions : Questions based on circular measurements (angle between clock hands, conversion between radian to degree and vice versa), trigonometrical formulae, equations or identities or questions based on height and distance [like height of Tree/Building/Aeroplane, width of river, length of shadow at a particular time] are asked normally.

Way to success : Basic concepts of trigonometric ratio (sin, cos tan) and their values for different angles is must for height and distance questions. For equations and identities all formulae/rules are useful while in circular measurements relation between radian & degree and its practice is necessary.

Measurement of angles :

Systems of Measurement of Angles : There are three systems for measuring angles :

- Sexagesimal or English System
- Centesimal or French System
- Circular System

Measure of an angle : The measure of an angle is the amount of rotation from the initial side to the terminal side.

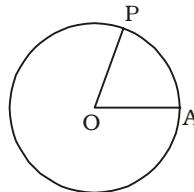
Right angle : If the revolving ray starting from its initial position to final position describes one quarter of a circle, then we say that the angle formed is a right angle.

Sexagesimal System : In this system a right angle is divided into 90 equal parts, called degrees. The symbol ${}^{\circ}$ is used to denote one degree. Thus, one degree is one-ninetieth part of a right angle. Each degree is divided into 60 equal parts, called minutes. The symbol $'$ is used to denote one minute. And each minute is divided into 60 equal parts, called seconds. The symbol $''$ is used to denote one second. Thus, one right angle = 90 degree (90°). $1^{\circ} = 60$ minutes (60'), $1' = 60$ seconds (60'')

Centesimal System : In this system a right angle is divided into 100 equal parts, called grades, each grade is subdivided into 100 minutes, and each minute into 100 seconds.

The symbol g , ${}'$ and ${}''$ are used to denote a grade, a minute and a second respectively. Thus, one right angle = 100 grades = (100^g) , 1 grade = 100 minutes = $(100')$, 1 minute = 100 seconds = $(100'')$

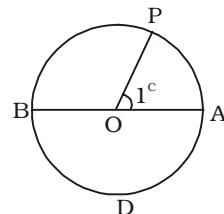
Circular System : One radian, written as 1^c , is the measure of an angle subtended at the centre of a circle by an arc of length equal to the radius of the circle. Radian is a constant angle.



arc AP = radius r (OA)
of the circle
 $\therefore \angle AOP = 1$ radian ($= 1^c$)

Theorem : Radian is a constant angle.

Proof : Consider a circle with centre O and radius r.



Arc AP = radius r. $\therefore \angle AOP = 1^c$.

Produce AO to meet the circle at B so that $\angle AOB$ = a straight angle = 2 right angles.

Since the angles at the centre of a circle are proportional to the arcs subtending them. Therefore,

$$\frac{\angle AOP}{\angle AOB} = \frac{\text{arc AP}}{\text{arc APB}}$$

$$\Rightarrow \frac{\angle AOP}{\angle AOB} = \frac{r}{\pi r} \Rightarrow \angle AOP = \frac{1}{\pi} \angle AOB$$

$$\Rightarrow 1^c = \frac{\text{a straight angle}}{\pi} = \frac{180^\circ}{\pi}$$

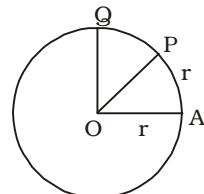
$$\therefore 1^c = \frac{180^\circ}{\pi} \Rightarrow \pi^c = 180^\circ$$

• The number of radians in an angle subtended by an

arc of a circle at the centre is equal to $\frac{\text{arc}}{\text{radius}}$

$$\text{i.e. } \theta = \frac{s}{r}$$

Proof : Consider a circle with centre O and radius r. Let $\angle AOB = \theta^c$ and let arc AQ = s. Let P be a point on the arc AQ such that arc AP = r.



TRIGONOMETRY

Then, $\angle AOP = 1^\circ$ Since angles at the centre of a circle are proportional to the arcs subtending them. Therefore,

$$\frac{\angle AOP}{\angle AOP} = \frac{\text{arc } AQ}{\text{arc } AP}$$

$$\Rightarrow \angle AOP = \left(\frac{\text{arc } AQ}{\text{arc } AP} \times 1 \right)^\circ \quad [\because \angle AOP = 1^\circ]$$

$$\Rightarrow \theta = \frac{s}{r} \text{ radians.}$$

Remarks :

Since $180^\circ = \pi$ radians

$$\text{Therefore, } 1^\circ = \frac{\pi}{180} \text{ radians}$$

$$\text{Hence, } 30^\circ = \frac{\pi}{180} \times 30 = \frac{\pi}{6} \text{ radians}$$

$$45^\circ = \frac{\pi}{180} \times 45 = \frac{\pi}{4} \text{ radians}$$

$$60^\circ = \frac{\pi}{180} \times 60 = \frac{\pi}{3} \text{ radians}$$

$$90^\circ = \frac{\pi}{180} \times 90 = \frac{\pi}{2} \text{ radians}$$

Degree	30°	45°	60°	90°	120°	135°	150°	180°	270°	360°
Radian	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	$\frac{2\pi}{3}$	$\frac{3\pi}{4}$	$\frac{5\pi}{6}$	π	$\frac{3\pi}{2}$	2π

- We have,

$$\pi \text{ radians} = 180^\circ$$

$$\therefore 1 \text{ radian} = \frac{180^\circ}{\pi} = \left(\frac{180}{22} \times 7 \right)^\circ$$

$$= 57^\circ 16' 22'' \text{ (approx).}$$

- We have,

$$180^\circ = \pi \text{ radians}$$

$$\therefore 1^\circ = \frac{\pi}{180} \text{ radians}$$

$$= \left(\frac{22}{7 \times 180} \right) \text{ radian} = 0.01746 \text{ radian.}$$

Some Useful Points

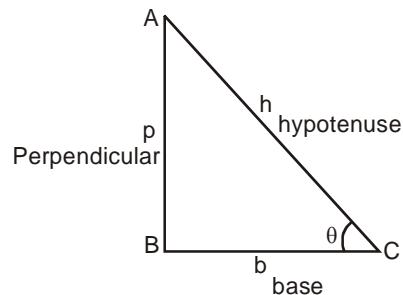
- The angle between two consecutive digits in a clock is 30° ($= \frac{\pi}{6}$ radians).
- The hour hand rotates through an angle of 30° in one hour i.e. $\left(\frac{1}{2} \right)^\circ$ in one minute.
- The minute hand rotates through an angle of 6° in one minute.

RULE 1 : $200^\circ = 180^\circ = \pi^\circ$ It is the relation among angles.

RULE 2 : The number of radians in an angle subtended by an arc of a circle at the centre is equal to $\frac{\text{arc}}{\text{radius}}$

$$\text{or, } \theta = \left(\frac{l}{r} \right)^\circ \text{ (l is arc length and r is radius)}$$

Trigonometric function :



$$\sin \theta = \frac{p}{h}, \cos \theta = \frac{b}{h}, \tan \theta = \frac{p}{b}, \cot \theta = \frac{b}{p}$$

$$\sec \theta = \frac{h}{b} \text{ and cosec } \theta = \frac{h}{p}$$

$$-1 \leq \sin \theta \text{ or } \cos \theta \leq 1$$

$$-\infty \leq \tan \theta \text{ or } \cot \theta \leq \infty$$

$$\sec \theta \text{ or cosec } \theta \geq 1 \text{ or } \sec \theta \text{ or cosec } \theta \leq -1$$

$$\sin \theta \cdot \text{cosec } \theta = 1$$

$$\cos \theta \cdot \sec \theta = 1$$

$$\tan \theta \cdot \cot \theta = 1$$

$$\sin \theta = \frac{1}{\text{cosec } \theta} \text{ or, cosec } \theta = \frac{1}{\sin \theta}$$

$$\cos \theta = \frac{1}{\sec \theta} \text{ or, sec } \theta = \frac{1}{\cos \theta}$$

$$\tan \theta = \frac{1}{\cot \theta} \text{ or, cot } \theta = \frac{1}{\tan \theta}$$

$$\tan \theta = \frac{\sin \theta}{\cos \theta} \text{ and } \cot \theta = \frac{\cos \theta}{\sin \theta}$$

Trigonometric Identities :

$$\sin^2 \theta + \cos^2 \theta = 1 \text{ or } \sin^2 \theta = 1 - \cos^2 \theta$$

$$\text{or, } \cos^2 \theta = 1 - \sin^2 \theta$$

$$\sec^2 \theta - \tan^2 \theta = 1 \text{ or, } \sec^2 \theta = 1 + \tan^2 \theta$$

$$\text{or, } \tan^2 \theta = \sec^2 \theta - 1$$

$$\text{cosec}^2 \theta - \cot^2 \theta = 1 \text{ or, } \text{cosec}^2 \theta = 1 + \cot^2 \theta$$

$$\text{or, } \cot^2 \theta = \text{cosec}^2 \theta - 1$$

TRIGONOMETRY

Some special formulae :

i.	$\sin(-\theta) = -\sin\theta$	$\operatorname{cosec}(-\theta) = -\operatorname{cosec}\theta$
	$\cos(-\theta) = \cos\theta$	$\sec(-\theta) = \sec\theta$
	$\tan(-\theta) = -\tan\theta$	$\cot(-\theta) = -\cot\theta$
ii.	$\sin(90^\circ - \theta) = \cos\theta$	$\cos(90^\circ - \theta) = \sin\theta$
	$\tan(90^\circ - \theta) = \cot\theta$	$\cot(90^\circ - \theta) = \tan\theta$
	$\sec(90^\circ - \theta) = \operatorname{cosec}\theta$	$\operatorname{cosec}(90^\circ - \theta) = \sec\theta$
iii.	$\sin(90^\circ + \theta) = \cos\theta$	$\cos(90^\circ + \theta) = -\sin\theta$
	$\tan(90^\circ + \theta) = -\cot\theta$	$\cot(90^\circ + \theta) = -\tan\theta$
	$\sec(90^\circ + \theta) = -\operatorname{cosec}\theta$	$\operatorname{cosec}(90^\circ + \theta) = \sec\theta$
iv.	$\sin(180^\circ - \theta) = \sin\theta$	$\cos(180^\circ - \theta) = -\cos\theta$
	$\tan(180^\circ - \theta) = -\tan\theta$	$\cot(180^\circ - \theta) = -\cot\theta$
	$\sec(180^\circ - \theta) = -\sec\theta$	$\operatorname{cosec}(180^\circ - \theta) = \operatorname{cosec}\theta$
v.	$\sin(180^\circ + \theta) = -\sin\theta$	
	$\cos(180^\circ + \theta) = -\cos\theta$	
	$\sec(180^\circ + \theta) = -\sec\theta$	
	$\operatorname{cosec}(180^\circ + \theta) = -\operatorname{cosec}\theta$	
	$\cot(180^\circ + \theta) = \cot\theta$	
	$\tan(180^\circ + \theta) = \tan\theta$	
vi.	$\sin(270^\circ - \theta) = -\cos\theta$	$\cos(270^\circ - \theta) = -\sin\theta$
	$\tan(270^\circ - \theta) = \cot\theta$	$\cot(270^\circ - \theta) = +\tan\theta$
	$\operatorname{cosec}(270^\circ - \theta) = -\sec\theta$	$\sec(270^\circ - \theta) = -\operatorname{cosec}\theta$
vii.	$\sin(270^\circ + \theta) = -\cos\theta$	$\cos(270^\circ + \theta) = \sin\theta$
	$\tan(270^\circ + \theta) = -\cot\theta$	$\cot(270^\circ + \theta) = -\tan\theta$
	$\operatorname{cosec}(270^\circ + \theta) = -\sec\theta$	$\sec(270^\circ + \theta) = \operatorname{cosec}\theta$
viii.	$\sin(360^\circ - \theta) = -\sin\theta$	$\cos(360^\circ - \theta) = \cos\theta$
	$\tan(360^\circ - \theta) = -\tan\theta$	$\operatorname{cosec}(360^\circ - \theta) = -\operatorname{cosec}\theta$
	$\sec(360^\circ - \theta) = \sec\theta$	$\cot(360^\circ - \theta) = -\cot\theta$
ix.	$\sin(360^\circ + \theta) = \sin\theta$	$\cos(360^\circ + \theta) = \cos\theta$
	$\tan(360^\circ + \theta) = \tan\theta$	$\cot(360^\circ + \theta) = \cot\theta$
	$\sec(360^\circ + \theta) = \sec\theta$	$\operatorname{cosec}(360^\circ + \theta) = \operatorname{cosec}\theta$

To Calculate the maximum values:

(i) maximum value of $m \sin\theta \pm n \cos\theta$

$$= \sqrt{m^2 + n^2}$$

(ii) maximum value of $m \sin\theta \pm n \sin\theta$

$$= \sqrt{m^2 + n^2}$$

(iii) maximum value of $m \cos\theta \pm n \cos\theta = \sqrt{m^2 + n^2}$

To calculate minimum values take $(-\sqrt{m^2 + n^2})$

Few Results :

$\tan 1^\circ \cdot \tan 2^\circ, \dots, \tan 89^\circ = 1$
 $\cot 1^\circ \cdot \cot 2^\circ, \dots, \cot 89^\circ = 1$
 $\cos 1^\circ \cdot \cos 2^\circ, \dots, \cos 90^\circ = 0$ [$\because \cos 90^\circ = 0$]
 $\cos 1^\circ \cdot \cos 2^\circ, \dots, \cos (\text{more than } 90^\circ) = 0$
 $\sin 1^\circ \cdot \sin 2^\circ \cdot \sin 3^\circ, \dots, [\because \sin 180^\circ = 0]$
 $\sin 1^\circ \cdot \sin 2^\circ \cdot \sin 3^\circ, \dots, [\because \sin (\text{more than } 180^\circ) = 0]$

RULE 3 : If $\sec\theta + \tan\theta = x$ then $\sec\theta = \frac{x^2 + 1}{2x}$,

$$\tan\theta = \frac{x^2 - 1}{2x} \text{ and } \sin\theta = \frac{x^2 - 1}{x^2 + 1}$$

RULE 4 : If $\sec\theta - \tan\theta = x$ then $\sec\theta = \frac{x^2 + 1}{2x}$,

$$\tan\theta = \frac{1 - x^2}{2x} \text{ and } \sin\theta = \frac{1 - x^2}{1 + x^2}$$

RULE 5 : If $\sin\theta + \cos\theta = x$, then $\sin\theta - \cos\theta = \sqrt{2 - x^2}$

RULE 6 : If $\sin x + \operatorname{cosec} x = 2$

then $\sin^n x + \operatorname{cosec}^n x = 2$

If $\cos x + \sec x = 2$ then $\cos^n x + \sec^n x = 2$

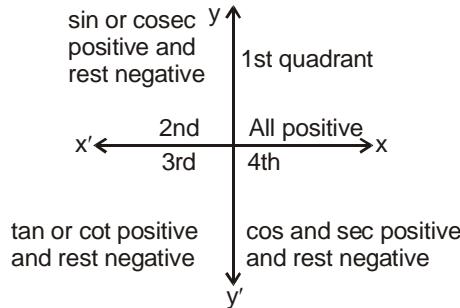
If $\tan x + \cot x = 2$

then $\tan^n x + \cot^n x = 2$ where $n \in \mathbb{N}$.

RULE 7 : If $A + B = 90^\circ$ then,

$\tan A \cdot \tan B = 1$, $\sin A \cdot \sec B = 1$, $\cos A \cdot \operatorname{cosec} B = 1$

Angle and its measurement :



Nature of θ from 0 to 90°

$0 \rightarrow \theta \rightarrow 90^\circ$ $\sin\theta$ increases i.e. $\sin 68^\circ > \sin 63^\circ$

or $\sin 71^\circ > \sin 54^\circ$ $\cos\theta$ Decreases, $\tan\theta$ Increases
 $\cot\theta$ Decreases, $\sec\theta$ Increases $\operatorname{cosec}\theta$ Decreases. At
 $(90^\circ \pm \theta)$ and $(270^\circ \pm \theta)$ trigonometric functions will change as
 $\sin\theta \rightarrow \cos$, $\cos \rightarrow \sin\theta$, $\tan \rightarrow \cot$, $\cot \rightarrow \tan$, $\operatorname{cosec} \rightarrow \sec$,
 $\sec \rightarrow \operatorname{cosec}$. And at $(180^\circ \pm \theta)$ and $(360^\circ \pm \theta)$ trigonometric identities remain same i.e. $\sin \rightarrow \sin$, $\cos \rightarrow \cos$, $\tan \rightarrow \tan$ and so on.

TRIGONOMETRY

θ	0°	30°	45°	60°	90°
sin	0	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	1
cos	1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	0
tan	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	∞
cot	∞	$\sqrt{3}$	1	$\frac{1}{\sqrt{3}}$	0
sec	1	$\frac{2}{\sqrt{3}}$	$\sqrt{2}$	2	∞
cosec	∞	2	$\sqrt{2}$	$\frac{2}{\sqrt{3}}$	1

Angle Sum formulae :

$$\sin(A \pm B) = \sin A \cos B \pm \cos A \sin B$$

$$\cos(A \pm B) = \cos A \cos B \pm \sin A \sin B$$

$$\tan(A \pm B) = \frac{\tan A \pm \tan B}{1 \mp \tan A \tan B}$$

$$\cot(A \pm B) = \frac{\cot A \cdot \cot B \mp 1}{\cot B \pm \cot A}$$

$$2 \sin A \cos B = \sin(A + B) + \sin(A - B),$$

$$2 \cos A \sin B = \sin(A + B) - \sin(A - B),$$

$$2 \cos A \cos B = \cos(A + B) + \cos(A - B),$$

$$2 \sin A \sin B = \cos(A - B) = \cos(A + B),$$

$$\sin(A + B) \sin(A - B) = \sin^2 A - \sin^2 B = \cos^2 B - \cos^2 A$$

$$\cos(A + B) \cos(A - B) = \cos^2 A - \sin^2 B = \cos^2 B - \sin^2 A,$$

$$\sin(A + B + C) = \sin A \cos B \cos C + \cos A \sin B \cos C + \cos A \cos B \sin C - \sin A \sin B \sin C,$$

$$\cos(A + B + C) = \cos A \cos B \cos C - \cos A \sin B \sin C - \sin A \cos B \sin C - \sin A \sin B \cos C,$$

$$\tan(A + B + C)$$

$$= \frac{\tan A + \tan B + \tan C - \tan A \tan B \tan C}{1 - \tan A \tan B - \tan B \tan C - \tan C \tan A}$$

If $A + B = \pi$, then $\sin A = \sin B$, $\cos A = -\cos B$ and $\tan A = -\tan B$

If $A + B = 2\pi$, then $\sin A = -\sin B$, $\cos A = \cos B$ and $\tan A = -\tan B$

$$\text{RULE 8 : } \sin \theta \cdot \sin 2\theta \cdot \sin 4\theta$$

$$= \frac{1}{4} \sin 3\theta \cdot \cos \theta \cdot \cos 2\theta \cdot \cos 4\theta$$

$$= \frac{1}{4} \cos 3\theta \cdot \tan \theta \cdot \tan 2\theta \cdot \tan 4\theta = \tan 3\theta$$

Some values to be remembered :

$$\sin 18^\circ = \frac{\sqrt{5}-1}{4}, \sin 36^\circ = \frac{\sqrt{10-2\sqrt{5}}}{4}$$

$$\cos 18^\circ = \sin 72^\circ = \frac{\sqrt{10+2\sqrt{5}}}{4} \quad \cos 36^\circ = \frac{\sqrt{5}+1}{4}$$

RULE 9 : If $(1 + \tan A)(1 + \tan B) = 2$ then $A + B = 45^\circ$.

Function Sum Formulae :

$$\sin C + \sin D = 2 \sin \frac{C+D}{2} \cos \frac{C-D}{2},$$

$$\sin C - \sin D = 2 \sin \frac{C-D}{2} \cdot \cos \frac{C+D}{2}.$$

$$\cos C + \cos D = 2 \cos \frac{C+D}{2} \cdot \cos \frac{C-D}{2},$$

$$\cos C - \cos D = -2 \sin \frac{C+D}{2} \sin \frac{C-D}{2}$$

Double angle formulae : (Multiple angles)

$$\sin 2A = 2 \sin A \cos A = \frac{2 \tan A}{1 + \tan^2 A}.$$

$$\cos 2A = \cos^2 A - \sin^2 A = 2\cos^2 A - 1$$

$$= 1 - 2 \sin^2 A = \frac{1 - \tan^2 A}{1 + \tan^2 A},$$

$$2\cos^2 A = 1 + \cos 2A \tan^2 A = \frac{1 - \cos 2A}{1 + \cos 2A},$$

$$2\sin^2 A = 1 - \cos 2A,$$

$$\tan 2A = \frac{2 \tan A}{1 - \tan^2 A}$$

Thrice angle formulae :

$$\sin 3A = 3 \sin A - 4 \sin^3 A,$$

$$\cos 3A = 4 \cos^3 A - 3 \cos A,$$

$$\tan 3A = \frac{3 \tan A - \tan^3 A}{1 - 3 \tan^2 A}$$

Half-angle-formulae : (Sub-multiple angles)

$$\sin A = 2 \sin \left(\frac{A}{2} \right) \cdot \cos \left(\frac{A}{2} \right) = \frac{2 \tan \left(\frac{A}{2} \right)}{1 + \tan^2 \left(\frac{A}{2} \right)},$$

$$\cos A = \cos^2 \left(\frac{A}{2} \right) - \sin^2 \left(\frac{A}{2} \right)$$

$$= 2 \cos^2 \left(\frac{A}{2} \right) - 1$$

$$= 1 - 2 \sin^2 \left(\frac{A}{2} \right)$$

TRIGONOMETRY

$$= \frac{1 - \tan^2\left(\frac{A}{2}\right)}{1 + \tan^2\left(\frac{A}{2}\right)},$$

$$2\cos^2\left(\frac{A}{2}\right) = 1 + \cos A,$$

$$2\sin^2\left(\frac{A}{2}\right) = 1 - \cos A$$

$$\tan^2\left(\frac{A}{2}\right) = \frac{1 - \cos A}{1 + \cos A},$$

$$\tan A = \frac{2\tan\left(\frac{A}{2}\right)}{1 - \tan^2\left(\frac{A}{2}\right)}$$

One-third angle formulae :

$$\sin A = 3 \sin\left(\frac{A}{3}\right) - 4 \sin^3\left(\frac{A}{3}\right),$$

$$\cos A = 4 \cos^3\left(\frac{A}{3}\right) - 3 \cos\left(\frac{A}{3}\right)$$

$$\tan A = \frac{3\tan\left(\frac{A}{3}\right) - \tan^3\left(\frac{A}{3}\right)}{1 - 3\tan^2\left(\frac{A}{3}\right)},$$

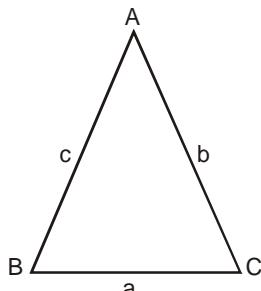
$\cos A \cdot \cos 2A \cdot \cos 2^2 A \cdot \cos 2^3 A \dots \cos 2^{n-1} A$

$$= \frac{\sin 2^n A}{2^n \sin A},$$

$$\sin \theta \cdot \sin(60^\circ - \theta) \sin(60^\circ + \theta) = \frac{1}{4} \sin 3\theta,$$

$$\cos \theta \cos(60^\circ - \theta) \cdot (60^\circ + \theta) = \frac{1}{4} \cos 3\theta$$

Some formulae related to triangle : Sine formulae



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} = 2R$$

this may also be expressed as

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c} = K$$

In a ΔABC :

$\sin(B+C) = \sin A, \sin(C+A) = \sin B, \sin(A+B) = \sin C,$
 $\cos(B+C) = -\cos A, \cos(C+A) = -\cos B, \cos(A+B) = -\cos C,$
 $\tan(B+C) = -\tan A, \tan(C+A) = -\tan B,$

$$\tan(A+B) = -\tan C = \sin\left(\frac{B-C}{2}\right) = \left(\frac{b-c}{a}\right) \cos\frac{A}{2}$$

$$\Rightarrow \cos\left(\frac{B-C}{2}\right) = \left(\frac{b+c}{a}\right) \sin\frac{A}{2} \Rightarrow \frac{b-c}{b+c} = \frac{\tan\left(\frac{B-C}{2}\right)}{\tan\left(\frac{B+C}{2}\right)}$$

Cosine formulae :

In any ΔABC ,

$$(i) a^2 = b^2 + c^2 - 2bc \cos A \text{ or, } \cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

$$(ii) b^2 = c^2 + a^2 - 2ca \cos B \text{ or, } \cos B = \frac{a^2 + c^2 - b^2}{2ca}$$

$$(iii) c^2 = a^2 + b^2 - 2ab \cos C \text{ or, } \cos C = \frac{a^2 + b^2 - c^2}{2ab}$$

Projection Formulae :

In any ΔABC ,

$$(i) a = b \cos C + c \cos B$$

$$(ii) b = c \cos A + a \cos C$$

$$(iii) c = a \cos B + b \cos A$$

i.e. any side of a triangle is equal to the sum of the projections of other two sides on it.

Napier's Analogy (Law of Tangents):

In any ΔABC ,

$$(i) \tan\left(\frac{B-C}{2}\right) = \left(\frac{b-c}{b+c}\right) \cot\frac{A}{2}$$

$$(ii) \tan\left(\frac{A-B}{2}\right) = \left(\frac{a-b}{a+b}\right) \cot\frac{C}{2}$$

$$(iii) \tan\left(\frac{C-A}{2}\right) = \left(\frac{c-a}{c+a}\right) \cot\frac{B}{2}$$

Area of a triangle :

$$\begin{aligned} \text{In any } \Delta ABC, \text{ Area of } \Delta &= \frac{1}{2} bc \sin A = \frac{1}{2} ca \sin B \\ &= \frac{1}{2} ab \sin C \end{aligned}$$

RULE 10. The equation $a \cos \theta + b \sin \theta = c$ is solvable for $|c| < \sqrt{a^2 + b^2}$.

□□□

QUESTIONS ASKED IN PREVIOUS SSC EXAMS

TYPE-I

- 1.** In circular measure, the value of the angle $11^\circ 15'$ is

(1) $\frac{\pi^c}{16}$ (2) $\frac{\pi^c}{8}$

(3) $\frac{\pi^c}{4}$ (4) $\frac{\pi^c}{12}$

(SSC CHSL DEO & LDC Exam.
28.10.2012, Ist Sitting)

- 2.** In a triangle ABC, $\angle ABC = 75^\circ$

and $\angle ACB = \frac{\pi^c}{4}$. The circular measure of $\angle BAC$ is

(1) $\frac{5\pi}{12}$ radian (2) $\frac{\pi}{3}$ radian
(3) $\frac{\pi}{6}$ radian (4) $\frac{\pi}{2}$ radian

(SSC Graduate Level Tier-I Exam. 11.11.2012, Ist Sitting)

- 3.** The circular measure of an angle

of an isosceles triangle is $\frac{5\pi}{9}$. Circular measure of one of the other angles must be

(1) $\frac{5\pi}{18}$ (2) $\frac{5\pi}{9}$
(3) $\frac{2\pi}{9}$ (4) $\frac{4\pi}{9}$

(SSC FCI Assistant Grade-III Main Exam. 07.04.2013)

- 4.** The degree measure of 1 radian

(taking $\pi = \frac{22}{7}$) is

(1) $57^\circ 61' 22''$ (approx.)
(2) $57^\circ 16' 22''$ (approx.)
(3) $57^\circ 22' 16''$ (approx.)
(4) $57^\circ 32' 16''$ (approx.)

(SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting)

- 5.** $\left(\frac{3\pi}{5}\right)$ radians is equal to

(1) 100° (2) 120°
(3) 108° (4) 180°

(SSC Graduate Level Tier-I Exam. 19.05.2013)

- 6.** If the sum of two angles is 135° and their difference is $\frac{\pi}{12}$, then the circular measure of the greater angle is

(1) $\frac{2\pi}{3}$ (2) $\frac{3\pi}{5}$

(3) $\frac{5\pi}{12}$ (4) $\frac{\pi}{3}$

(SSC CGL Tier-I Re-Exam. (2013)

20.07.2014 (Ist Sitting)

- 7.** If $0 \leq \theta \leq \frac{\pi}{2}$ and $\sec^2 \theta + \tan^2 \theta = 7$, then θ is

(1) $\frac{5\pi}{12}$ radian (2) $\frac{\pi}{3}$ radian

(3) $\frac{\pi}{5}$ radian (4) $\frac{\pi}{6}$ radian

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014

TF No. 999 KPO)

- 8.** If the sum and difference of two angles are $\frac{22}{9}$ radian and 36° respectively, then the value of smaller angle in degree taking the

value of π as $\frac{22}{7}$ is :

(1) 52° (2) 60°
(3) 56° (4) 48°

(SSC CGL Tier-I Exam. 16.08.2015 (1st Sitting) TF No. 3196279)

- 9.** The circular measure of the included angle formed by the hour hand and minute hand of a clock at 3 p.m. will be

(1) $\frac{\pi}{4}$ (2) $\frac{\pi}{3}$

(3) $\frac{5\pi}{12}$ (4) $\frac{\pi}{2}$

(SSC CHSL (10+2) Tier-I (CBE) Exam. 08.09.2016) (Ist Sitting)

- 10.** Which of the following relations is correct for $0 < \theta < 90^\circ$?

(1) $\sin \theta = \sin^2 \theta$
(2) $\sin \theta < \sin^2 \theta$
(3) $\sin \theta > \sin^2 \theta$
(4) $\sin \theta = \operatorname{cosec} \theta$

(SSC CGL Tier-I (CBE) Exam. 28.08.2016 (Ist Sitting))

- 11.** If θ is an acute angle and $\sin (\theta + 18^\circ) = \frac{1}{2}$, then the value of θ in circular measure is :

(1) $\frac{\pi}{12}$ radians

(2) $\frac{\pi}{15}$ radians

(3) $\frac{2\pi}{5}$ radians

(4) $\frac{3\pi}{13}$ radians

(SSC CGL Tier-I (CBE) Exam. 08.09.2016 (IIIrd Sitting))

- 12.** What is the measure of central angle of the arc whose length is 11 cm and radius of the circle is 14 cm?

(1) 45° (2) 60°
(3) 75° (4) 90°

(SSC CHSL (10+2) Tier-I (CBE) Exam. 16.01.2017) (IIInd Sitting)

TYPE-II

- 1.** The minimum value of $2 \sin^2 \theta + 3 \cos^2 \theta$ is

(1) 0 (2) 3
(3) 2 (4) 1

(SSC CPO (SI, ASI & Intelligence Officer) Exam 28.08.2011 (Paper-I))

- 2.** If $\operatorname{cosec} 39^\circ = x$, the value of

$\frac{1}{\operatorname{cosec}^2 51^\circ} + \sin^2 39^\circ + \tan^2 51^\circ$

$- \frac{1}{\sin^2 51^\circ \sec^2 39^\circ}$ is

(1) $\sqrt{x^2 - 1}$ (2) $\sqrt{1 - x^2}$
(3) $x^2 - 1$ (4) $1 - x^2$

(SSC CPO (SI, ASI & Intelligence Officer) Exam. 28.08.2011 (Paper-I))

- 3.** The value of

$\tan 4^\circ \cdot \tan 43^\circ \cdot \tan 47^\circ \cdot \tan 86^\circ$ is

(1) 2 (2) 3
(3) 1 (4) 4

(SSC CPO (SI, ASI & Intelligence Officer) Exam. 28.08.2011 (Paper-I))

& (SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting) (North Zone))

TRIGONOMETRY

4. If $\frac{\tan \theta + \cot \theta}{\tan \theta - \cot \theta} = 2$, ($0 \leq \theta \leq 90^\circ$), then the value of $\sin \theta$ is

(1) $\frac{2}{\sqrt{3}}$ (2) $\frac{\sqrt{3}}{2}$
 (3) $\frac{1}{2}$ (4) 1

(SSC CPO (SI, ASI & Intelligence Officer) Exam. 28.08.2011 (Paper-I))

5. If $\cos x + \cos y = 2$, the value of $\sin x + \sin y$ is

(1) 0 (2) 1
 (3) 2 (4) -1

(FCI Assistant Grade-III Exam. 25.02.2012 (Paper-I))

North Zone (Ist Sitting)

6. The value of $\tan 1^\circ \tan 2^\circ \tan 3^\circ \dots \tan 89^\circ$ is :

(1) 1 (2) 0
 (3) $\sqrt{3}$ (4) $\frac{1}{\sqrt{3}}$

(SSC CHSL DEO & LDC Exam. 11.12.2011) (Ist Sitting)
 (Delhi) & (FCI Assistant Grade-III Exam. 05.02.2012 (Paper-I) East Zone (IIInd Sitting) & (SSC GL Tier-I Exam. 21.04.2013) (Ist Sitting) & (SSC CAPFs SI & CISF ASI Exam. 23.06.2013)

7. The measure of the angles of a triangle are in the ratio $2 : 7 : 11$. Measures of angles are

(1) $16^\circ, 56^\circ, 88^\circ$
 (2) $18^\circ, 63^\circ, 99^\circ$
 (3) $20^\circ, 70^\circ, 90^\circ$
 (4) $25^\circ, 175^\circ, 105^\circ$

(SSC CPO S.I. Exam. 07.09.2003)

8. The angles of a triangle are $(x + 5)^\circ, (2x - 3)^\circ$ and $(3x + 4)^\circ$. The value of x is

(1) 30 (2) 31
 (3) 29 (4) 28

(FCI Assistant Grade-III Exam. 25.02.2012 (Paper-I))
 North Zone (Ist Sitting)

9. The value of $\cot 10^\circ \cdot \cot 20^\circ \cdot \cot 60^\circ \cdot \cot 70^\circ \cdot \cot 80^\circ$ is

(1) 1 (2) -1
 (3) $\sqrt{3}$ (4) $\frac{1}{\sqrt{3}}$

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (North Zone)))

10. If θ be an acute angle and $7 \sin^2 \theta + 3 \cos^2 \theta = 4$, then the value of $\tan \theta$ is

(1) $\sqrt{3}$ (2) $\frac{1}{\sqrt{3}}$
 (3) 1 (4) 0

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone)))

11. The value of $\sin^2 1^\circ + \sin^2 5^\circ + \sin^2 9^\circ + \dots + \sin^2 89^\circ$ is

(1) $11\frac{1}{2}$ (2) $11\sqrt{2}$
 (3) 11 (4) $\frac{11}{\sqrt{2}}$

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone)))

12. The numerical value of $\cot 18^\circ$

$\left(\cot 72^\circ \cos^2 22^\circ + \frac{1}{\tan 72^\circ \sec^2 68^\circ} \right)$ is

(1) 1 (2) $\sqrt{2}$
 (3) 3 (4) $\frac{1}{\sqrt{3}}$

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone)))

13. If $\tan 15^\circ = 2 - \sqrt{3}$, the value of $\tan 15^\circ \cot 75^\circ + \tan 75^\circ \cot 15^\circ$ is

(1) 14 (2) 12
 (3) 10 (4) 8

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting (East Zone)))

14. If x, y are acute angles, $0 < x + y < 90^\circ$ and $\sin(2x - 20^\circ) = \cos(2y + 20^\circ)$, then the value of $\tan(x + y)$ is :

(1) $\frac{1}{\sqrt{3}}$ (2) $\frac{\sqrt{3}}{2}$
 (3) $\sqrt{3}$ (4) 1

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting (Delhi Zone)))

15. If $\angle A$ and $\angle B$ are complementary to each other, then the value of $\sec^2 A + \sec^2 B - \sec^2 A \cdot \sec^2 B$ is

(1) 1 (2) -1
 (3) 2 (4) 0

(SSC Assistant Grade-III Exam. 11.11.2012 (IIInd Sitting))

16. $\sin^2 5^\circ + \sin^2 6^\circ + \dots + \sin^2 84^\circ + \sin^2 85^\circ = ?$

(1) $39\frac{1}{2}$ (2) $40\frac{1}{2}$
 (3) 40 (4) $39\frac{1}{\sqrt{2}}$

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting (Delhi Zone)))

17. $\sin^2 5^\circ + \sin^2 10^\circ + \sin^2 15^\circ + \dots + \sin^2 85^\circ + \sin^2 90^\circ$ is equal to

(1) $7\frac{1}{2}$ (2) $8\frac{1}{2}$
 (3) 9 (4) $9\frac{1}{2}$

(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (East Zone)) & (SSC CHSL DEO & LDC Exam. 21.10.2012) (IIInd Sitting))

18. The value of

$\frac{\sin 39^\circ}{\cos 51^\circ} + 2 \tan 11^\circ \tan 31^\circ$

$\tan 45^\circ \tan 59^\circ \tan 79^\circ - 3(\sin^2 21^\circ + \sin^2 69^\circ)$ is :

(1) 2 (2) -1
 (3) 1 (4) 0

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting (East Zone)))

19. If $\frac{\cos^2 \theta}{\cot^2 \theta - \cos^2 \theta} = 3$ and

$0^\circ < \theta < 90^\circ$, then the value of θ is :

(1) 30° (2) 45°
 (3) 60° (4) None of these

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting (East Zone)))

20. If $A = \tan 11^\circ \tan 29^\circ$,

$B = 2 \cot 61^\circ \cot 79^\circ$, then :

(1) $A = 2B$ (2) $A = -2B$
 (3) $2A = B$ (4) $2A = -B$

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting (East Zone)))

21. If $\sin 17^\circ = \frac{x}{y}$, then the value of

$(\sec 17^\circ - \sin 73^\circ)$ is

(1) $\frac{y^2}{x\sqrt{y^2 - x^2}}$

(2) $\frac{x^2}{y\sqrt{y^2 - x^2}}$

(3) $\frac{x^2}{y\sqrt{x^2 - y^2}}$

(4) $\frac{y^2}{x\sqrt{x^2 - y^2}}$

(FCI Assistant Grade-III Exam. 05.02.2012 (Paper-I) East Zone (IIInd Sitting) & (SSC Graduate Level Tier-II Exam. 16.09.2012))

TRIGONOMETRY

22. If $0^\circ < \theta < 90^\circ$, the value of $\sin \theta + \cos \theta$ is
 (1) equal to 1
 (2) greater than 1
 (3) less than 1
 (4) equal to 2
 (SSC Graduate Level Tier-II Exam. 16.09.2012)

23. The expression

$$\frac{\tan 57^\circ + \cot 37^\circ}{\tan 33^\circ + \cot 53^\circ}$$

- is equal to
 (1) $\tan 33^\circ \cot 57^\circ$
 (2) $\tan 57^\circ \cot 37^\circ$
 (3) $\tan 33^\circ \cot 53^\circ$
 (4) $\tan 53^\circ \cot 37^\circ$

(SSC Graduate Level Tier-II Exam. 16.09.2012)

24. The value of $\frac{\cot 30^\circ - \cot 75^\circ}{\tan 15^\circ - \tan 60^\circ}$ is :
 (1) 0 (2) 1
 (3) $\sqrt{3} - 1$ (4) -1

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting))

25. The value of
 $\cot \theta \cdot \tan(90^\circ - \theta) - \sec(90^\circ - \theta)$
 $\operatorname{cosec} \theta + (\sin^2 25^\circ + \sin^2 65^\circ) +$
 $\sqrt{3} (\tan 5^\circ \tan 15^\circ \tan 30^\circ \tan 75^\circ \tan 85^\circ)$ is :
 (1) 1 (2) -1
 (3) 2 (4) 0

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting))

26. If $\sin(3x - 20^\circ) = \cos(3y + 20^\circ)$, then the value of $(x + y)$ is
 (1) 20° (2) 30°
 (3) 40° (4) 45°

(SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting))

27. If $\cos \theta \operatorname{cosec} 23^\circ = 1$, the value of θ is
 (1) 23° (2) 37°
 (3) 63° (4) 67°

(SSC CHSL DEO & LDC Exam. 04.11.2012 (IInd Sitting))

28. If $2(\cos^2 \theta - \sin^2 \theta) = 1$, θ is a positive acute angle, then the value of θ is
 (1) 60° (2) 30°
 (3) 45° (4) $22 \frac{1}{2}^\circ$

(SSC Assistant Grade-III Exam. 11.11.2012 (IInd Sitting))

29. The value of $(\tan 35^\circ \tan 45^\circ \tan 55^\circ)$ is

- (1) $\frac{1}{2}$ (2) 2
 (3) 0 (4) 1

(SSC Delhi Police S.I. (SI) Exam. 19.08.2012)

30. If $\sec(70^\circ + 28^\circ) = \operatorname{cosec}(30^\circ - 30^\circ)$ then the value of θ is

- (1) 8° (2) 5°
 (3) 60° (4) 9°

(SSC Delhi Police S.I. (SI) Exam. 19.08.2012)

31. If $\tan\left(\frac{\pi}{2} - \frac{\theta}{2}\right) = \sqrt{3}$, the value of $\cos \theta$ is :

- (1) 0 (2) $\frac{1}{\sqrt{2}}$
 (3) $\frac{1}{2}$ (4) 1

(SSC CHSL DEO & LDC Exam. 04.11.2012, Ist Sitting)

32. If $7 \sin^2 \theta + 3 \cos^2 \theta = 4$ ($0^\circ \leq \theta \leq 90^\circ$), then value of θ is

- (1) $\frac{\pi}{2}$ (2) $\frac{\pi}{3}$
 (3) $\frac{\pi}{6}$ (4) $\frac{\pi}{4}$

(SSC Graduate Level Tier-I Exam. 11.11.2012, Ist Sitting)

33. If $\sec \theta = x + \frac{1}{4x}$ ($0^\circ < \theta < 90^\circ$), then $\sec \theta + \tan \theta$ is equal to

- (1) $\frac{x}{2}$ (2) $2x$
 (3) x (4) $\frac{1}{2x}$

(SSC FCI Assistant Grade-III Main Exam. 07.04.2013)

34. The value of
 $\cos 1^\circ \cos 2^\circ \cos 3^\circ \dots$
 $\cos 177^\circ \cos 178^\circ \cos 179^\circ$ is :

- (1) 0 (2) $\frac{1}{2}$
 (3) 1 (4) $\frac{1}{\sqrt{2}}$

(SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting)

35. The value of $(\sin^2 25^\circ + \sin^2 65^\circ)$ is :

- (1) $\frac{\sqrt{3}}{2}$ (2) 1
 (3) 0 (4) $\frac{2}{\sqrt{3}}$

(SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting)

36. If $\sec \theta + \tan \theta = \sqrt{3}$ ($0^\circ \leq \theta \leq 90^\circ$), then $\tan 3\theta$ is

- (1) undefined (2) $\frac{1}{\sqrt{3}}$
 (3) $\frac{1}{\sqrt{2}}$ (4) $\sqrt{3}$

(SSC Graduate Level Tier-I Exam. 21.04.2013 IIInd Sitting)

37. If $\sin(60^\circ - \theta) = \cos(\psi - 30^\circ)$, then the value of $\tan(\psi - \theta)$ is (assume that θ and ψ are both positive acute angles with $\theta < 60^\circ$ and $\psi > 30^\circ$).

- (1) $\frac{1}{\sqrt{3}}$ (2) 0
 (3) $\sqrt{3}$ (4) 1

(SSC Graduate Level Tier-I Exam. 21.04.2013 IIInd Sitting)

38. If $a \sin \theta + b \cos \theta = c$ then the value of $a \cos \theta - b \sin \theta$ is :

- (1) $\pm \sqrt{-a^2 + b^2 + c^2}$
 (2) $\pm \sqrt{a^2 + b^2 - c^2}$
 (3) $\pm \sqrt{a^2 - b^2 - c^2}$
 (4) $\pm \sqrt{a^2 - b^2 + c^2}$

(SSC Graduate Level Tier-I Exam. 21.04.2013)

39. If $\sin(A - B) = \frac{1}{2}$ and

$\cos(A + B) = \frac{1}{2}$ where

$A > B > 0$ and $A + B$ is an acute angle, then the value B is

- (1) $\frac{\pi}{6}$ (2) $\frac{\pi}{12}$
 (3) $\frac{\pi}{4}$ (4) $\frac{\pi}{2}$

(SSC Graduate Level Tier-I Exam. 21.04.2013)

TRIGONOMETRY

- 40.** Maximum value of $(2 \sin \theta + 3 \cos \theta)$ is

(1) 2 (2) $\sqrt{13}$

(3) $\sqrt{15}$ (4) 1

(SSC Graduate Level Tier-I Exam. 21.04.2013)

- 41.** The value of

$152 (\sin 30^\circ + 2 \cos^2 45^\circ + 3 \sin 30^\circ + 4 \cos^2 45^\circ + \dots + 17 \sin 30^\circ + 18 \cos^2 45^\circ)$ is

- (1) an integer but not a perfect square
- (2) a rational number but not an integer
- (3) a perfect square of an integer
- (4) irrational

(SSC Graduate Level Tier-I Exam. 21.04.2013)

- 42.** Evaluate : $3 \cos 80^\circ \operatorname{cosec} 10^\circ + 2 \cos 59^\circ \operatorname{cosec} 31^\circ$

(1) 1 (2) 3
(3) 2 (4) 5

(SSC Graduate Level Tier-I Exam. 19.05.2013)

- 43.** $\sin^2 \theta - 3 \sin \theta + 2 = 0$ will be true if

(1) $0 \leq \theta < 90^\circ$ (2) $0 < \theta < 90^\circ$
(3) $\theta = 0^\circ$ (4) $\theta = 90^\circ$

(SSC Graduate Level Tier-I Exam. 19.05.2013)

- 44.** If $\tan \alpha = n \tan \beta$ and $\sin \alpha = m \sin \beta$, then $\cos^2 \alpha$ is

(1) $\frac{m^2}{n^2+1}$ (2) $\frac{m^2}{n^2}$

(3) $\frac{m^2-1}{n^2-1}$ (4) $\frac{m^2+1}{n^2+1}$

(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

- 45.** If $\tan \theta = \frac{3}{4}$ and θ is acute, then $\operatorname{cosec} \theta$

(1) $\frac{4}{5}$ (2) $\frac{5}{3}$

(3) 2 (4) $\frac{1}{2}$

(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

- 46.** If $\operatorname{cosec} \theta - \cot \theta = \frac{7}{2}$, the value of $\operatorname{cosec} \theta$ is :

(1) $\frac{47}{28}$ (2) $\frac{51}{28}$

(3) $\frac{53}{28}$ (4) $\frac{49}{28}$

(SSC CAPFs SI & CISF ASI Exam. 23.06.2013)

- 47.** If $x \sin 45^\circ = y \operatorname{cosec} 30^\circ$, then

$\frac{x^4}{y^4}$ is equal to

(1) 4^3 (2) 6^3
(3) 2^3 (4) 8^3

(SSC Graduate Level Tier-II Exam. 29.09.2013)

- 48.** If $5 \tan \theta = 4$, then

$\frac{5 \sin \theta - 3 \cos \theta}{5 \sin \theta + 2 \cos \theta}$ is equal to

(1) $\frac{2}{3}$ (2) $\frac{1}{4}$

(3) $\frac{1}{6}$ (4) $\frac{1}{3}$

(SSC CHSL DEO & LDC Exam. 20.10.2013)

- 49.** $2 \operatorname{cosec}^2 23^\circ \cot^2 67^\circ - \sin^2 23^\circ - \sin^2 67^\circ - \cot^2 67^\circ$ is equal to

(1) 1 (2) $\sec^2 23^\circ$
(3) $\tan^2 23^\circ$ (4) 0

(SSC CHSL DEO & LDC Exam. 20.10.2013)

- 50.** The equation

$$\cos^2 \theta = \frac{(x+y)^2}{4xy}$$

is only possible when

(1) $x = -y$ (2) $x > y$
(3) $x = y$ (4) $x < y$

(SSC CHSL DEO & LDC Exam. 20.10.2013)

- 51.** The value of $\operatorname{cosec}^2 18^\circ -$

$\frac{1}{\cot^2 72^\circ}$ is

(1) $\frac{1}{\sqrt{3}}$ (2) $\frac{\sqrt{2}}{3}$

(3) $\frac{1}{2}$ (4) 1

(SSC CHSL DEO & LDC Exam. 27.10.2013 IIInd Sitting)

- 52.** If $\alpha + \beta = 90^\circ$, then the value of $(1 - \sin^2 \alpha)(1 - \cos^2 \alpha) \times (1 + \cot^2 \beta)$ is

(1) 1 (2) -1
(3) 0 (4) 2

(SSC CHSL DEO & LDC Exam. 27.10.2013 IIInd Sitting)

53. $\frac{2 \sin 68^\circ}{\cos 22^\circ} - \frac{2 \cot 15^\circ}{5 \tan 75^\circ} -$

$3 \tan 45^\circ \cdot \tan 20^\circ \cdot \tan 40^\circ \cdot \tan 50^\circ \cdot \tan 70^\circ$
5

is equal to

(1) -1 (2) 0
(3) 1 (4) 2

(SSC CHSL DEO & LDC Exam. 27.10.2013 IIInd Sitting)

- 54.** The value of $\tan 10^\circ \tan 15^\circ \tan 75^\circ \tan 80^\circ$ is

(1) 0 (2) 1
(3) -1 (4) 2

(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

- 55.** The minimum value of $4 \tan^2 \theta + 9 \cot^2 \theta$ is equal to

(1) 0 (2) 5
(3) 12 (4) 13

(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

- 56.** If $\sin 7x = \cos 11x$, then the value of $\tan 9x + \cot 9x$ is

(1) 1 (2) 2
(3) 3 (4) 4

(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

- 57.** If $\tan^2 \alpha = 1 + 2 \tan^2 \beta$ (α, β are positive acute angles), then $\sqrt{2} \cos \alpha - \cos \beta$ is equal to

(1) 0 (2) $\sqrt{2}$
(3) 1 (4) -1

(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

- 58.** The product $\cos 1^\circ \cos 2^\circ \cos 3^\circ \cos 4^\circ \dots \cos 100^\circ$ is equal to

(1) -1 (2) $\frac{1}{4}$
(3) 1 (4) 0

(SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting)

- 59.** If $2(\cos^2 \theta - \sin^2 \theta) = 1$ (θ is a positive acute angle), then $\cot \theta$ is equal to

(1) $-\sqrt{3}$ (2) $\frac{1}{\sqrt{3}}$
(3) 1 (4) $\sqrt{3}$

(SSC CHSL DEO & LDC Exam. 20.10.2013)

TRIGONOMETRY

- 60.** If $\tan(2\theta + 45^\circ) = \cot 30^\circ$ where $(2\theta + 45^\circ)$ and 30° are acute angles, then the value of θ is
 (1) 5° (2) 9°
 (3) 12° (4) 15°

FCI Assistant Grade-III
Exam. 25.02.2012 (Paper-I)
North Zone (Ist Sitting)

- 61.** If θ be acute angle and $\cos \theta = \frac{15}{17}$, then the value of $\cot(90^\circ - \theta)$ is

- (1) $\frac{2\sqrt{8}}{15}$ (2) $\frac{8}{15}$
 (3) $\frac{\sqrt{2}}{17}$ (4) $\frac{8\sqrt{2}}{17}$

FCI Assistant Grade-III
Exam. 25.02.2012 (Paper-I)
North Zone (Ist Sitting)

- 62.** If $\sec^2 \theta + \tan^2 \theta = \frac{7}{12}$, then

$$\sec^4 \theta - \tan^4 \theta =$$

(1) $\frac{7}{12}$	(2) $\frac{1}{2}$
(3) $\frac{5}{12}$	(4) 1

FCI Assistant Grade-III
Exam. 25.02.2012 (Paper-I)
North Zone (Ist Sitting)

- 63.** If $0 < x < \frac{\pi}{2}$ and $\sec x = \operatorname{cosec} y$, then the value of $\sin(x+y)$ is :

- | | |
|-------------------|--------------------------|
| (1) 0 | (2) 1 |
| (3) $\frac{1}{2}$ | (4) $\frac{1}{\sqrt{3}}$ |

FCI Assistant Grade-III
Exam. 05.02.2012 (Paper-I)
East Zone (IIInd Sitting)

- 64.** If A, B and C be the angles of a triangle, then put of the following, the incorrect relation is :

- | |
|----------------------------------------------------------|
| (1) $\sin \frac{A+B}{2} = \cos \frac{C}{2}$ |
| (2) $\cos \left(\frac{A+B}{2}\right) = \sin \frac{C}{2}$ |
| (3) $\tan \left(\frac{A+B}{2}\right) = \sec \frac{C}{2}$ |
| (4) $\cot \left(\frac{A+B}{2}\right) = \tan \frac{C}{2}$ |

FCI Assistant Grade-III.
Exam. 05.02.2012 (Paper-I)
East Zone (IIInd Sitting)

- 65.** If $\sin \alpha + \cos \beta = 2$ ($0^\circ \leq \beta < \alpha \leq 90^\circ$), then $\sin \left(\frac{2\alpha + \beta}{3}\right) =$

- | | |
|-----------------------------|------------------------------|
| (1) $\sin \frac{\alpha}{2}$ | (2) $\cos \frac{\alpha}{3}$ |
| (3) $\sin \frac{\alpha}{3}$ | (4) $\cos \frac{2\alpha}{3}$ |

(SSC CHSL DEO & LDC Exam.
04.12.2011 (Ist Sitting (North Zone))

- 66.** If $\cos^4 \theta - \sin^4 \theta = \frac{2}{3}$, then the

- | | |
|--------------------------------------------|----------------------------|
| value of $2 \cos^2 \theta - 1$ is
(1) 0 | (2) 1
(3) $\frac{2}{3}$ |
| (4) $\frac{3}{2}$ | |

(SSC CHSL DEO & LDC Exam.
04.12.2011 (Ist Sitting (North Zone))

- 67.** If $\sin \alpha \sec(30^\circ + \alpha) = 1$ ($0 < \alpha < 60^\circ$), then the value of $\sin \alpha + \cos 2\alpha$ is

- | | |
|-------|------------------------------------|
| (1) 1 | (2) $\frac{2+\sqrt{3}}{2\sqrt{3}}$ |
| (3) 0 | (4) $\sqrt{2}$ |

(SSC CHSL DEO & LDC Exam.
04.12.2011 (Ist Sitting (North Zone))

- 68.** If $\tan \theta = 1$, then the value of

- | | |
|-----------------------------------------------------------------------------------------------------|--------------------|
| $\frac{8 \sin \theta + 5 \cos \theta}{\sin^3 \theta - 2 \cos^3 \theta + 7 \cos \theta}$ is
(1) 2 | (2) $2\frac{1}{2}$ |
| (3) 3 | (4) $\frac{4}{5}$ |

(SSC CHSL DEO & LDC Exam.
04.12.2011 (IIInd Sitting (North Zone))

- 69.** If θ be a positive acute angle satisfying $\cos^2 \theta + \cos^4 \theta = 1$, then the value of $\tan^2 \theta + \tan^4 \theta$ is

- | | |
|-------------------|-------|
| (1) $\frac{3}{2}$ | (2) 1 |
| (3) $\frac{1}{2}$ | (4) 0 |

(SSC CHSL DEO & LDC Exam.
04.12.2011 (IIInd Sitting (North Zone))

- 70.** If $\tan \theta = \frac{4}{3}$, then the value of

$$\frac{3 \sin \theta + 2 \cos \theta}{3 \sin \theta - 2 \cos \theta}$$

- (1) 0.5 (2) -0.5
 (3) 3.0 (4) -3.0

(SSC CHSL DEO & LDC Exam.
04.12.2011 (IIInd Sitting (North Zone))

- 71.** The simplified value of $(\sec A - \cos A)^2 + (\operatorname{cosec} A - \sin A)^2 - (\cot A - \tan A)^2$ is

- | | |
|-------|-------------------|
| (1) 0 | (2) $\frac{1}{2}$ |
| (3) 1 | (4) 2 |

(SSC CHSL DEO & LDC Exam.
04.12.2011 (Ist Sitting (East Zone))

- 72.** If θ be acute and $\tan \theta + \cot \theta = 2$, then the value of $\tan^5 \theta + \cot^{10} \theta$ is

- | | |
|-------|-------|
| (1) 1 | (2) 2 |
| (3) 3 | (4) 4 |

(SSC CHSL DEO & LDC Exam.
04.12.2011 (IIInd Sitting (East Zone))

- 73.** If $\sin \theta - \cos \theta = \frac{7}{13}$ and $0 < \theta < 90^\circ$, then the value of $\sin \theta + \cos \theta$ is

- | | |
|---------------------|---------------------|
| (1) $\frac{17}{13}$ | (2) $\frac{13}{17}$ |
| (3) $\frac{1}{13}$ | (4) $\frac{1}{17}$ |

(SSC CHSL DEO & LDC Exam.
04.12.2011 (IIInd Sitting (East Zone))

- 74.** If $2\cos\theta - \sin\theta = \frac{1}{\sqrt{2}}$,

$(0^\circ < \theta < 90^\circ)$ the value of $\frac{2\sin\theta + \cos\theta}{\sin\theta + \cos\theta}$ is

- | | |
|--------------------------|--------------------------|
| (1) $\frac{1}{\sqrt{2}}$ | (2) $\sqrt{2}$ |
| (3) $\frac{3}{\sqrt{2}}$ | (4) $\frac{\sqrt{2}}{3}$ |

(SSC CHSL DEO & LDC Exam.
11.12.2011 (Ist Sitting (Delhi Zone))

- 75.** If $\frac{\sin \theta + \cos \theta}{\sin \theta - \cos \theta} = 3$, then the value of $\sin^4 \theta - \cos^4 \theta$ is

- | | |
|-------------------|-------------------|
| (1) $\frac{1}{5}$ | (2) $\frac{2}{5}$ |
| (3) $\frac{3}{5}$ | (4) $\frac{4}{5}$ |

(SSC CHSL DEO & LDC Exam.
11.12.2011 (Ist Sitting (Delhi Zone))

TRIGONOMETRY

- 76.** If $\sec^2\theta + \tan^2\theta = 7$, then the value of θ when $0^\circ \leq \theta \leq 90^\circ$, is
 (1) 60° (2) 30°
 (3) 0° (4) 90°

(SSC CHSL DEO & LDC Exam.
11.12.2011 (Ist Sitting (Delhi Zone)

- 77.** The simplified value of
 $(\sec x \sec y + \tan x \tan y)^2 - (\sec x \tan y + \tan x \sec y)^2$ is :
 (1) -1 (2) 0
 (3) $\sec^2 x$ (4) 1

(SSC CHSL DEO & LDC Exam.
11.12.2011 (IIInd Sitting (Delhi Zone)

- 78.** If $\sin\theta + \operatorname{cosec}\theta = 2$, then value of $\sin^{100}\theta + \operatorname{cosec}^{100}\theta$ is equal to :
 (1) 1 (2) 2
 (3) 3 (4) 100

(SSC CHSL DEO & LDC Exam.
11.12.2011 (IIInd Sitting (Delhi Zone)

- 79.** If $A = \sin^2\theta + \cos^4\theta$, for any value of θ , then the value of A is

$$(1) 1 \leq A \leq 2 \quad (2) \frac{3}{4} \leq A \leq 1$$

$$(3) \frac{13}{16} \leq A \leq 1 \quad (4) \frac{3}{4} \leq A \leq \frac{13}{16}$$

(SSC CHSL DEO & LDC Exam.
11.12.2011 (Ist Sitting (East Zone)

- 80.** If $\sin\theta + \operatorname{cosec}\theta = 2$, then the value of $\sin^5\theta + \operatorname{cosec}^5\theta$ when $0^\circ \leq \theta \leq 90^\circ$, is

$$(1) 0 \quad (2) 1$$

$$(3) 10 \quad (4) 2$$

(SSC CHSL DEO & LDC Exam.
11.12.2011 (Ist Sitting (East Zone)
& (SSC GL Tier-I 19.05.2013)
(Ist Sitting)

- 81.** If $\tan 2\theta \cdot \tan 4\theta = 1$, then the value of $\tan 3\theta$ is

$$(1) \sqrt{3} \quad (2) 0$$

$$(3) 1 \quad (4) \frac{1}{\sqrt{3}}$$

(SSC CHSL DEO & LDC Exam.
11.12.2011 (Ist Sitting (East Zone)

- 82.** If $\cos^2\alpha + \cos^2\beta = 2$, then the value of $\tan^3\alpha + \sin^5\beta$ is :

$$(1) -1 \quad (2) 0$$

$$(3) 1 \quad (4) \frac{1}{\sqrt{3}}$$

(SSC CHSL DEO & LDC Exam.
11.12.2011 (IIInd Sitting (East Zone)

- 83.** If θ is a positive acute angle and $\tan 2\theta \tan 3\theta = 1$, then the value

$$\text{of } (2 \cos^2 \frac{\theta}{2} - 1) \text{ is}$$

$$(1) -\frac{1}{2} \quad (2) 1$$

$$(3) 0 \quad (4) \frac{1}{2}$$

(SSC Graduate Level Tier-II
Exam. 16.09.2012)

- 84.** In a right-angled triangle XYZ, right-angled at Y, if $XY = 2\sqrt{6}$ and $XZ - YZ = 2$, then $\sec X + \tan X$ is

$$(1) \frac{1}{\sqrt{6}} \quad (2) \sqrt{6}$$

$$(3) 2\sqrt{6} \quad (4) \frac{\sqrt{6}}{2}$$

(SSC Graduate Level Tier-II
Exam. 16.09.2012)

- 85.** The minimum value of $\sin^2\theta + \cos^2\theta + \sec^2\theta + \operatorname{cosec}^2\theta + \tan^2\theta + \cot^2\theta$ is

$$(1) 1 \quad (2) 3$$

$$(3) 5 \quad (4) 7$$

(SSC Graduate Level Tier-II
Exam. 16.09.2012)

- 86.** If $2 \sin\left(\frac{\pi x}{2}\right) = x^2 + \frac{1}{x^2}$, then

the value of $\left(x - \frac{1}{x}\right)$ is

$$(1) -1 \quad (2) 2$$

$$(3) 1 \quad (4) 0$$

(SSC Graduate Level Tier-II
Exam. 16.09.2012)

- 87.** If $\cos\theta + \sec\theta = 2$, the value of $\cos^6\theta + \sec^6\theta$ is

$$(1) 4 \quad (2) 8$$

$$(3) 1 \quad (4) 2$$

(SSC CHSL DEO & LDC Exam.
21.10.2012 (Ist Sitting)

- 88.** The numerical value of

$$\frac{5}{\sec^2\theta} + \frac{2}{1 + \cot^2\theta} + 3 \sin^2\theta \text{ is :}$$

$$(1) 5 \quad (2) 2$$

$$(3) 3 \quad (4) 4$$

(SSC CHSL DEO & LDC Exam.
21.10.2012 (IIInd Sitting)

- 89.** The numerical value of

$$\left(\frac{1}{\cos\theta} + \frac{1}{\cot\theta}\right)\left(\frac{1}{\cos\theta} - \frac{1}{\cot\theta}\right)$$

is

$$(1) 0 \quad (2) -1$$

$$(3) +1 \quad (4) 2$$

(SSC CHSL DEO & LDC Exam.
28.10.2012 (Ist Sitting)

- 90.** If $\frac{\sin\theta + \cos\theta}{\sin\theta - \cos\theta} = \frac{5}{4}$, the value of

$$\frac{\tan^2\theta + 1}{\tan^2\theta - 1}$$

$$(1) \frac{25}{16} \quad (2) \frac{41}{9}$$

$$(3) \frac{41}{40} \quad (4) \frac{40}{41}$$

(SSC CHSL DEO & LDC Exam.
28.10.2012 (Ist Sitting)

- 91.** If $\tan 7\theta \tan 2\theta = 1$, then the value of $\tan 3\theta$ is

$$(1) \sqrt{3} \quad (2) -\frac{1}{\sqrt{3}}$$

$$(3) \frac{1}{\sqrt{3}} \quad (4) -\sqrt{3}$$

(SSC Graduate Level Tier-I
Exam. 11.11.2012 (Ist Sitting)

- 92.** The value of

$$(2\cos^2\theta - 1)\left(\frac{1 + \tan\theta}{1 - \tan\theta} + \frac{1 - \tan\theta}{1 + \tan\theta}\right) \text{ is}$$

$$(1) 4 \quad (2) 1$$

$$(3) 3 \quad (4) 2$$

(SSC Assistant Grade-III
Exam. 11.11.2012 (IIInd Sitting)

- 93.** If $\sec\theta + \tan\theta = 2$, then the value of $\sec\theta$ is

$$(1) \frac{4}{5} \quad (2) 5$$

$$(3) \frac{5}{4} \quad (4) \sqrt{2}$$

(SSC Delhi Police S.I. (SI)
Exam. 19.08.2012)

- 94.** If $\operatorname{cosec}\theta - \sin\theta = l$ and $\sec\theta - \cos\theta = m$, then the value of $l^2m^2(l^2 + m^2 + 3)$ is

$$(1) -1 \quad (2) 0$$

$$(3) 1 \quad (4) 2$$

(SSC Delhi Police S.I. (SI)
Exam. 19.08.2012)

- 95.** If $\frac{2\sin\theta - \cos\theta}{\cos\theta + \sin\theta} = 1$, then value of $\cot\theta$ is :

$$(1) \frac{1}{2} \quad (2) \frac{1}{3}$$

$$(3) 3 \quad (4) 2$$

(SSC CHSL DEO & LDC Exam.
04.11.2012, Ist Sitting)

TRIGONOMETRY

96. If $\tan \theta = 2$, then the value of

$$\frac{8\sin\theta + 5\cos\theta}{\sin^3\theta + 2\cos^3\theta + 3\cos\theta}$$

- (1) $\frac{21}{5}$ (2) $\frac{8}{5}$
 (3) $\frac{7}{5}$ (4) $\frac{16}{5}$

(SSC Graduate Level Tier-I
Exam. 11.11.2012, Ist Sitting)

97. If $\tan \theta + \cot \theta = 2$, then the value of $\tan^{100} \theta + \cot^{100} \theta$ is

- (1) 2 (2) 0
 (3) 1 (4) $\sqrt{3}$

(SSC FCI Assistant Grade-III
Main Exam. 07.04.2013)

98. $\frac{\tan \theta}{1 - \cot \theta} + \frac{\cot \theta}{1 - \tan \theta}$ is equal to

- (1) $1 - \tan \theta - \cot \theta$
 (2) $1 + \tan \theta - \cot \theta$
 (3) $1 - \tan \theta + \cot \theta$
 (4) $1 + \tan \theta + \cot \theta$
 (SSC FCI Assistant Grade-III
Main Exam. 07.04.2013)

99. If $\sin \theta + \operatorname{cosec} \theta = 2$, then the value of $\sin^9 \theta + \operatorname{cosec}^9 \theta$ is :

- (1) 3 (2) 2
 (3) 4 (4) 1

(SSC Graduate Level Tier-I
Exam. 21.04.2013, Ist Sitting)

100. If $\sec \theta + \tan \theta = 2 + \sqrt{5}$, then the value of $\sin \theta + \cos \theta$ is :

- (1) $\frac{3}{\sqrt{5}}$ (2) $\sqrt{5}$
 (3) $\frac{7}{\sqrt{5}}$ (4) $\frac{1}{\sqrt{5}}$

(SSC Graduate Level Tier-I
Exam. 21.04.2013, Ist Sitting)

101. The value of

$$(1 + \cot \theta - \operatorname{cosec} \theta)(1 + \tan \theta + \sec \theta)$$

- (1) 1 (2) 2
 (3) 0 (4) -1

(SSC Graduate Level Tier-I
Exam. 21.04.2013 IIInd Sitting)

102. If $\tan \theta + \cot \theta = 2$, then the value of $\tan^n \theta + \cot^n \theta$ ($0^\circ < \theta < 90^\circ$, n is an integer) is

- (1) 2 (2) 2^n
 (3) $2n$ (4) 2^{n+1}

(SSC Graduate Level Tier-I
Exam. 21.04.2013 IIInd Sitting)

103. If $\frac{\sin \theta}{x} = \frac{\cos \theta}{y}$, then

$\sin \theta - \cos \theta$ is equal to

- (1) $x - y$ (2) $x + y$

$$(3) \frac{x - y}{\sqrt{x^2 + y^2}} \quad (4) \frac{y - x}{\sqrt{x^2 + y^2}}$$

(SSC Graduate Level Tier-I
Exam. 21.04.2013 IIInd Sitting)

104. If $x = a \sec \theta \cos \phi$, $y = b \sec \theta \sin \phi$, $z = c \tan \theta$, then the value

$$\text{of } \frac{x^2}{a^2} + \frac{y^2}{b^2} - \frac{z^2}{c^2} \text{ is :}$$

- (1) 1 (2) 4
 (3) 9 (4) 0

(SSC Graduate Level Tier-I
Exam. 21.04.2013)

105. If $\frac{\sec \theta + \tan \theta}{\sec \theta - \tan \theta} = \frac{5}{3}$, then

$\sin \theta$ is equal to :

- (1) $\frac{1}{4}$ (2) $\frac{1}{3}$
 (3) $\frac{2}{3}$ (4) $\frac{3}{4}$

(SSC Graduate Level Tier-I
Exam. 21.04.2013)

106. If $\cos x + \cos^2 x = 1$, the numerical value of

$$(\sin^{12} x + 3 \sin^{10} x + 3 \sin^8 x + \sin^6 x - 1)$$

- (1) -1 (2) 2
 (3) 0 (4) 1

(SSC Graduate Level Tier-I
Exam. 21.04.2013)

107. If $(1 + \sin \alpha)(1 + \sin \beta)(1 + \sin \gamma) = (1 - \sin \alpha)(1 - \sin \beta)(1 - \sin \gamma)$, then each side is equal to

- (1) $\pm \cos \alpha \cos \beta \cos \gamma$
 (2) $\pm \sin \alpha \sin \beta \sin \gamma$
 (3) $\pm \sin \alpha \cos \beta \cos \gamma$

- (4) $\pm \sin \alpha \sin \beta \cos \gamma$
 (SSC Graduate Level Tier-I
Exam. 21.04.2013)

108. The numerical value of

$$\frac{1}{1 + \cot^2 \theta} + \frac{3}{1 + \tan^2 \theta} + 2 \sin^2 \theta$$

will be

- (1) 2 (2) 5
 (3) 6 (4) 3

(SSC Graduate Level Tier-I
Exam. 19.05.2013 Ist Sitting)

109. The value of

$$\frac{4}{1 + \tan^2 \alpha} + \frac{3}{1 + \cot^2 \alpha} + 3 \sin^2 \alpha$$

is

- (1) 4 (2) -1
 (3) 2 (4) 3

(SSC Graduate Level Tier-I
Exam. 19.05.2013 Ist Sitting)

110. The value of $3(\sin x - \cos x)^4 + 6(\sin x + \cos x)^2 + 4(\sin^6 x + \cos^6 x)$ is

- (1) 14 (2) 11
 (3) 12 (4) 13

(SSC Graduate Level Tier-I
Exam. 19.05.2013 Ist Sitting)

111. The value of

$$\sec \theta \left(\frac{1 + \sin \theta}{\cos \theta} + \frac{\cos \theta}{1 + \sin \theta} \right) - 2 \tan^2 \theta$$

is

- (1) 4 (2) 1
 (3) 2 (4) 0

(SSC Graduate Level Tier-I
Exam. 19.05.2013 Ist Sitting)

112. If $\tan \theta + \cot \theta = 2$, then the value of $\tan^2 \theta + \cot^2 \theta$ is

- (1) 2 (2) 1
 (3) $\sqrt{2}$ (4) 0

(SSC Graduate Level Tier-I
Exam. 19.05.2013)

113. The eliminant of θ from $x \cos \theta - y \sin \theta = 2$ and $x \sin \theta + y \cos \theta = 4$ will give

- (1) $x^2 + y^2 = 20$
 (2) $3x^2 + y^2 = 20$

- (3) $x^2 - y^2 = 20$

- (4) $3x^2 - y^2 = 10$

(SSC Graduate Level Tier-I
Exam. 19.05.2013)

114. The value of

$$\left[\frac{\cos^2 A (\sin A + \cos A)}{\operatorname{cosec}^2 A (\sin A - \cos A)} + \right.$$

$$\left. \frac{\sin^2 A (\sin A - \cos A)}{\sec^2 A (\sin A + \cos A)} \right]$$

$$(\sec^2 A - \operatorname{cosec}^2 A)$$

- (1) 1 (2) 3
 (3) 2 (4) 4

(SSC Graduate Level Tier-I
Exam. 19.05.2013)

TRIGONOMETRY

115. The value of

$$\frac{1}{\operatorname{cosec} \theta - \cot \theta} - \frac{1}{\sin \theta}$$

- (1) 1 (2) $\cot \theta$
 (3) $\operatorname{cosec} \theta$ (4) $\tan \theta$
- (SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

116. If $\cos \theta + \sin \theta = \sqrt{2} \cos \theta$, then $\cos \theta - \sin \theta$ is

- (1) $\sqrt{2} \tan \theta$ (2) $-\sqrt{2} \cos \theta$
 (3) $-\sqrt{2} \sin \theta$ (4) $\sqrt{2} \sin \theta$
- (SSC Graduate Level Tier-I Exam. 19.05.2013 (1st Sitting) & (SSC GL Tier-II Exam. 29.09.2013)

117. If $\cos^4 \theta - \sin^4 \theta = \frac{2}{3}$, then the value of $1 - 2 \sin^2 \theta$ is

- (1) $\frac{4}{3}$ (2) 0
 (3) $\frac{2}{3}$ (4) $\frac{1}{3}$

(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

118. The value of

$$\frac{1}{(1 + \tan^2 \theta)} + \frac{1}{(1 + \cot^2 \theta)}$$

- (1) $\frac{1}{4}$ (2) 1
 (3) $\frac{5}{4}$ (4) $\frac{4}{3}$

(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

119. If $\sin \theta - \cos \theta = \frac{1}{2}$ then value of

- $\sin \theta + \cos \theta$ is :
 (1) -2 (2) ± 2
 (3) $\frac{\sqrt{7}}{2}$ (4) 2

(SSC CAPFs SI & CISF ASI Exam. 23.06.2013)

120. The value of $\frac{\sin A}{1 + \cos A} + \frac{\sin A}{1 - \cos A}$ is

$(0^\circ < A < 90^\circ)$

- (1) 2 $\operatorname{cosec} A$ (2) 2 $\sec A$
 (3) 2 $\sin A$ (4) 2 $\cos A$
- (SSC Graduate Level Tier-II Exam. 29.09.2013)

121. If $r \sin \theta = 1$, $r \cos \theta = \sqrt{3}$, then

the value of $(\sqrt{3} \tan \theta + 1)$ is

- (1) $\sqrt{3}$ (2) $\frac{1}{\sqrt{3}}$
 (3) 1 (4) 2
- (SSC Graduate Level Tier-II Exam. 29.09.2013)

122. If $x \cos \theta - y \sin \theta = \sqrt{x^2 + y^2}$

and

$$\frac{\cos^2 \theta}{a^2} + \frac{\sin^2 \theta}{b^2} = \frac{1}{x^2 + y^2},$$

then the correct relation is

$$(1) \frac{x^2}{b^2} - \frac{y^2}{a^2} = 1$$

$$(2) \frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$

$$(3) \frac{x^2}{b^2} + \frac{y^2}{a^2} = 1$$

$$(4) \frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$$

(SSC CHSL DEO & LDC Exam. 20.10.2013)

123. If $\tan \theta - \cot \theta = 0$, find the value of $\sin \theta + \cos \theta$.

- (1) 0 (2) 1

- (3) $\sqrt{2}$ (4) 2

(SSC CHSL DEO & LDC Exam. 27.10.2013 IIInd Sitting)

124. The greatest value of $\sin^4 \theta + \cos^4 \theta$ is

- (1) 2 (2) 3

- (3) $\frac{1}{2}$ (4) 1

(SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting)

125. If $3\sin \theta + 5\cos \theta = 5$, then

$5\sin \theta - 3\cos \theta$ is equal to

- (1) ± 3 (2) ± 5

- (3) 1 (4) ± 2

(SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting)

126. If $\sin \theta + \sin^2 \theta = 1$, then the value of $\cos^2 \theta + \cos^4 \theta$ is

- (1) 2 (2) 4

- (3) 0 (4) 1

(SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting)

127. If $\tan \theta + \cot \theta = 2$ then the value of θ is

- (1) 45° (2) 60°
 (3) 90° (4) 30°
- (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

128. If $\cos \pi x = x^2 - x + \frac{5}{4}$, the value of x will be

- (1) 0 (2) 1
 (3) -1 (4) None of the above
- (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

129. The numerical value of

$$1 + \frac{1}{\cot^2 63^\circ} - \sec^2 27^\circ$$

$$+ \frac{1}{\sin^2 63^\circ} - \cosec^2 27^\circ$$

- (1) 1 (2) 2
 (3) -1 (4) 0
- (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

130. If $x = \frac{\cos \theta}{1 - \sin \theta}$, then $\frac{\cos \theta}{1 + \sin \theta}$ is equal to

- (1) $x - 1$ (2) $\frac{1}{x}$
 (3) $\frac{1}{x + 1}$ (4) $\frac{1}{1 - x}$

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

131. In ΔABC , $\angle B = 90^\circ$ and $AB : BC = 2 : 1$. The value of $\sin A + \cot C$ is

- (1) $3 + \sqrt{5}$ (2) $\frac{2 + \sqrt{5}}{2\sqrt{5}}$

- (3) $2 + \sqrt{5}$ (4) $3\sqrt{5}$

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

132. If $\sin \frac{\pi x}{2} = x^2 - 2x + 2$, then the value of x is

- (1) 0 (2) 1
 (3) -1 (4) None of these

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

133. The value of

$$\frac{\sin 43^\circ}{\cos 47^\circ} + \frac{\cos 19^\circ}{\sin 71^\circ} - 8 \cos^2 60^\circ$$

- (1) 0 (2) 1
 (3) 2 (4) -1

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

TRIGONOMETRY

134. The value of

$$\left(\sin^2 7\frac{1}{2}^\circ + \sin^2 82\frac{1}{2}^\circ + \tan^2 2^\circ \cdot \tan^2 88^\circ \right) \text{ is}$$

- (1) 1 (2) 2
 (3) 0 (4) 4
 (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

135. Find the value of $1 - 2 \sin^2 \theta + \sin^4 \theta$.

- (1) $\sin^4 \theta$ (2) $\cos^4 \theta$
 (3) $\operatorname{cosec}^4 \theta$ (4) $\sec^4 \theta$
 (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

136. The simplest value of $\cot 9^\circ \cot 27^\circ \cot 63^\circ \cot 81^\circ$ is

- (1) 0 (2) 1
 (3) -1 (4) $\sqrt{3}$

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

137. If

$$(1 + \sin A)(1 + \sin B)(1 + \sin C) = (1 - \sin A)(1 - \sin B)(1 - \sin C), 0 < A, B, C$$

< $\frac{\pi}{2}$ then each side is equal to

- (1) $\sin A \sin B \sin C$
 (2) $\cos A \cos B \cos C$
 (3) $\tan A \tan B \tan C$
 (4) 1

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

138. The value of θ , which satisfies the equation $\tan^2 \theta + 3 = 3 \sec \theta$, $0^\circ \leq \theta < 90^\circ$ is

- (1) 15° or 0° (2) 30° or 0°
 (3) 45° or 0° (4) 60° or 0°

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

139. If $\sin \theta = 0.7$, then $\cos \theta$, $0 \leq \theta < 90^\circ$, is

- (1) 0.3 (2) $\sqrt{0.49}$
 (3) $\sqrt{0.51}$ (4) $\sqrt{0.9}$

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

140. The value of $\sin^2 65^\circ + \sin^2 25^\circ + \cos^2 35^\circ + \cos^2 55^\circ$ is

- (1) 0 (2) 1
 (3) 2 (4) $\frac{1}{2}$

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

141. If $x \sin 60^\circ \cdot \tan 30^\circ = \sec 60^\circ \cdot \cot 45^\circ$, then the value of x is

- (1) 2 (2) $2\sqrt{3}$
 (3) 4 (4) $4\sqrt{3}$

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))

142. If $\theta = 60^\circ$, then

$$\frac{1}{2}\sqrt{1+\sin\theta} + \frac{1}{2}\sqrt{1-\sin\theta} \text{ is}$$

equal to

- (1) $\cot\frac{\theta}{2}$ (2) $\sec\frac{\theta}{2}$
 (3) $\sin\frac{\theta}{2}$ (4) $\cos\frac{\theta}{2}$

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))

143. If $\frac{2\tan^2 30^\circ}{1 - \tan^2 30^\circ} + \sec^2 45^\circ - \sec^2 20^\circ = x \sec 60^\circ$, then the value of x is

- (1) 2 (2) 1
 (3) 0 (4) -1

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))

144. If $\tan \theta = \frac{\sin \alpha - \cos \alpha}{\sin \alpha + \cos \alpha}$, then

$\sin \alpha + \cos \alpha$ is

- (1) $\pm\sqrt{2} \sin \theta$ (2) $\pm\sqrt{2} \cos \theta$
 (3) $\pm\frac{1}{\sqrt{2}} \sin \theta$ (4) $\pm\frac{1}{\sqrt{2}} \cos \theta$

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))

145. If $7 \sin^2 \theta + 3 \cos^2 \theta = 4$, ($0^\circ < \theta < 90^\circ$), then the value of $\tan \theta$ is

- (1) $\frac{1}{\sqrt{3}}$ (2) $\frac{1}{2}$
 (3) 1 (4) $\sqrt{3}$

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))

146. If $\tan 9^\circ = \frac{p}{q}$, then the value of

$$\frac{\sec^2 81^\circ}{1 + \cot^2 81^\circ} \text{ is}$$

- (1) $\frac{q}{p}$ (2) 1
 (3) $\frac{p^2}{q^2}$ (4) $\frac{q^2}{p^2}$

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))

147. If $\sec \theta + \tan \theta = 5$, then the value

of $\frac{\tan \theta + 1}{\tan \theta - 1}$ is

- (1) $\frac{11}{7}$ (2) $\frac{13}{7}$
 (3) $\frac{15}{7}$ (4) $\frac{17}{7}$

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IIInd Sitting))

148. If $\tan^2 \theta = 1 - e^2$, then the value of $\sec \theta + \tan^3 \theta \operatorname{cosec} \theta$ is

- (1) $(2 + e^2)^{\frac{3}{2}}$ (2) $(2 - e^2)^{\frac{1}{2}}$
 (3) $(2 + e^2)^{\frac{1}{2}}$ (4) $(2 - e^2)^{\frac{3}{2}}$

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IIInd Sitting))

149. Which one of the following is true for $0^\circ < \theta < 90^\circ$?

- (1) $\cos \theta \leq \cos^2 \theta$ (2) $\cos \theta > \cos^2 \theta$
 (3) $\cos \theta < \cos^2 \theta$ (4) $\cos \theta \geq \cos^2 \theta$

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IIInd Sitting))

150. If $x \sin 60^\circ \tan 30^\circ - \tan^2 45^\circ = \operatorname{cosec} 60^\circ \cot 30^\circ - \sec^2 45^\circ$, then

- $x =$
 (1) 2 (2) -2
 (3) 6 (4) -4

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IIInd Sitting))

151. If $x = a \sec \alpha \cos \beta$, $y = b \sec \alpha \sin \beta$, $z = c \tan \alpha$, then the value

of $\frac{x^2}{a^2} + \frac{y^2}{b^2} - \frac{z^2}{c^2}$ is

- (1) 2 (2) 0
 (3) 1 (4) -1

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IIInd Sitting))

152. If $\frac{\cos \alpha}{\cos \beta} = a$ and $\frac{\sin \alpha}{\sin \beta} = b$, then

the value of $\sin^2 \beta$ in terms of a and b is

- (1) $\frac{a^2 + 1}{a^2 - b^2}$ (2) $\frac{a^2 - b^2}{a^2 + b^2}$
 (3) $\frac{a^2 - 1}{a^2 - b^2}$ (4) $\frac{a^2 - 1}{a^2 + b^2}$

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IIInd Sitting))

TRIGONOMETRY

153. The value of

$$\frac{\cos^2 60^\circ + 4 \sec^2 30^\circ - \tan^2 45^\circ}{\sin^2 30^\circ + \cos^2 30^\circ}$$

- (1) $\frac{64}{\sqrt{3}}$ (2) $\frac{55}{12}$

- (3) $\frac{67}{12}$ (4) $\frac{67}{10}$

(SSC CGL Tier-I Re-Exam. (2013)
20.07.2014 (IInd Sitting)

154. The value of $\sin^2 30^\circ \cos^2 45^\circ + 5 \tan^2 30^\circ + \frac{3}{2} \sin^2 90^\circ - 3 \cos^2 90^\circ$ is

- (1) $3 \frac{7}{24}$ (2) $3 \frac{3}{24}$

- (3) $3 \frac{1}{24}$ (4) $3 \frac{5}{24}$

(SSC CGL Tier-I Exam.
19.10.2014 (Ist Sitting)

155. If $\cos^2 \theta - \sin^2 \theta = \frac{1}{3}$, where $0 \leq \theta \leq \frac{\pi}{2}$, then the value of $\cos^4 \theta - \sin^4 \theta$ is

- (1) $\frac{1}{3}$ (2) $\frac{2}{3}$

- (3) $\frac{1}{9}$ (4) $\frac{2}{9}$

(SSC CGL Tier-I Exam.
19.10.2014 (Ist Sitting)

156. If $\tan \theta = \frac{1}{\sqrt{11}}$ and $0 < \theta < \frac{\pi}{2}$, then the value of $\frac{\operatorname{cosec}^2 \theta - \sec^2 \theta}{\operatorname{cosec}^2 \theta + \sec^2 \theta}$ is

- (1) $\frac{3}{4}$ (2) $\frac{4}{5}$

- (3) $\frac{5}{6}$ (4) $\frac{6}{7}$

(SSC CGL Tier-I

Exam. 19.10.2014 (Ist Sitting)

157. The value of

$$\frac{1}{\sqrt{2}} \sin \frac{\pi}{6} \cos \frac{\pi}{4} - \cot \frac{\pi}{3} \sec \frac{\pi}{6} + \frac{5 \tan \frac{\pi}{4}}{12 \sin \frac{\pi}{2}}$$

is equal to

- (1) 0 (2) 1

- (3) 2 (4) $\frac{3}{2}$

(SSC CGL Tier-I
Exam. 19.10.2014 (Ist Sitting)

158. If $\sin \theta = \frac{3}{5}$, then the value of

$$\frac{\tan \theta + \cos \theta}{\cot \theta + \operatorname{cosec} \theta}$$

- (1) $\frac{29}{60}$ (2) $\frac{31}{60}$

- (3) $\frac{34}{60}$ (4) $\frac{37}{60}$

(SSC CGL Tier-I
Exam. 19.10.2014 (Ist Sitting)

159. If $a \cos \theta + b \sin \theta = p$ and $a \sin \theta - b \cos \theta = q$, then the relation between a , b , p and q is

- (1) $a^2 - b^2 = p^2 - q^2$

- (2) $a^2 + b^2 = p^2 + q^2$

- (3) $a + b = p + q$

- (4) $a - b = p - q$

(SSC CGL Tier-I

Exam. 19.10.2014 (Ist Sitting)

160. If $(\sin \alpha + \operatorname{cosec} \alpha)^2 + (\cos \alpha + \sec \alpha)^2 = k + \tan^2 \alpha + \cot^2 \alpha$, then the value of k is

- (1) 1 (2) 7

- (3) 3 (4) 5

(SSC CGL Tier-I Exam. 19.10.2014)

161. If $\sin 21^\circ = \frac{x}{y}$, then $\sec 21^\circ - \sin 69^\circ$ is equal to

$$(1) \frac{x^2}{y\sqrt{y^2 - x^2}} \quad (2) \frac{y^2}{x\sqrt{y^2 - x^2}}$$

$$(3) \frac{x^2}{y\sqrt{x^2 - y^2}} \quad (4) \frac{y^2}{x\sqrt{x^2 - y^2}}$$

(SSC CGL Tier-I Exam. 19.10.2014)

162. If $\sec \alpha + \tan \alpha = 2$, then the value of $\sin \alpha$ is

(assume that $0 < \alpha < 90^\circ$)

- (1) 0.4 (2) 0.5

- (3) 0.6 (4) 0.8

(SSC CGL Tier-I Exam. 19.10.2014)

163. If $3 \sin \theta + 5 \cos \theta = 5$, then the value of $5 \sin \theta - 3 \cos \theta$ will be

- (1) ± 3 (2) ± 5

- (3) ± 2 (4) ± 1

(SSC CGL Tier-I Exam. 19.10.2014)

164. If θ is an acute angle and $\tan \theta + \cot \theta = 2$, then the value of $\tan^5 \theta + \cot^5 \theta$ is

- (1) 1 (2) 2

- (3) 3 (4) 4

(SSC CGL Tier-I Exam. 19.10.2014)

165. The simple value of $\tan 1^\circ \cdot \tan 2^\circ \cdot \tan 3^\circ \dots \tan 89^\circ$ is

- (1) $\frac{1}{2}$ (2) 0

- (3) 1 (4) $\frac{2}{3}$

(SSC CGL Tier-I Exam. 19.10.2014)

166. If $x \sin^2 60^\circ - \frac{3}{2} \sec 60^\circ$

$$\tan^2 30^\circ + \frac{4}{5} \sin^2 45^\circ \tan^2 60^\circ = 0$$

then x is

- (1) $-\frac{1}{15}$ (2) -4

- (3) $-\frac{4}{15}$ (4) -2

(SSC CGL Tier-I Exam. 26.10.2014)

167. If $7 \sin \alpha = 24 \cos \alpha$; $0 < \alpha < \frac{\pi}{2}$, then the value of

$14 \tan \alpha - 75 \cos \alpha - 7 \sec \alpha$ is equal to

- (1) 3 (2) 4

- (3) 1 (4) 2

(SSC CGL Tier-I Exam. 26.10.2014)

168. The value of x which satisfies the equation $2 \operatorname{cosec}^2 30^\circ + x \sin^2 60^\circ - \frac{3}{4} \tan^2 30^\circ = 10$ is

- (1) 2 (2) 3

- (3) 0 (4) 1

(SSC CGL Tier-I Exam. 26.10.2014)

169. If $2 \sin \theta + \cos \theta = \frac{7}{3}$ then the value of $(\tan^2 \theta - \sec^2 \theta)$ is

- (1) 0 (2) -1

- (3) $\frac{3}{7}$ (4) $\frac{7}{3}$

(SSC CGL Tier-I Exam. 26.10.2014)

170. If $29 \tan \theta = 31$,

then the value of

$$\frac{1 + 2 \sin \theta \cos \theta}{1 - 2 \sin \theta \cos \theta}$$

is equal to

- (1) 810 (2) 900

- (3) 540 (4) 490

(SSC CGL Tier-I Exam. 26.10.2014)

TRIGONOMETRY

- 171.** ABCD is a rectangle of which AC is a diagonal. The value of $(\tan^2 \angle CAD + 1) \sin^2 \angle BAC$ is

(1) 2 (2) $\frac{1}{4}$

(3) 1 (4) 0

(SSC CGL Tier-II Exam. 21.09.2014)

- 172.** If $\tan x = \sin 45^\circ \cdot \cos 45^\circ + \sin 30^\circ$ then the value of x is

(1) 30° (2) 45°

(3) 60° (4) 90°

(SSC CGL Tier-II Exam. 21.09.2014)

- 173.** For any real values of θ ,

$$\sqrt{\frac{\sec \theta - 1}{\sec \theta + 1}} = ?$$

(1) $\cot \theta - \operatorname{cosec} \theta$

(2) $\sec \theta - \tan \theta$

(3) $\operatorname{cosec} \theta - \cot \theta$

(4) $\tan \theta - \sec \theta$

(SSC CGL Tier-II Exam. 21.09.2014)

- 174.** If the sum and difference of two

angles are 135° and $\frac{\pi}{12}$ respectively, then the value of the angles in degree measure are

(1) $70^\circ, 65^\circ$ (2) $75^\circ, 60^\circ$

(3) $45^\circ, 90^\circ$ (4) $80^\circ, 55^\circ$

(SSC CGL Tier-II Exam. 21.09.2014)

- 175.** In a ΔABC , $\angle B = \frac{\pi}{3}$, $\angle C = \frac{\pi}{4}$ and D divides BC internally in

the ratio $1 : 3$ then $\frac{\sin \angle BAD}{\sin \angle CAD}$

is equal to

(1) $\frac{1}{\sqrt{2}}$ (2) $\frac{1}{\sqrt{3}}$

(3) $\frac{1}{\sqrt{6}}$ (4) $\sqrt{6}$

(SSC CGL Tier-II Exam. 21.09.2014)

- 176.** If $\sin 3A = \cos (A - 26^\circ)$, where $3A$ is an acute angle then the value of A is

(1) 29° (2) 26°

(3) 23° (4) 28°

(SSC CGL Tier-II Exam. 21.09.2014)

- 177.** Value of $\sec^2 \theta - \frac{\sin^2 \theta - 2 \sin^4 \theta}{2 \cos^4 \theta - \cos^2 \theta}$

is

(1) 1 (2) 2

(3) -1 (4) 0

(SSC CGL Tier-II Exam. 21.09.2014)

- 178.** If $x = a(\sin \theta + \cos \theta)$, $y = b(\sin \theta - \cos \theta)$ then the value

of $\frac{x^2}{a^2} + \frac{y^2}{b^2}$ is

(1) 0 (2) 1

(3) 2 (4) -2

(SSC CGL Tier-II Exam. 21.09.2014)

- 179.** If $\sin 5\theta = \cos 20^\circ$ ($0^\circ < \theta < 90^\circ$) then the value of θ is

(1) 4° (2) 22°

(3) 10° (4) 14°

(SSC CGL Tier-II Exam. 21.09.2014)

- 180.** If $0^\circ < \theta < 90^\circ$ and $2 \sec \theta = 3 \operatorname{cosec}^2 \theta$, then θ is

(1) $\frac{\pi}{6}$ (2) $\frac{\pi}{4}$

(3) $\frac{\pi}{3}$ (4) $\frac{\pi}{5}$

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

- 181.** $\sqrt{\frac{1+\sin \theta}{1-\sin \theta}} + \sqrt{\frac{1-\sin \theta}{1+\sin \theta}}$ is equal to

(1) $2 \cos \theta$ (2) $2 \sin \theta$

(3) $2 \cot \theta$ (4) $2 \sec \theta$

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

- 182.** If $\cos \theta = \frac{3}{5}$, then the value of $\sin \theta \cdot \sec \theta \cdot \tan \theta$ is

(1) $\frac{9}{16}$ (2) $\frac{16}{9}$

(3) $\frac{3}{4}$ (4) $\frac{4}{3}$

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

- 183.** If $0^\circ < A < 90^\circ$, then the value of $\tan^2 A + \cot^2 A - \sec^2 A \operatorname{cosec}^2 A$ is

(1) 0 (2) 1

(3) 2 (4) -2

(SSC CHSL DEO & LDC Exam. 02.11.2014 (IInd Sitting))

- 184.** If α and β are positive acute angles, $\sin(4\alpha - \beta) = 1$ and

$\cos(2\alpha + \beta) = \frac{1}{2}$,

then the value of $\sin(\alpha + 2\beta)$ is

(1) 0 (2) 1

(3) $\frac{\sqrt{3}}{2}$ (4) $\frac{1}{\sqrt{2}}$

(SSC CHSL DEO & LDC Exam. 02.11.2014 (IInd Sitting))

- 185.** If θ is a positive acute angle and $\operatorname{cosec} \theta = \sqrt{3}$, then the value of $\cot \theta - \operatorname{cosec} \theta$ is

(1) $\frac{3\sqrt{2} - \sqrt{3}}{3}$ (2) $\frac{\sqrt{2}(3 + \sqrt{3})}{3}$

(3) $\frac{\sqrt{2}(3 - \sqrt{3})}{3}$ (4) $\frac{3\sqrt{2} + \sqrt{3}}{3}$

(SSC CHSL DEO & LDC Exam. 02.11.2014 (IInd Sitting))

- 186.** If θ is a positive acute angle and $4 \cos^2 \theta - 4 \cos \theta + 1 = 0$, then the value of $\tan(\theta - 15^\circ)$ is equal to

(1) 0 (2) 1
(3) $\sqrt{3}$ (4) $\frac{1}{\sqrt{3}}$

(SSC CHSL DEO & LDC Exam. 9.11.2014)

- 187.** If $(r \cos \theta - \sqrt{3})^2 + (r \sin \theta - 1)^2 = 0$ then the value of $\frac{r \tan \theta + \sec \theta}{r \sec \theta + \tan \theta}$ is equal to

(1) $\frac{4}{5}$ (2) $\frac{5}{4}$

(3) $\frac{\sqrt{3}}{4}$ (4) $\frac{\sqrt{5}}{4}$

(SSC CHSL DEO & LDC Exam. 9.11.2014)

- 188.** The value of

$\frac{\sin 25^\circ \cos 65^\circ + \cos 25^\circ \sin 65^\circ}{\tan^2 70^\circ - \operatorname{cosec}^2 20^\circ}$

(1) -1 (2) 0
(3) 1 (4) 2

(SSC CHSL DEO & LDC Exam. 9.11.2014)

- 189.** If $\sin(\theta + 18^\circ) = \cos 60^\circ$ ($0 < \theta < 90^\circ$), then the value of $\cos 5\theta$ is

(1) $\frac{1}{2}$ (2) 0

(3) $\frac{1}{\sqrt{2}}$ (4) 1

(SSC CHSL DEO & LDC Exam. 16.11.2014)

TRIGONOMETRY

190. If $\tan \theta = \frac{3}{4}$, then the value of

$$\frac{4\sin^2 \theta - 2\cos^2 \theta}{4\sin^2 \theta + 3\cos^2 \theta}$$
 is equal to

- (1) $\frac{1}{21}$ (2) $\frac{2}{21}$
 (3) $\frac{4}{21}$ (4) $\frac{8}{21}$

(SSC CHSL DEO & LDC Exam. 16.11.2014)

191. If $\frac{\cos \alpha}{\cos \beta} = a$, $\frac{\sin \alpha}{\sin \beta} = b$, then $\sin^2 \beta$ is equal to

- (1) $\frac{a^2 - 1}{a^2 + b^2}$ (2) $\frac{a^2 + 1}{a^2 - b^2}$
 (3) $\frac{a^2 - 1}{a^2 - b^2}$ (4) $\frac{a^2 + 1}{a^2 + b^2}$

(SSC CHSL DEO & LDC Exam. 16.11.2014)

192. Let A, B, C, D be the angles of a quadrilateral. If they are concyclic, then the value of

$$\cos A + \cos B + \cos C + \cos D$$
 is

- (1) 0 (2) 1
 (3) -1 (4) 2

(SSC CHSL DEO & LDC Exam. 16.11.2014)

193. If $\sqrt{3} \tan \theta = 3 \sin \theta$, then the value of $(\sin^2 \theta - \cos^2 \theta)$ is

- (1) 1 (2) 3
 (3) $\frac{1}{3}$ (4) None

(SSC CHSL DEO Exam. 02.11.2014)

(Ist Sitting)

194. If $\sin(A + B) = \sin A \cos B + \cos A \sin B$, then the value of $\sin 75^\circ$ is

$$(1) \frac{\sqrt{3} + 1}{\sqrt{2}} \quad (2) \frac{\sqrt{2} + 1}{2\sqrt{2}}$$

$$(3) \frac{\sqrt{3} + 1}{2\sqrt{2}} \quad (4) \frac{\sqrt{3} + 1}{2}$$

(SSC CHSL DEO Exam. 02.11.2014)

(Ist Sitting)

195. ABC is a right angled triangle, right angled at B and $\angle A = 60^\circ$ and AB = 20 cm, then the ratio of sides BC and CA is

- (1) $\sqrt{3} : 1$ (2) $1 : \sqrt{3}$

- (3) $\sqrt{3} : \sqrt{2}$ (4) $\sqrt{3} : 2$

(SSC CHSL DEO Exam. 02.11.2014)

(Ist Sitting)

196. If $\tan 2\theta \cdot \tan 3\theta = 1$, where $0^\circ < \theta < 90^\circ$ then the value of θ is

- (1) $22\frac{1}{2}^\circ$ (2) 18°
 (3) 24° (4) 30°

197. If $\cos^2 \alpha - \sin^2 \alpha = \tan^2 \beta$, then the value of $\cos^2 \beta - \sin^2 \beta$ is

- (1) $\cot^2 \alpha$ (2) $\cot^2 \beta$
 (3) $\tan^2 \alpha$ (4) $\tan^2 \beta$

(SSC CHSL DEO Exam. 02.11.2014)
 (Ist Sitting)

198. If $\tan(A + B) = \sqrt{3}$ and

$$\tan(A - B) = \frac{1}{\sqrt{3}}, \angle A + \angle B < 90^\circ,$$

$A \geq B$, then $\angle A$ is

- (1) 90° (2) 30°
 (3) 45° (4) 60°

(SSC CHSL DEO Exam. 16.11.2014)
 (Ist Sitting)

199. The value of $\frac{\sin \theta - 2 \sin^3 \theta}{2 \cos^3 \theta - \cos \theta}$ is equal to

- (1) $\sin \theta$ (2) $\cos \theta$
 (3) $\tan \theta$ (4) $\cot \theta$

(SSC CHSL DEO Exam. 16.11.2014)
 (Ist Sitting)

200. If $r \sin \theta = \frac{7}{2}$ and $r \cos \theta = \frac{7\sqrt{3}}{2}$, then value of r is

- (1) 4 (2) 3
 (3) 5 (4) 7

(SSC CHSL DEO Exam. 16.11.2014)
 (Ist Sitting)

201. If $\theta + \phi = \frac{\pi}{2}$ and $\sin \theta = \frac{1}{2}$, then

the value of $\sin \phi$ is

- (1) 1 (2) $\frac{1}{\sqrt{2}}$
 (3) $\frac{1}{2}$ (4) $\frac{\sqrt{3}}{2}$

(SSC CHSL DEO Exam. 16.11.2014)
 (Ist Sitting)

202. If $0^\circ < \theta < 90^\circ$ and $2 \sin^2 \theta + 3 \cos \theta = 3$, then the value of θ is

- (1) 30° (2) 60°
 (3) 45° (4) 75°

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting)
 TF No. 545 QP 6)

203. The value of θ ($0 \leq \theta \leq 90^\circ$) satisfying $2 \sin^2 \theta = 3 \cos \theta$ is

- (1) 60° (2) 30°
 (3) 90° (4) 45°

(SSC CGL Tier-II Exam. 12.04.2015)
 TF No. 567 TL 9)

204. If $a(\tan \theta + \cot \theta) = 1$, $\sin \theta + \cos \theta = b$ with $0^\circ < \theta < 90^\circ$, then a relation between a and b is

- (1) $b^2 = 2(a + 1)$
 (2) $b^2 = 2(a - 1)$
 (3) $2a = b^2 - 1$
 (4) $2a = b^2 + 1$

(SSC CGL Tier-II Exam. 2014 12.04.2015
 (Kolkata Region)
 TF No. 789 TH 7)

205. If A is an acute angle and $\cot A + \operatorname{cosec} A = 3$, then the value of $\sin A$ is

- (1) 1 (2) $\frac{3}{5}$
 (3) $\frac{4}{5}$ (4) 0

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 21.06.2015
 IIInd Sitting)

206. The simplest value of $\sin^2 x + 2 \tan^2 x - 2 \sec^2 x + \cos^2 x$ is

- (1) 1 (2) 0
 (3) -1 (4) 2

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014
 TF No. 999 KPO)

207. If $x = a \sec \theta$ and $y = b \tan \theta$

$$\text{then } \frac{a^2}{x^2} - \frac{b^2}{y^2} = ?$$

- (1) 1 (2) 2
 (3) 3 (4) 4

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014
 TF No. 999 KPO)

208. The value of $\sin^2 1^\circ + \sin^2 2^\circ + \sin^2 3^\circ + \dots + \sin^2 89^\circ$ is

- (1) 22 (2) 44

$$(3) 22\frac{1}{2} \quad (4) 44\frac{1}{2}$$

(SSC CGL Tier-I Exam. 19.10.2014
 TF No. 022 MH 3)

209. The value of $\frac{\cos^3 \theta + \sin^3 \theta}{\cos \theta + \sin \theta} + \frac{\cos^3 \theta - \sin^3 \theta}{\cos \theta - \sin \theta}$ is equal to

- (1) -1 (2) 1
 (3) 2 (4) 0

(SSC CGL Tier-I Exam. 19.10.2014
 TF No. 022 MH 3)

TRIGONOMETRY

210. If $\sin 17^\circ = \frac{x}{y}$, then

$\sec 17^\circ - \sin 73^\circ$ is equal to

(1) $\frac{y}{\sqrt{y^2 - x^2}}$ (2) $\frac{y^2}{(x\sqrt{y^2 - x^2})}$

(3) $\frac{x}{(y\sqrt{y^2 - x^2})}$ (4) $\frac{x^2}{(y\sqrt{y^2 - x^2})}$

(SSC CGL Tier-I Exam. 19.10.2014
TF No. 022 MH 3)

211. If θ is a positive acute angle and $\operatorname{cosec} \theta + \cot \theta = \sqrt{3}$, then the value of $\operatorname{cosec} \theta$ is

(1) $\frac{1}{\sqrt{3}}$ (2) $\sqrt{3}$

(3) $\frac{2}{\sqrt{3}}$ (4) 1

(SSC CGL Tier-I Exam. 19.10.2014
TF No. 022 MH 3)

212. If $\cos \alpha + \sec \alpha = \sqrt{3}$, then the value of $\cos^3 \alpha + \sec^3 \alpha$ is

(1) 2 (2) 1
(3) 0 (4) 4

(SSC CGL Tier-I Exam. 19.10.2014
TF No. 022 MH 3)

213. If $\sin \theta + \cos \theta = \sqrt{2} \cos \theta$, then the value of $\cot \theta$ is

(1) $\sqrt{2} + 1$ (2) $\sqrt{2} - 1$
(3) $\sqrt{3} - 1$ (4) $\sqrt{3} + 1$

(SSC CGL Tier-I Exam. 19.10.2014
TF No. 022 MH 3)

214. If $\cos^4 \theta - \sin^4 \theta = \frac{2}{3}$, then the value of $1 - 2 \sin^2 \theta$ is

(1) $\frac{2}{3}$ (2) $\frac{3}{2}$
(3) 1 (4) 0

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, Ist Sitting TF No. 333 LO 2)

215. The value of $\frac{\cot 30^\circ - \cot 75^\circ}{\tan 15^\circ - \tan 60^\circ}$ is equal to

(1) -1 (2) 0
(3) 1 (4) 2

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, Ist Sitting TF No. 333 LO 2)

216. If $\sin \theta + \cos \theta = p$ and $\sec \theta + \operatorname{cosec} \theta = q$, then the value of $q(p^2 - 1)$ is

(1) 1 (2) p
(3) $2p$ (4) 2

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, Ist Sitting TF No. 333 LO 2)

217. If $\sin(3\alpha - \beta) = 1$ and $\cos(2\alpha + \beta) = \frac{1}{2}$, then the value of $\tan \alpha$ is

(1) 0 (2) $\frac{1}{\sqrt{3}}$
(3) 1 (4) $\sqrt{3}$

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, Ist Sitting TF No. 333 LO 2)

218. If $\sin(60^\circ - x) = \cos(y + 60^\circ)$, then the value of $\sin(x - y)$ is

(1) $\frac{1}{\sqrt{2}}$ (2) $\frac{1}{2}$
(3) $\frac{\sqrt{3}}{2}$ (4) 1

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IInd Sitting TF No. 545 QP 6)

219. If $x = a \sec \theta$, $y = b \tan \theta$, then

$$\frac{x^2}{a^2} - \frac{y^2}{b^2}$$

is (1) -1 (2) 0
(3) 1 (4) 2

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IInd Sitting TF No. 545 QP 6)

220. a , b , c are the lengths of three sides of a triangle ABC. If a , b , c are related by the relation $a^2 + b^2 + c^2 = ab + bc + ca$, then the value of $\sin^2 A + \sin^2 B + \sin^2 C$ is

(1) $\frac{3}{4}$ (2) $\frac{3\sqrt{3}}{2}$
(3) $\frac{3}{2}$ (4) $\frac{9}{4}$

(SSC CGL Tier-II Exam. 12.04.2015
TF No. 567 TL 9)

221. If $a \sin \theta + b \cos \theta = c$, then $a \cos \theta - b \sin \theta$ is equal to

(1) $\pm \sqrt{a + b - c}$
(2) $\pm \sqrt{a^2 + b^2 + c^2}$
(3) $\pm \sqrt{a^2 + b^2 - c^2}$
(4) $\pm \sqrt{c^2 + a^2 - b^2}$

(SSC CGL Tier-II Exam. 12.04.2015
TF No. 567 TL 9)

222. If $\sin \theta + \cos \theta = \sqrt{2} \sin(90^\circ - \theta)$, then the value of $\cot \theta$ is

(1) $-\sqrt{2} - 1$ (2) $\sqrt{2} - 1$
(3) $\sqrt{2} + 1$ (4) $-\sqrt{2} + 1$

(SSC CGL Tier-II Exam. 12.04.2015
TF No. 567 TL 9)

223. If θ is a positive acute angle and $3(\sec^2 \theta + \tan^2 \theta) = 5$, then the value of $\cos 2\theta$ is

(1) $\frac{1}{2}$ (2) $\frac{1}{\sqrt{2}}$
(3) $\frac{\sqrt{3}}{2}$ (4) 1

(SSC CGL Tier-II Exam. 12.04.2015
TF No. 567 TL 9)

224. If $x \cos^2 30^\circ \cdot \sin 60^\circ =$

$$\frac{\tan^2 45^\circ \cdot \sec 60^\circ}{\operatorname{cosec} 60^\circ}$$
 then the value of x is

(1) $\frac{1}{\sqrt{3}}$ (2) $\frac{1}{\sqrt{2}}$
(3) $2\frac{2}{3}$ (4) $\frac{1}{2}$

(SSC CGL Tier-II Exam. 12.04.2015
TF No. 567 TL 9)

225. If $\tan \alpha = 2$, then the value of

$$\frac{\operatorname{cosec}^2 \alpha - \sec^2 \alpha}{\operatorname{cosec}^2 \alpha + \sec^2 \alpha}$$
 is

(1) $-\frac{15}{9}$ (2) $-\frac{3}{5}$
(3) $\frac{3}{5}$ (4) $\frac{17}{5}$

(SSC CGL Tier-II Exam. 12.04.2015
TF No. 567 TL 9)

226. If $\sin(\theta + 30^\circ) = \frac{3}{\sqrt{12}}$, then the value of $\cos^2 \theta$ is

(1) $\frac{1}{4}$ (2) $\frac{\sqrt{3}}{2}$
(3) $\frac{3}{4}$ (4) $\frac{1}{2}$

(SSC CGL Tier-II Exam. 12.04.2015
TF No. 567 TL 9)

TRIGONOMETRY

- 227.** If $0 \leq \theta \leq 90^\circ$ and $4 \cos^2 \theta - 4\sqrt{3} \cos \theta + 3 = 0$ then the value of θ is
 (1) 30° (2) 45°
 (3) 90° (4) 60°
 (SSC CGL Tier-II Exam, 12.04.2015
 TF No. 567 TL 9)

- 228.** If $\sec \theta - \cos \theta = \frac{3}{2}$ where θ is a positive acute angle, then the value of $\sec \theta$ is

- (1) $-\frac{1}{2}$ (2) 1
 (3) 2 (4) 0

(SSC CGL Tier-II Exam,
 2014 12.04.2015 (Kolkata Region)
 TF No. 789 TH 7)

- 229.** If $\tan(5x - 10^\circ) = \cot(5y + 20^\circ)$, the value of $(x + y)$ is
 (1) 15° (2) 16°
 (3) 24° (4) 20°

(SSC CGL Tier-II Exam,
 2014 12.04.2015 (Kolkata Region)
 TF No. 789 TH 7)

- 230.** If $\sin \theta + \sin^2 \theta = 1$, then the value of $\cos^{12} \theta + 3 \cos^{10} \theta + 3 \cos^8 \theta + \cos^6 \theta - 1$ is
 (1) 1 (2) 2
 (3) 3 (4) 0

(SSC CGL Tier-II Exam,
 2014 12.04.2015 (Kolkata Region)
 TF No. 789 TH 7)

- 231.** The value of $\tan 11^\circ \tan 17^\circ \tan 79^\circ \tan 73^\circ$ is

- (1) $\frac{1}{2}$ (2) 0
 (3) 1 (4) $\frac{1}{\sqrt{2}}$

(SSC CGL Tier-II Exam,
 2014 12.04.2015 (Kolkata Region)
 TF No. 789 TH 7)

- 232.** If for any acute angle A, $\sin A + \sin^2 A = 1$, then the value of $\cos^2 A + \cos^4 A$ is

- (1) -1 (2) 1
 (3) 2 (4) 0

(SSC CGL Tier-II Exam,
 2014 12.04.2015 (Kolkata Region)
 TF No. 789 TH 7)

- 233.** The value of $(1 + \sec 20^\circ + \cot 70^\circ)(1 - \cosec 20^\circ + \tan 70^\circ)$ is equal to

- (1) 0 (2) 1
 (3) 2 (4) -1

(SSC CGL Tier-II Exam,
 2014 12.04.2015 (Kolkata Region)
 TF No. 789 TH 7)

- 234.** If $0^\circ < A < 90^\circ$, the value of

$$\frac{\tan A - \sec A - 1}{\tan A + \sec A + 1}$$

- (1) $\frac{\sin A - 1}{\cos A}$ (2) $\frac{1 - \sin A}{\cos A}$
 (3) $\frac{1 - \cos A}{\sin A}$ (4) $\frac{\sin A + 1}{\cos A}$

(SSC CGL Tier-II Exam,
 2014 12.04.2015 (Kolkata Region)
 TF No. 789 TH 7)

- 235.** If α is an acute angle and $2 \sin \alpha + 15 \cos^2 \alpha = 7$ then the value of $\cot \alpha$ is

- (1) $\frac{4}{3}$ (2) $\frac{4}{5}$
 (3) $\frac{5}{4}$ (4) $\frac{3}{4}$

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
 (Ist Sitting) TF No. 8037731)

- 236.** If $\sin(A - B) = \sin A \cos B - \cos A \sin B$, then $\sin 15^\circ$ will be

- (1) $\frac{\sqrt{3} + 1}{2\sqrt{2}}$ (2) $\frac{\sqrt{3}}{2\sqrt{2}}$
 (3) $\frac{\sqrt{3} - 1}{-\sqrt{2}}$ (4) $\frac{\sqrt{3} - 1}{2\sqrt{2}}$

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
 (Ist Sitting) TF No. 8037731)

- 237.** If $\sec x + \cos x = 2$, then the value of $\sec^{16} x + \cos^{16} x$ will be

- (1) $\sqrt{3}$ (2) 2
 (3) 1 (4) 0

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
 (IIInd Sitting))

- 238.** If $\sin^4 \theta + \cos^4 \theta = 2 \sin^2 \theta \cos^2 \theta$, θ is an acute angle, then the value of $\tan \theta$ is

- (1) 1 (2) 2
 (3) $\sqrt{2}$ (4) 0

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
 (IIInd Sitting))

- 239.** The maximum value of

$$\sin^4 \theta + \cos^4 \theta$$

- (1) $\frac{1}{3}$ (2) 1
 (3) 2 (4) 3

(SSC CGL Tier-I Exam, 09.08.2015
 (Ist Sitting) TF No. 1443088)

- 240.** Find the value of

$$\tan 4^\circ \tan 43^\circ \tan 47^\circ \tan 86^\circ$$

- (1) $\frac{2}{3}$ (2) 1

- (3) $\frac{1}{2}$ (4) 2

(SSC CGL Tier-I Exam, 09.08.2015
 (Ist Sitting) TF No. 1443088)

- 241.** If $x \cos \theta - \sin \theta = 1$, then $x^2 + (1+x^2) \sin \theta$ equals

- (1) 2 (2) 1
 (3) -1 (4) 0

(SSC CGL Tier-I Exam, 09.08.2015
 (Ist Sitting) TF No. 1443088)

- 242.** If $\sin \theta + \sin^2 \theta = 1$ then $\cos^2 \theta + \cos^4 \theta$ is equal to

- (1) None (2) 1

- (3) $\frac{\sin \theta}{\cos^2 \theta}$ (4) $\frac{\cos^2 \theta}{\sin \theta}$

(SSC CGL Tier-I Exam, 09.08.2015
 (Ist Sitting) TF No. 1443088)

- 243.** The numerical value of

$$\frac{\cos^2 45^\circ}{\sin^2 60^\circ} + \frac{\cos^2 60^\circ}{\sin^2 45^\circ} - \frac{\tan^2 30^\circ}{\cot^2 45^\circ} -$$

$$\frac{\sin^2 30^\circ}{\cot^2 30^\circ}$$

- (1) $1\frac{1}{4}$ (2) $\frac{3}{4}$

- (3) $\frac{1}{4}$ (4) $\frac{1}{2}$

(SSC CGL Tier-I Exam, 09.08.2015
 (Ist Sitting) TF No. 1443088)

- 244.** The value of $\tan 1^\circ \tan 2^\circ \tan 3^\circ \dots \tan 89^\circ$ is

- (1) 1 (2) -1

- (3) 0

- (4) None of the options

(SSC CGL Tier-I Exam, 09.08.2015
 (IIInd Sitting) TF No. 4239378)

- 245.** If $\frac{\cos \alpha}{\sin \beta} = n$ and $\frac{\cos \alpha}{\cos \beta} = m$, then the value of $\cos^2 \beta$ is

- (1) $\frac{m^2}{m^2 + n^2}$ (2) $\frac{1}{m^2 + n^2}$

- (3) $\frac{n^2}{m^2 + n^2}$ (4) 0

(SSC CGL Tier-I Exam, 09.08.2015
 (IIInd Sitting) TF No. 4239378)

TRIGONOMETRY

264. If $x = a \sin \theta - b \cos \theta$,
 $y = a \cos \theta + b \sin \theta$, then which
of the following is true?

(1) $\frac{x^2}{y^2} + \frac{a^2}{b^2} = 1$

(2) $x^2 + y^2 = a^2 - b^2$

(3) $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$

(4) $x^2 + y^2 = a^2 + b^2$

(SSC CGL Tier-II Exam,
25.10.2015, TF No. 1099685)

265. If $\sec \theta - \tan \theta = \frac{1}{\sqrt{3}}$, the value

of $\sec \theta \cdot \tan \theta$ is

(1) $\frac{2}{3}$ (2) $\frac{2}{\sqrt{3}}$

(3) $\frac{4}{\sqrt{3}}$ (4) $\frac{1}{\sqrt{3}}$

(SSC CGL Tier-II Exam,
25.10.2015, TF No. 1099685)

266. If $5 \cos \theta + 12 \sin \theta = 13$,
 $0^\circ < \theta < 90^\circ$, then the value of $\sin \theta$ is

(1) $\frac{5}{13}$ (2) $-\frac{12}{13}$

(3) $\frac{6}{13}$ (4) $\frac{12}{13}$

(SSC CGL Tier-II Exam,
25.10.2015, TF No. 1099685)

267. If $7\sin^2\theta + 3\cos^2\theta = 4$, then the
value of $\tan \theta$ is (θ is acute)

(1) $\frac{1}{\sqrt{3}}$ (2) $\frac{1}{\sqrt{2}}$

(3) $\sqrt{3}$ (4) 1

(SSC CGL Tier-II Exam,
25.10.2015, TF No. 1099685)

268. The value of $(\operatorname{cosec} a - \sin a)(\sec a - \cos a)(\tan a + \cot a)$ is

(1) 1 (2) 6
(3) 2 (4) 4

(SSC CGL Tier-II Exam,
25.10.2015, TF No. 1099685)

269. If $\sin A + \sin^2 A = 1$, then the value
of $\cos^2 A + \cos^4 A$ is

(1) 2 (2) $1 \frac{2}{3}$

(3) $1 \frac{1}{2}$ (4) 1

(SSC CGL Tier-II Exam,
25.10.2015, TF No. 1099685)

270. If $\tan A = n \tan B$ and $\sin A = m$
 $\sin B$, then the value of $\cos^2 A$ is

(1) $\frac{m^2 - 1}{n^2 + 1}$ (2) $\frac{m^2 + 1}{n^2 - 1}$

(3) $\frac{m^2 + 1}{n^2 + 1}$ (4) $\frac{m^2 - 1}{n^2 - 1}$

(SSC CGL Tier-II Exam,
25.10.2015, TF No. 1099685)

271. If $\sin \theta + \cos \theta = \sqrt{2} \sin (90^\circ - \theta)$
then $\cot \theta$ is equal to :

(1) $\sqrt{2}$ (2) 0
(3) $\sqrt{2} - 1$ (4) $\sqrt{2} + 1$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IIInd Sitting)

272. The value of the following is :

$$\frac{(\tan 20^\circ)^2}{(\operatorname{cosec} 70^\circ)^2} + \frac{(\cot 20^\circ)^2}{(\sec 70^\circ)^2} + 2\tan 15^\circ \cdot \tan 45^\circ \cdot \tan 75^\circ$$

(1) 1 (2) 4
(3) 3 (4) 2

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IIInd Sitting)

273. The value of the following is

$$\left(\frac{\sin 47^\circ}{\cos 43^\circ} \right)^2 + \left(\frac{\cos 43^\circ}{\sin 47^\circ} \right)^2 - 4\cos^2 45^\circ$$

(1) -1 (2) 0
(3) 1 (4) $\frac{1}{2}$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IIInd Sitting)

274. If $0^\circ < \theta < 90^\circ$ and $\operatorname{cosec} \theta = \cot^2 \theta$,
then the value of the expression
 $\operatorname{cosec}^4 \theta - 2\operatorname{cosec}^3 \theta + \cot^2 \theta$ is
equal to:

(1) 2 (2) 0
(3) 1 (4) 3

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (Ist Sitting) TF No. 6636838)

275. If $4\sin^2 \theta - 1 = 0$ and angle θ is
less than 90° , the value of $\cos^2 \theta + \tan^2 \theta$ is :

(Take $0^\circ < \theta < 90^\circ$)

(1) $\frac{17}{15}$ (2) $\frac{13}{12}$

(3) $\frac{11}{9}$ (4) $\frac{12}{11}$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (Ist Sitting) TF No. 6636838)

276. Find numerical value of

$$\frac{9}{\operatorname{cosec}^2 \theta} + 4\cos^2 \theta + \frac{5}{1 + \tan^2 \theta}.$$

(1) 5 (2) 7
(3) 9 (4) 4

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IIInd Sitting) TF No. 7203752)

277. If $\tan \theta + \sec \theta = 3$, θ being acute,
the value of $5 \sin \theta$ is :

(1) $\frac{5}{2}$ (2) $\frac{\sqrt{3}}{5}$

(3) $\frac{5}{\sqrt{3}}$ (4) 4

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IIInd Sitting) TF No. 7203752)

278. If $\cos \theta = \frac{p}{\sqrt{p^2 + q^2}}$, then the

value of $\tan \theta$ is :

(1) $\frac{q}{\sqrt{p^2 - q^2}}$ (2) $\frac{q}{p}$

(3) $\frac{p}{p^2 + q^2}$ (4) $\frac{q}{\sqrt{p^2 + q^2}}$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IIInd Sitting) TF No. 7203752)

279. If A, B, and C be the angles of a triangle, then out of the following, the incorrect relation is :

(1) $\cos\left(\frac{A+B}{2}\right) = \sin\frac{C}{2}$

(2) $\tan\left(\frac{A+B}{2}\right) = \cot\frac{C}{2}$

(3) $\cot\left(\frac{A+B}{2}\right) = \tan\frac{C}{2}$

(4) $\sin\frac{A+B}{2} = \cos\frac{C}{2}$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IIInd Sitting) TF No. 7203752)

TRIGONOMETRY

313. The value of the following is :

$$\frac{\sin \theta \operatorname{cosec} \theta \tan \theta \cot \theta}{\sin^2 \theta + \cos^2 \theta}$$

- (1) 1 (2) $\tan \theta$
 (3) 0 (4) 2

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 20.03.2016)
(IInd Sitting)

314. If $\cos \theta + \sec \theta = \sqrt{3}$, then the value of $(\cos^3 \theta + \sec^3 \theta)$ is :

- (1) 1 (2) $\frac{1}{\sqrt{2}}$
 (3) 0 (4) $\sqrt{2}$

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 20.03.2016)
(IInd Sitting)

315. If $\alpha + \theta = \frac{7\pi}{12}$ and $\tan \theta = \sqrt{3}$, then the value of $\tan \theta$ is :

- (1) $\sqrt{3}$ (2) 1
 (3) 0 (4) $\frac{1}{\sqrt{3}}$

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 20.03.2016)
(IInd Sitting)

316. $\angle Y$ is the right angle of the triangle XYZ. If $XY = 2\sqrt{6}$ cm and $XZ - YZ = 2$ cm, then the value of $(\sec X + \tan X)$ is :

- (1) $\frac{1}{\sqrt{6}}$ (2) $\frac{1}{2\sqrt{3}}$
 (3) $2\sqrt{6}$ (4) $\sqrt{6}$

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 20.03.2016)
(IInd Sitting)

317. If $\sec \theta + \tan \theta = 2$, then the value of $\sin \theta$ is :

- (1) $\frac{4}{5}$ (2) $\frac{\sqrt{3}}{5}$
 (3) $\frac{2}{5}$ (4) $\frac{3}{5}$

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 20.03.2016)
(IInd Sitting)

318. Find the value of $8 \cos 10^\circ \cos 20^\circ \cos 40^\circ$.

- (1) $\tan 80^\circ$ (2) $\cot 10^\circ$
 (3) $\tan 80^\circ$ or $\cot 10^\circ$
 (4) None of these

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 05.06.2016)
(Ist Sitting)

319. What is the value of

$$\frac{(\cot \theta + \operatorname{cosec} \theta - 1)}{(\cot \theta - \operatorname{cosec} \theta + 1)}$$

(1) $\cot \theta + \operatorname{cosec} \theta$

- (2) 1 (3) -1 (4) 0

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 05.06.2016)
(Ist Sitting)

320. A vertical pole AB is standing at the centre B of a square PQRS. If PR subtends an angle of 90° at the top, A of the pole, then the angle subtended by a side of the square at A is :

- (1) 30° (2) 45°
 (3) 60°
 (4) None of these

321. For how many integral values of

$$x, \sin \phi = \frac{(3x-2)}{4}, \text{ where } 0^\circ \leq \phi \leq 90^\circ$$

- (1) 2 (2) 3
 (3) 0 (4) 1

(SSC CPO SI & ASI, Online
Exam. 06.06.2016) (IInd Sitting)

322. Find the value of \cot

$$\frac{\pi}{32} - \tan \frac{\pi}{32} - 2 \tan \frac{\pi}{16}$$

- (1) $4 \cot \frac{\pi}{8}$ (2) 0
 (3) $2 \cot \frac{\pi}{8}$ (4) $\cot \frac{\pi}{8}$

(SSC CPO SI & ASI, Online
Exam. 06.06.2016) (IInd Sitting)

323. If $\sin \theta = a \cos \phi$ and $\cos \theta = b \sin \phi$, then the value of $(a^2 - 1) \cot^2 \phi + (1 - b^2) \cot^2 \theta$ is equal to :

- (1) $\frac{a^2 + b^2}{a^2}$ (2) $\frac{a^2 + b^2}{b^2}$
 (3) $\frac{a^2 - b^2}{b^2}$ (4) $\frac{a^2 - b^2}{a^2}$

(SSC CPO SI & ASI, Online
Exam. 06.06.2016) (IInd Sitting)

324. If $\sec^2 \theta + \tan^2 \theta = \sqrt{3}$, then the value of $(\sec^4 \theta - \tan^4 \theta)$ is

- (1) $\frac{1}{\sqrt{3}}$ (2) 1
 (3) $\sqrt{3}$ (4) 0

(SSC CGL Tier-I (CBE)
Exam. 27.08.2016) (Ist Sitting)

325. If $\pi \sin \theta = 1, \pi \cos \theta = 1$, then the

value of $\left\{ \sqrt{3} \tan \left(\frac{2}{3} \theta \right) + 1 \right\}$ is

- (1) 1 (2) $\sqrt{3}$

- (3) 2 (4) $\frac{1}{\sqrt{3}}$

(SSC CGL Tier-I (CBE)
Exam. 27.08.2016) (Ist Sitting)

326. Find the value of

$$\frac{1}{1 + \tan^2 \theta} + \frac{1}{1 + \cot^2 \theta}.$$

- (1) $\frac{1}{4}$ (2) 1
 (3) $\frac{1}{2}$ (4) 2

(SSC CGL Tier-I (CBE)
Exam. 27.08.2016) (IInd Sitting)

327. If $\tan \theta + \frac{1}{\tan \theta} = 2$, then the

value of $\tan^2 \theta + \frac{1}{\tan^2 \theta}$ is equal to :

- (1) 6 (2) 4
 (3) 2 (4) 3

(SSC CGL Tier-I (CBE)
Exam. 27.08.2016) (IInd Sitting)

328. If in a triangle ABC, $\sin A = \cos B$, then the value of $\cos C$ is

- (1) $\frac{\sqrt{3}}{2}$ (2) 0
 (3) 1 (4) $\frac{1}{\sqrt{2}}$

(SSC CGL Tier-I (CBE)
Exam. 28.08.2016) (IInd Sitting)

329. If $\sin \theta \times \cos \theta = \frac{1}{2}$. The value of $\sin \theta - \cos \theta$ is where $0^\circ < \theta < 90^\circ$

- (1) 0 (2) $\sqrt{2}$
 (3) 2 (4) 1

(SSC CGL Tier-I (CBE)
Exam. 28.08.2016) (IInd Sitting)

330. If $\frac{\cos \theta}{1 - \sin \theta} + \frac{\cos \theta}{1 + \sin \theta} = 4$, then the value of $\theta (0^\circ < \theta < 90^\circ)$ is

- (1) 60° (2) 45°
 (3) 30° (4) 35°

(SSC CGL Tier-I (CBE)
Exam. 29.08.2016) (IInd Sitting)

331. If $x^2 = \sin^2 30^\circ + 4 \cot^2 45^\circ - \sec^2 60^\circ$, then the value of $x (x > 0)$ is

- (1) $-\frac{1}{2}$ (2) 1
 (3) 0 (4) $\frac{1}{2}$

(SSC CGL Tier-I (CBE)
Exam. 30.08.2016) (Ist Sitting)

TRIGONOMETRY

- 332.** If $7\sin^2\theta + 3\cos^2\theta = 4$ then the value of $\sec\theta + \operatorname{cosec}\theta$ is

- (1) $\frac{2}{\sqrt{3}} - 2$ (2) $\frac{2}{\sqrt{3}} + 2$
 (3) $\frac{2}{\sqrt{3}}$ (4) None of these

(SSC CGL Tier-I (CBE)
Exam. 30.08.2016) (Ist Sitting)

- 333.** If $\tan\theta + \cot\theta = 5$, then the value of $\tan^2\theta + \cot^2\theta$ is

- (1) 22 (2) 25
 (3) 23 (4) 27

(SSC CGL Tier-I (CBE)
Exam. 31.08.2016) (Ist Sitting)

- 334.** If θ be positive acute angle and $5\cos\theta + 12\sin\theta = 13$, then the value of $\cos\theta$ is

- (1) $\frac{12}{13}$ (2) $\frac{5}{13}$
 (3) $\frac{5}{12}$ (4) $\frac{1}{5}$

(SSC CGL Tier-I (CBE)
Exam. 31.08.2016) (Ist Sitting)

- 335.** If $\tan 45^\circ = \cot\theta$, then the value of θ , in radians is

- (1) π (2) $\frac{\pi}{9}$
 (3) $\frac{\pi}{2}$ (4) $\frac{\pi}{12}$

(SSC CGL Tier-I (CBE)
Exam. 01.09.2016) (Ist Sitting)

- 336.** ABC is a triangle. If

$$\sin\left(\frac{A+B}{2}\right) = \frac{\sqrt{3}}{2}, \text{ then the val-}$$

ue of $\sin\frac{C}{2}$ is

- (1) $\frac{1}{\sqrt{2}}$ (2) 0
 (3) $\frac{1}{2}$ (4) $\frac{\sqrt{3}}{2}$

(SSC CGL Tier-I (CBE)
Exam. 01.09.2016) (Ist Sitting)

- 337.** If $\cos^4\theta - \sin^4\theta = \frac{1}{3}$, then the value of $\tan^2\theta$ is

- (1) $\frac{1}{2}$ (2) $\frac{1}{3}$
 (3) $\frac{1}{4}$ (4) $\frac{1}{5}$

(SSC CGL Tier-I (CBE)
Exam. 02.09.2016) (Ist Sitting)

- 338.** The value of $\tan 80^\circ \tan 10^\circ + \sin^2 70^\circ + \sin^2 20^\circ$ is

- (1) 0 (2) 1
 (3) 2 (4) $\frac{\sqrt{3}}{2}$

(SSC CGL Tier-I (CBE)
Exam. 02.09.2016) (Ist Sitting)

- 339.** Find the value of

$$\left(\frac{\sin 27^\circ}{\cos 63^\circ}\right)^2 + \left(\frac{\cos 63^\circ}{\sin 27^\circ}\right)^2.$$

- (1) 0 (2) 2
 (3) 3 (4) 1

(SSC CGL Tier-I (CBE)
Exam. 02.09.2016) (IIInd Sitting)

- 340.** If $\sqrt{2} \tan 2\theta = \sqrt{6}$ and $0^\circ < \theta < 45^\circ$, then the value of $\sin\theta + \sqrt{3}\cos\theta - 2\tan^2\theta$ is

- (1) $\frac{2}{3}$ (2) $\frac{4}{3}$
 (3) 2 (4) $\frac{8}{3}$

(SSC CGL Tier-I (CBE)
Exam. 03.09.2016) (IIInd Sitting)

- 341.** If $\tan \alpha = 2$, then the value of

$$\frac{\sin \alpha}{\sin^3 \alpha + \cos^3 \alpha} \text{ is}$$

- (1) $\frac{2}{9}$ (2) $\frac{\sqrt{5}}{9}$

- (3) $\frac{10}{9}$ (4) $\frac{5\sqrt{5}}{9}$

(SSC CGL Tier-I (CBE)
Exam. 03.09.2016) (IIInd Sitting)

- 342.** If $\sin\theta + \cos\theta = 1$, then $\sin\theta \cdot \cos\theta$ is equal to

- (1) 0 (2) 1
 (3) $\frac{1}{2}$ (4) $-\frac{1}{2}$

(SSC CGL Tier-I (CBE)
Exam. 04.09.2016) (Ist Sitting)

- 343.** If $\frac{\sin\theta + \cos\theta}{\sin\theta - \cos\theta} = 3$ then the val-

ue of $\sin^4\theta - \cos^4\theta$ is

- (1) $\frac{4}{3}$ (2) $\frac{3}{4}$
 (3) $\frac{5}{3}$ (4) $\frac{3}{5}$

(SSC CGL Tier-I (CBE)
Exam. 04.09.2016) (Ist Sitting)

- 344.** If $\sin C - \sin D = x$, then the value of x is

$$(1) 2\sin\left[\frac{(C+D)}{2}\right] \cos\left[\frac{(C-D)}{2}\right]$$

- (2) $2\cos\left[\frac{(C+D)}{2}\right] \cos\left[\frac{(C-D)}{2}\right]$

- (3) $2\cos\left[\frac{(C+D)}{2}\right] \sin\left[\frac{(C-D)}{2}\right]$

- (4) $2\sin\left[\frac{(C+D)}{2}\right] \sin\left[\frac{(D-C)}{2}\right]$

(SSC CHSL (10+2) Tier-I (CBE)
Exam. 16.01.2017) (IIInd Sitting)

- 345.** If $\sin A + \sin^2 A = 1$, then what is the value of $\cos^2 A + \cos^4 A$?

- (1) 1 (2) 2
 (3) $\frac{1}{2}$ (4) $\frac{1}{4}$

(SSC CGL Tier-I (CBE)
Exam. 06.09.2016) (Ist Sitting)

- 346.** Which one of the following is true for $0^\circ < \theta < 90^\circ$

- (1) $\cos\theta > \cos^2\theta$ (2) $\cos\theta < \cos^2\theta$
 (3) $\cos\theta \geq \cos^2\theta$ (4) $\cos\theta \leq \cos^2\theta$

(SSC CGL Tier-I (CBE)
Exam. 06.09.2016) (Ist Sitting)

- 347.** If $5\sin^2\theta + 4\cos^2\theta = \frac{9}{2}$ and $0^\circ < \theta < 90^\circ$ then $\tan\theta$ is equal to

- (1) 1 (2) 0
 (3) -1 (4) $\frac{1}{4}$

(SSC CGL Tier-I (CBE)
Exam. 06.09.2016) (Ist Sitting)

- 348.** The value of $\sec 2^\circ 17^\circ - \frac{1}{\tan^2 73^\circ} - \sin 17^\circ \sec 73^\circ$ is

- (1) 1 (2) 0
 (3) -1 (4) 2

(SSC CGL Tier-I (CBE)
Exam. 07.09.2016) (Ist Sitting)

- 349.** If $x = a \cos \theta \cos \theta$, $y = a \cos \theta \sin \theta$ and $z = a \sin \theta$, then the value of $(x^2 + y^2 + z^2)$ is

- (1) $2a^2$ (2) $4a^2$
 (3) $9a^2$ (4) a^2

(SSC CGL Tier-I (CBE)
Exam. 07.09.2016) (Ist Sitting)

- 350.** If $\sec 150^\circ = \operatorname{cosec} 150^\circ$ ($0^\circ < \theta < 10^\circ$) then value of θ is

- (1) 9° (2) 5°
 (3) 8° (4) 3°

(SSC CGL Tier-I (CBE)
Exam. 30.08.2016) (IIInd Sitting)

- 351.** If $\tan \theta = \tan 30^\circ \cdot \tan 60^\circ$ and θ is an acute angle, then 2θ is equal to

- (1) 30° (2) 45°
 (3) 90° (4) 0°

(SSC CGL Tier-I (CBE)
Exam. 30.08.2016) (IIInd Sitting)

TRIGONOMETRY

352. The value of $(1 + \tan^2\theta)(1 - \sin^2\theta)$ is

- (1) 2 (2) 1
 (3) -1 (4) -2
 (SSC CGL Tier-I (CBE)
 Exam. 31.08.2016) (IInd Sitting)

353. If $r \sin\theta = 1$, $r \cos\theta = \sqrt{3}$ then the value of $(r^2 \tan\theta)$ is

- (1) 4 (2) $\frac{1}{\sqrt{3}}$
 (3) $\frac{4}{\sqrt{3}}$ (4) $4\sqrt{3}$
 (SSC CGL Tier-I (CBE)
 Exam. 31.08.2016) (IInd Sitting)

354. If $\sin\theta = \frac{\sqrt{3}}{2}$ and $0^\circ < \theta < 90^\circ$, then the value of $\tan(\theta - 15^\circ)$ is

- (1) 1 (2) $\sqrt{3}$
 (3) $\frac{1}{\sqrt{3}}$ (4) $\sqrt{2}$
 (SSC CGL Tier-I (CBE)
 Exam. 01.09.2016) (IInd Sitting)

355. If $\frac{\operatorname{cosec}\theta + \sin\theta}{\operatorname{cosec}\theta - \sin\theta} = \frac{5}{3}$ then the value of $\sin\theta$ is equal to

- (1) $\frac{1}{2}$ (2) $\frac{1}{\sqrt{2}}$
 (3) $\frac{\sqrt{3}}{2}$ (4) 1
 (SSC CGL Tier-I (CBE)
 Exam. 01.09.2016) (IInd Sitting)

356. If $y = 2\sec\theta$ and $x = 3\tan\theta$ then

- $\frac{x^2}{9} - \frac{y^2}{4}$ is
- (1) 0 (2) -1
 (3) 2 (4) 1
 (SSC CGL Tier-I (CBE)
 Exam. 02.09.2016) (IInd Sitting)

357. If $r \sin\theta = \sqrt{3}$ and $r \cos\theta = 1$, then values of r and θ are : ($0^\circ \leq \theta \leq 90^\circ$)

- (1) $r = 1$, $\theta = 30^\circ$
 (2) $r = \frac{1}{2}$, $\theta = 30^\circ$
 (3) $r = \sqrt{3}$, $\theta = 30^\circ$
 (4) $r = 2$, $\theta = 60^\circ$
 (SSC CGL Tier-I (CBE)
 Exam. 02.09.2016) (IInd Sitting)

358. If $x \tan 60^\circ + \cos 45^\circ = \sec 45^\circ$ then the value of $(x^2 + 1)$ is

- (1) $\frac{6}{7}$ (2) $\frac{7}{6}$
 (3) $\frac{5}{6}$ (4) $\frac{6}{5}$
 (SSC CGL Tier-II (CBE)
 Exam. 30.11.2016)

359. x, y be two acute angles, $x + y < 90^\circ$ and $\sin(2x - 20^\circ) = \cos(2y + 20^\circ)$, the value of $\tan(x + y)$ is

- (1) $\sqrt{3}$ (2) $\frac{1}{\sqrt{3}}$
 (3) 1 (4) $2 + \sqrt{2}$
 (SSC CGL Tier-II (CBE)
 Exam. 30.11.2016)

360. If $a^2 \sec^2 x - b^2 \tan^2 x = c^2$ then the value of $(\sec^2 x + \tan^2 x)$ is equal to (assume $b^2 \neq a^2$)

- (1) $\frac{b^2 - a^2 + 2c^2}{b^2 + a^2}$
 (2) $\frac{b^2 + a^2 - 2c^2}{b^2 - a^2}$
 (3) $\frac{b^2 - a^2 - 2c^2}{b^2 + a^2}$
 (4) $\frac{b^2 - a^2}{b^2 + a^2 + 2c^2}$

(SSC CGL Tier-II (CBE)
 Exam. 30.11.2016)

361. $(1 + \sec 20^\circ + \cot 70^\circ)(1 - \operatorname{cosec} 20^\circ + \tan 70^\circ)$ is equal to

- (1) 0 (2) 1
 (3) 2 (4) 3
 (SSC CGL Tier-II (CBE)
 Exam. 30.11.2016)

362. If $\tan^4\theta + \tan^2\theta = 1$ then the value of $\cos^4\theta + \cos^2\theta$ is

- (1) 2 (2) 0
 (3) 1 (4) -1
 (SSC CGL Tier-II (CBE)
 Exam. 30.11.2016)

363. The value of $8(\sin^6\theta + \cos^6\theta) - 12(\sin^4\theta + \cos^4\theta)$ is equal to

- (1) 20 (2) -20
 (3) -4 (4) 4
 (SSC CGL Tier-II (CBE)
 Exam. 30.11.2016)

364. If $\tan 3\theta \cdot \tan 7\theta = 1$, then the value of $\tan(\theta + 36^\circ)$ is :

- (1) $\frac{1}{\sqrt{3}}$ (2) 0
 (3) 1 (4) $\sqrt{3}$
 (SSC CGL Tier-I (CBE)
 Exam. 28.08.2016 (Ist Sitting)

365. The value of

- $\frac{\sin\theta}{1 + \cos\theta} + \frac{\sin\theta}{1 - \cos\theta}$ is :
- (1) $2\sin\theta$ (2) $2\cos\theta$
 (3) $2\sec\theta$ (4) $2\operatorname{cosec}\theta$
 (SSC CGL Tier-I (CBE)
 Exam. 29.08.2016 (Ist Sitting)

366. If $\tan\theta = \frac{8}{15}$, the value of

- $\frac{\sqrt{1 - \sin\theta}}{\sqrt{1 + \sin\theta}}$ is :

- (1) $\frac{1}{5}$ (2) $\frac{2}{5}$
 (3) $\frac{3}{5}$ (4) 0

(SSC CGL Tier-I (CBE)
 Exam. 29.08.2016 (Ist Sitting)

367. The value of

- $\left(\frac{\sin\theta + \sin\phi}{\cos\theta + \cos\phi} + \frac{\cos\theta - \cos\phi}{\sin\theta - \sin\phi} \right)$ is :

- (1) 1 (2) 2
 (3) $\frac{1}{2}$ (4) 0

(SSC CGL Tier-I (CBE)
 Exam. 30.08.2016 (IIIrd Sitting)

368. If $\cot\theta = 4$, then the value of

- $\frac{5\sin\theta + 3\cos\theta}{5\sin\theta - 3\cos\theta}$ is

- (1) $\frac{1}{9}$ (2) $\frac{1}{3}$
 (3) 3 (4) 9

(SSC CGL Tier-I (CBE)
 Exam. 30.08.2016 (IIIrd Sitting)

369. The value of $\cos^2 20^\circ + \cos^2 70^\circ$ is :

- (1) $\sqrt{2}$ (2) 2
 (3) $\frac{1}{\sqrt{2}}$ (4) 1

(SSC CGL Tier-I (CBE)
 Exam. 31.08.2016 (IIIrd Sitting)

370. If $\cos A + \cos^2 A = 1$, then the value of $(\sin^2 A + \sin^4 A)$ is :

- (1) $\frac{1}{2}$ (2) $\frac{1}{4}$
 (3) $\frac{1}{3}$ (4) 1

(SSC CGL Tier-I (CBE)
 Exam. 31.08.2016 (IIIrd Sitting)

371. If $\sin\theta + \operatorname{cosec}\theta = 2$, then the value of $(\sin^{-7}\theta + \operatorname{cosec}^{-7}\theta)$ is

- (1) 2^7 (2) 2^{-7}
 (3) 2 (4) 2^{-1}

(SSC CGL Tier-I (CBE)
 Exam. 01.09.2016 (IIIrd Sitting)

372. If $2y \cos\theta = x \sin\theta$ and $2x \sec\theta - y \operatorname{cosec}\theta = 3$ then what is the value of $(x^2 + 4y^2)$?

- (1) 4 (2) 1
 (3) 2 (4) 5

(SSC CGL Tier-I (CBE)
 Exam. 01.09.2016 (IIIrd Sitting)

TRIGONOMETRY

373. If $\sin^2\theta - \cos^2\theta = \frac{1}{4}$, then the value of $(\sin^4\theta - \cos^4\theta)$ is :

- (1) $\frac{3}{4}$ (2) $\frac{1}{4}$
 (3) $\frac{1}{16}$ (4) $\frac{1}{2}$

(SSC CGL Tier-I (CBE))

Exam. 02.09.2016 (IIInd Sitting)

374. The value of

$$\frac{\sin^2 63^\circ + \sin^2 27^\circ}{\cos^2 17^\circ + \cos^2 73^\circ} \text{ is :}$$

- (1) 0 (2) 1
 (3) 2 (4) -1

(SSC CGL Tier-I (CBE))

Exam. 02.09.2016 (IIInd Sitting)

375. The value of $\cos^2 20^\circ + \cos^2 70^\circ$ is :

- (1) 0 (2) 1
 (3) $\frac{1}{2}$ (4) $\frac{1}{\sqrt{3}}$

(SSC CGL Tier-I (CBE))

Exam. 03.09.2016 (IIInd Sitting)

376. If $a \cdot \sin 45^\circ \cdot \cos 45^\circ \cdot \tan 60^\circ = \tan^2 45^\circ - \cos 60^\circ$, then find the value of a .

- (1) $\frac{1}{\sqrt{3}}$ (2) $\sqrt{3}$
 (3) 1 (4) $\frac{\sqrt{3}}{2}$

(SSC CGL Tier-I (CBE))

Exam. 03.09.2016 (IIInd Sitting)

377. If $3 \sin\theta + 4 \cos\theta = 5$, ($0 < \theta < 90^\circ$) then the value of $\sin\theta$ is :

- (1) $\frac{1}{5}$ (2) $\frac{2}{5}$
 (3) $\frac{3}{5}$ (4) $\frac{4}{5}$

(SSC CGL Tier-I (CBE))

Exam. 03.09.2016 (IIInd Sitting)

378. If $\sin x - \cos x = 1$, where ' x ' is an acute angle, the value of $(\sin x + \cos x)$ is :

- (1) 0 (2) 1
 (3) $\frac{1}{2}$ (4) 2

(SSC CGL Tier-I (CBE))

Exam. 04.09.2016 (IIInd Sitting)

379. If $\sin(3x - 20^\circ) = \cos(3y + 20^\circ)$, then find the value of $(x + y)$.

- (1) 90° (2) 60°
 (3) 120° (4) 30°

(SSC CGL Tier-I (CBE))

Exam. 04.09.2016 (IIInd Sitting)

380. If $\frac{\cos\alpha}{\cos\beta} = m$ and $\frac{\cos\alpha}{\sin\beta} = n$, then the value of $(m^2 + n^2) \cos^2\beta$ is :

- (1) n^2 (2) m^2
 (3) mn (4) 1

(SSC CGL Tier-I (CBE))

Exam. 04.09.2016 (IIInd Sitting)

381. The value of $\tan 315^\circ \cot(-405^\circ)$ is equal to

- (1) -1 (2) 1
 (3) 0 (4) 2

(SSC CGL Tier-I (CBE))

Exam. 06.09.2016 (IIInd Sitting)

382. If $\tan(\alpha - \beta) = 1$, $\sec(\alpha + \beta) = \frac{2}{\sqrt{3}}$ and α, β are positive, then the smallest value of α is :

- (1) $142\frac{1}{2}^\circ$ (2) $187\frac{1}{2}^\circ$
 (3) $7\frac{1}{2}^\circ$ (4) $37\frac{1}{2}^\circ$

(SSC CGL Tier-I (CBE))

Exam. 06.09.2016 (IIInd Sitting)

383. If $\tan\theta + \cot\theta = 2$, then the value of $(\tan^n\theta + \cot^n\theta)$ is :

- (1) 2^n (2) $2^{\frac{n}{2}}$
 (3) $2^{\frac{1}{2}}$ (4) 2

(SSC CGL Tier-I (CBE))

Exam. 06.09.2016 (IIInd Sitting)

384. If $\cos x = \sin y$ and $\cot(x - 40^\circ) = \tan(50^\circ - y)$, then the values of x and y are :

- (1) $x = 70^\circ$, $y = 20^\circ$
 (2) $x = 75^\circ$, $y = 15^\circ$
 (3) $x = 85^\circ$, $y = 5^\circ$
 (4) $x = 80^\circ$, $y = 10^\circ$

(SSC CGL Tier-I (CBE))

Exam. 06.09.2016 (IIInd Sitting)

385. The value of $\operatorname{cosec}^2 60^\circ + \sec^2 60^\circ - \cot^2 60^\circ + \tan^2 30^\circ$ will be

- (1) 5 (2) $5\frac{1}{2}$
 (3) $5\frac{1}{3}$ (4) $5\frac{2}{3}$

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (IIInd Sitting)

386. If $\sin\theta + \operatorname{cosec}\theta = 2$, the value of $\sin^n\theta + \operatorname{cosec}^n\theta$ is :

- (1) 2^n (2) $2^{\frac{n}{2}}$
 (3) 2 (4) 0

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (IIInd Sitting)

387. If $\sin A + \sin^2 A = 1$ then what is the value of $\cos^2 A + \cos^4 A$?

- (1) $\frac{1}{2}$ (2) 1
 (3) 2 (4) 3

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (IIInd Sitting)

388. ABC is a right angled triangle with $\angle A = 90^\circ$. Then the value of $\cos^2 A + \cos^2 B + \cos^2 C$ is :

- (1) 2 (2) 1
 (3) 0 (4) 3

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (IIInd Sitting)

389. If $r \sin\theta = \frac{7}{2}$ and $r \cos\theta = \frac{7\sqrt{3}}{2}$ then the value of θ is :

- (1) 30° (2) 45°
 (3) 60° (4) 75°

(SSC CGL Tier-I (CBE))

Exam. 08.09.2016 (IIInd Sitting)

390. If $\tan\theta = 1$, then the value of

$$\frac{8 \sin\theta + 5 \cos\theta}{\sin^2\theta - 2 \cos^2\theta + 7 \cos\theta} \text{ is :}$$

- (1) 1 (2) 3
 (3) 2 (4) $\frac{1}{2}$

(SSC CGL Tier-I (CBE))

Exam. 08.09.2016 (IIInd Sitting)

391. If θ is positive acute angle and $4 \sin^2\theta = 3$, then the value of $\left(\tan\theta - \cot\frac{\theta}{2}\right)$ is :

- (1) 1 (2) 0
 (3) $\sqrt{3}$ (4) $\frac{1}{\sqrt{3}}$

(SSC CGL Tier-I (CBE))

Exam. 08.09.2016 (IIInd Sitting)

392. If $\theta > 0$, be an acute angle, then the value of θ in degrees stisfy-

$$\text{ing } \frac{\cos^2\theta - 3 \cos\theta + 2}{\sin^2\theta} = 1 \text{ is}$$

- (1) 90° (2) 30°
 (3) 45° (4) 60°

(SSC CGL Tier-I (CBE))

Exam. 09.09.2016 (IIInd Sitting)

393. The value of $\cot 17^\circ$

$$\left(\cot 73^\circ \cos^2 22^\circ + \frac{1}{\cot 17^\circ \sec^2 68^\circ} \right) \text{ is}$$

- (1) 0 (2) 1
 (3) 2 (4) $\sqrt{3}$

(SSC CGL Tier-I (CBE))

Exam. 09.09.2016 (IIInd Sitting)

TRIGONOMETRY

394. θ is a positive acute angle and $\sin\theta - \cos\theta = 0$, then the value of $(\sec\theta + \operatorname{cosec}\theta)$ is :

- (1) 2 (2) $\sqrt{2}$
 (3) $2\sqrt{2}$ (4) $3\sqrt{2}$
 (SSC CGL Tier-I (CBE)
 Exam. 09.09.2016 (IIIrd Sitting)

395. The value of $\frac{2 \tan 53^\circ}{\cot 37^\circ} - \frac{\cot 80^\circ}{\tan 10^\circ}$ is :

- (1) 3 (2) 2
 (3) 1 (4) 0
 (SSC CGL Tier-I (CBE)
 Exam. 09.09.2016 (IIIrd Sitting)

396. The least value of $\tan^2 x + \cot^2 x$ is :

- (1) 3 (2) 2
 (3) 0 (4) 1
 (SSC CGL Tier-I (CBE)
 Exam. 10.09.2016 (IIInd Sitting)

397. If $\cos 21^\circ = \frac{x}{y}$, then $(\operatorname{cosec} 21^\circ - \cos 69^\circ)$ is equal to

- (1) $\frac{x^2}{y\sqrt{y^2 - x^2}}$ (2) $\frac{y^2}{x\sqrt{y^2 - x^2}}$
 (3) $\frac{y^2}{x\sqrt{x^2 - y^2}}$ (4) $\frac{x^2}{y\sqrt{x^2 - y^2}}$
 (SSC CGL Tier-I (CBE)
 Exam. 10.09.2016 (IIInd Sitting)

298. If $\alpha + \beta = 90^\circ$ and $\alpha : \beta = 2 : 1$, then the ratio of $\cos\alpha$ to $\cos\beta$ is :

- (1) $1 : \sqrt{3}$ (2) $1 : 3$
 (3) $1 : \sqrt{2}$ (4) $1 : 2$
 (SSC CGL Tier-I (CBE)
 Exam. 10.09.2016 (IIIrd Sitting)

399. If θ is positive acute angle and $7 \cos^2\theta + 3 \sin^2\theta = 4$, then the value of θ is :

- (1) 60° (2) 30°
 (3) 45° (4) 90°
 (SSC CGL Tier-I (CBE)
 Exam. 10.09.2016 (IIIrd Sitting)

400. If $\tan\theta = \frac{4}{3}$, then the value of

$$\frac{3 \sin\theta + 2 \cos\theta}{3 \sin\theta - 2 \cos\theta}$$

- (1) $\frac{1}{2}$ (2) $\frac{1}{2}$
 (3) 3 (4) -3
 (SSC CGL Tier-I (CBE)
 Exam. 11.09.2016 (IIInd Sitting)

401. If $\sec(4x - 50^\circ) = \operatorname{cosec}(50^\circ - x)$, then the value of x is

- (1) 45° (2) 90°
 (3) 30° (4) 60°
 (SSC CGL Tier-I (CBE)
 Exam. 11.09.2016 (IIInd Sitting)

402. The value of $(\cos 53^\circ - \sin 37^\circ)$ is

- (1) 0 (2) 1
 (3) $2 \sin 37^\circ$ (4) $2 \cos 53^\circ$
 (SSC CGL Tier-I (CBE)
 Exam. 11.09.2016 (IIIrd Sitting)

403. If $\operatorname{cosec}\theta + \sin\theta = \frac{5}{2}$, then the value of $(\operatorname{cosec}\theta - \sin\theta)$ is :

- (1) $-\frac{3}{2}$ (2) $\frac{3}{2}$
 (3) $-\frac{\sqrt{3}}{2}$ (4) $\frac{\sqrt{3}}{2}$
 (SSC CGL Tier-I (CBE)
 Exam. 11.09.2016 (IIIrd Sitting)

404. If $\sin(2a + 45^\circ) = \cos(30^\circ - a)$, where $0^\circ < a < 90^\circ$, then the value of a is :

- (1) 0° (2) 15°
 (3) 45° (4) 60°
 (SSC CGL Tier-I (CBE)
 Exam. 27.10.2016 (Ist Sitting)

405. The value of $\cot 10^\circ \cdot \cot 20^\circ \cdot \cot 60^\circ \cdot \cot 70^\circ \cdot \cot 80^\circ$ is :

- (1) 1 (2) -1
 (3) $\sqrt{3}$ (4) $\frac{1}{\sqrt{3}}$
 (SSC CGL Tier-I (CBE)
 Exam. 27.10.2016 (Ist Sitting)

406. If $7\sin^2\theta + 3\cos^2\theta = 4$, and $0^\circ < \theta < 90^\circ$, then the value of $\tan\theta$ is :

- (1) $\frac{1}{\sqrt{2}}$ (2) $\frac{1}{\sqrt{3}}$
 (3) $\sqrt{\frac{3}{2}}$ (4) 1
 (SSC CGL Tier-I (CBE)
 Exam. 27.10.2016 (Ist Sitting)

407. $\frac{(1 + \tan^2 A) \cot A}{\operatorname{cosec}^2 A}$ is equal to

- (1) $\cot A$ (2) $\tan A$
 (3) $\sin A$ (4) $\cos A$
 (SSC CHSL (10+2) Tier-I (CBE)
 Exam. 15.01.2017 (IIInd Sitting)

408. If $\tan(A - B) = x$, then the value of x is

- (1) $\frac{(\tan A + \tan B)}{(1 - \tan A \tan B)}$
 (2) $\frac{(\tan A + \tan B)}{(1 + \tan A \tan B)}$
 (3) $\frac{(\tan A - \tan B)}{(1 - \tan A \tan B)}$

(4) $\frac{(\tan A - \tan B)}{(1 + \tan A \tan B)}$
 (SSC CHSL (10+2) Tier-I (CBE)
 Exam. 15.01.2017 (IIInd Sitting)

409. What is the value of $\sec 330^\circ$?

- (1) 2 (2) $\frac{-2}{\sqrt{3}}$
 (3) -2 (4) $\frac{2}{\sqrt{3}}$
 (SSC CHSL (10+2) Tier-I (CBE)
 Exam. 15.01.2017 (IIInd Sitting)

410. If $\frac{1}{(\tan A + \cot A)} = x$, then the value of x is

- (1) $\cos A \sin A$ (2) $\cos^2 A \sin^2 A$
 (3) $\operatorname{cosec} A \operatorname{sec} A$ (4) $\operatorname{cosec}^2 A \operatorname{sec}^2 A$
 (SSC CHSL (10+2) Tier-I (CBE)
 Exam. 16.01.2017 (IIInd Sitting)

411. What is the value of $\sin\left(\frac{11\pi}{6}\right)$?

- (1) $\frac{2}{\sqrt{3}}$ (2) $\frac{-2}{\sqrt{3}}$
 (3) $-\frac{1}{2}$ (4) $\frac{1}{2}$
 (SSC CHSL (10+2) Tier-I (CBE)
 Exam. 16.01.2017 (IIInd Sitting)

412. If $\sec A + \tan A = a$, then the value of $\cos A$ is

- (1) $\frac{a^2 + 1}{2a}$ (2) $\frac{2a}{a^2 + 1}$
 (3) $\frac{a^2 - 1}{2a}$ (4) $\frac{2a}{a^2 - 1}$
 (SSC CGL Tier-II (CBE)
 Exam. 12.01.2017)

413. If $\sin P + \operatorname{cosec} P = 2$, then the value of $\sin^7 P + \operatorname{cosec}^7 P$ is

- (1) 1 (2) 2
 (3) 3 (4) 0
 (SSC CGL Tier-II (CBE)
 Exam. 12.01.2017)

414. If $\cos x \cdot \cos y + \sin x \cdot \sin y = -1$, then $\cos x + \cos y$ is

- (1) -2 (2) 1
 (3) 0 (4) 2
 (SSC CGL Tier-II (CBE)
 Exam. 12.01.2017)

415. The value of the expression

- $2(\sin^6\theta + \cos^6\theta) - 3(\sin^4\theta + \cos^4\theta) + 1$ is
- (1) -1 (2) 0
 (3) 1 (4) 2
 (SSC CGL Tier-II (CBE)
 Exam. 12.01.2017)

TRIGONOMETRY

- 416.** If $\cos\theta = \frac{x^2 - y^2}{x^2 + y^2}$ then the value of $\cot\theta$ is equal to [If $0 \leq \theta \leq 90^\circ$]

- (1) $\frac{2xy}{x^2 - y^2}$ (2) $\frac{2xy}{x^2 + y^2}$
 (3) $\frac{x^2 + y^2}{2xy}$ (4) $\frac{x^2 - y^2}{2xy}$

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

- 417.** If $x = \operatorname{cosec}\theta - \sin\theta$ and $y = \sec\theta - \cos\theta$, then the relation between x and y is

- (1) $x^2 + y^2 + 3 = 1$
 (2) $x^2 y^2 (x^2 + y^2 + 3) = 1$
 (3) $x^2 (x^2 + y^2 - 5) = 1$
 (4) $y^2 (x^2 + y^2 - 5) = 1$

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

TYPE-III

- 1.** If the angle of elevation of the Sun changes from 30° to 45° , the length of the shadow of a pillar decreases by 20 metres. The height of the pillar is

- (1) $20(\sqrt{3} - 1)$ m
 (2) $20(\sqrt{3} + 1)$ m
 (3) $10(\sqrt{3} - 1)$ m
 (4) $10(\sqrt{3} + 1)$ m

(SSC CPO (SI, ASI & Intelligence Officer) Exam. 28.08.2011 (Paper-I))

- 2.** One flies a kite with a thread 150 metre long. If the thread of the kite makes an angle of 60° with the horizontal line, then the height of the kite from the ground (assuming the thread to be in a straight line) is

- (1) 50 metre (2) $75\sqrt{3}$ metre
 (3) $25\sqrt{3}$ metre (4) 80 metre

FCI Assistant Grade-III
Exam. 25.02.2012 (Paper-I)
North Zone (Ist Sitting)

- 3.** The angle of elevation of the top of a tower from two points A and B lying on the horizontal through the foot of the tower are respectively 15° and 30° . If A and B are on the same side of the tower and $AB = 48$ metre, then the height of the tower is :

- (1) $24\sqrt{3}$ metre (2) 24 metre
 (3) $24\sqrt{2}$ metre (4) 96 metre

FCI Assistant Grade-III
Exam. 05.02.2012 (Paper-I)
East Zone (IIInd Sitting)

- 4.** At a point on a horizontal line through the base of a monument, the angle of elevation of the top of the monument is found to be

such that its tangent is $\frac{1}{5}$. On walking 138 metres towards the monument the secant of the angle of elevation is found to be

$\frac{\sqrt{193}}{12}$. The height of the monument (in metre) is

- (1) 35 (2) 49
 (3) 42 (4) 56

(SSC CHSL DEO & LDC Exam.
04.12.2011 (Ist Sitting (North Zone))

- 5.** The distance between two pillars of length 16 metres and 9 metres is x metres. If two angles of elevation of their respective top from the bottom of the other are complementary to each other, then the value of x (in metres) is

- (1) 15 (2) 16
 (3) 12 (4) 9

(SSC CHSL DEO & LDC Exam.
04.12.2011 (IIInd Sitting (North Zone))

- 6.** The angle of elevation of the top of a building from the top and bottom of a tree are x and y respectively. If the height of the tree is h metre, then (in metre) the height of the building is

$$(1) \frac{h \cot x}{\cot x + \cot y}$$

$$(2) \frac{h \cot y}{\cot x + \cot y}$$

$$(3) \frac{h \cot x}{\cot x - \cot y}$$

$$(4) \frac{h \cot y}{\cot x - \cot y}$$

(SSC CHSL DEO & LDC Exam.
04.12.2011 (Ist Sitting (East Zone))

- 7.** The angle of elevation of the top of a tower from a point A on the ground is 30° . On moving a distance of 20 metres towards the foot of the tower to a point B, the angle of elevation increases to 60° . The height of the tower is

- (1) $\sqrt{3}$ m (2) $5\sqrt{3}$ m
 (3) $10\sqrt{3}$ m (4) $20\sqrt{3}$ m

(SSC CHSL DEO & LDC Exam.
04.12.2011 (IIInd Sitting (East Zone))

- 8.** Two poles of equal height are standing opposite to each other on either side of a road which is 100m wide. From a point between them on road, angle of elevation of their tops are 30° and 60° . The height of each pole (in metre) is

- (1) $25\sqrt{3}$ (2) $20\sqrt{3}$

- (3) $28\sqrt{3}$ (4) $30\sqrt{3}$

(SSC CHSL DEO & LDC Exam.
11.12.2011 (Ist Sitting (Delhi Zone))

- 9.** A telegraph post is bent at a point above the ground due to storm. Its top just meets the ground at a distance of $8\sqrt{3}$ metres from its foot and makes an angle of 30° , then the height of the post is :

- (1) 16 metres (2) 23 metres
 (3) 24 metres (4) 10 metres

(SSC CHSL DEO & LDC Exam.
11.12.2011 (IIInd Sitting (Delhi Zone))

- 10.** The angle of elevation of the top of a building and the top of the chimney on the roof of the building from a point on the ground are x and 45° respectively. The height of building is h metre. Then the height of the chimney, (in metre) is :

- (1) $h \cot x + h$ (2) $h \cot x - h$
 (3) $h \tan x - h$ (4) $h \tan x + h$

(SSC CHSL DEO & LDC Exam.
11.12.2011 (IIInd Sitting (East Zone))

- 11.** Two posts are x metres apart and the height of one is double that of the other. If from the mid-point of the line joining their feet, an observer finds the angular elevations of their tops to be complementary, then the height (in metres) of the shorter post is

- (1) $\frac{x}{2\sqrt{2}}$ (2) $\frac{x}{4}$

- (3) $x\sqrt{2}$ (4) $\frac{x}{\sqrt{2}}$

(SSC Graduate Level Tier-II
Exam. 16.09.2012)

TRIGONOMETRY

- 12.** An aeroplane when flying at a height of 5000m from the ground passes vertically above another aeroplane at an instant, when the angles of elevation of the two aeroplanes from the same point on the ground are 60° and 45° respectively. The vertical distance between the aeroplanes at that instant is
- $5000(\sqrt{3} - 1)$ m
 - $5000(3 - \sqrt{3})$ m
 - $5000\left(1 - \frac{1}{\sqrt{3}}\right)$ m
 - 4500 m
- (SSC Graduate Level Tier-II
Exam. 16.09.2012)
- 13.** A man standing at a point P is watching the top of a tower, which makes an angle of elevation of 30° . The man walks some distance towards the tower and then his angle of elevation of the top of the tower is 60° . If the height of the tower is 30 m, then the distance he moves is
- 22 m
 - $22\sqrt{3}$ m
 - 20 m
 - $20\sqrt{3}$ m
- (SSC CHSL DEO & LDC
Exam. 21.10.2012 (Ist Sitting))
- 14.** The distance between two vertical poles is 60 m. The height of one of the poles is double the height of the other. The angle of elevation of the top of the poles from the middle point of the line segment joining their feet are complementary to each other. The height of the poles are :
- 10 m and 20 m
 - 20 m and 40 m
 - 20.9 m and 41.8 m
 - $15\sqrt{2}$ m and $30\sqrt{2}$ m
- (SSC CHSL DEO & LDC
Exam. 21.10.2012 (IIInd Sitting))
- 15.** An aeroplane when flying at a height of 3125m from the ground passes vertically below another plane at an instant when the angle of elevation of the two planes from the same point on the ground are 30° and 60° respectively. The distance between the two planes at that instant is
- 6520 m
 - 6000 m
 - 5000 m
 - 6250 m
- (SSC CHSL DEO & LDC
Exam. 28.10.2012 (Ist Sitting))
- 16.** The shadow of the tower becomes 60 metres longer when the altitude of the sun changes from 45° to 30° . Then the height of the tower is
- $20(\sqrt{3} + 1)$ m
 - $24(\sqrt{3} + 1)$ m
 - $30(\sqrt{3} + 1)$ m
 - $30(\sqrt{3} - 1)$ m
- (SSC CHSL DEO & LDC
Exam. 28.10.2012 (Ist Sitting))
- 17.** A vertical post 15 ft high is broken at a certain height and its upper part, not completely separated, meets the ground at an angle of 30° . Find the height at which the post is broken.
- 10ft
 - 5ft
 - $5\sqrt{3}$ ft
 - $5\sqrt{3}$ ft
- (SSC CHSL DEO & LDC
Exam. 04.11.2012 (IIInd Sitting))
- 18.** The shadow of a tower is $\sqrt{3}$ times its height. Then the angle of elevation of the top of the tower is
- 45°
 - 30°
 - 60°
 - 90°
- (SSC Graduate Level Tier-I
Exam. 11.11.2012 (Ist Sitting))
- 19.** A man 6 ft tall casts a shadow 4 ft long, at the same time when a flag pole casts a shadow 50 ft long. The height of the flag pole is
- 80 ft
 - 75 ft
 - 60 ft
 - 70 ft
- (SSC Assistant Grade-III
Exam. 11.11.2012 (IIInd Sitting))
- 20.** The angle of elevation of an aeroplane from a point on the ground is 60° . After 15 seconds flight, the elevation changes to 30° . If the aeroplane is flying at a height of $1500\sqrt{3}$ m, find the speed of the plane
- 300 m/sec
 - 200 m/sec
 - 100 m/sec
 - 150 m/sec
- (SSC Delhi Police S.I.
(SI) Exam. 19.08.2012)
- 21.** The angle of elevation of the top of a tower from the point P and Q at distance of ' a ' and ' b ' respectively from the base of the tower and in the same straight line with it are complementary. The height of the tower is
- \sqrt{ab}
 - $\frac{a}{b}$
 - ab
 - a^2b^2
- (SSC FCI Assistant Grade-III Main
Exam. 07.04.2013)
- 22.** The angle of elevation of a tower from a distance 100 m from its foot is 30° . Height of the tower is :
- $\frac{100}{\sqrt{3}}$ m
 - $50\sqrt{3}$ m
 - $\frac{200}{\sqrt{3}}$ m
 - $100\sqrt{3}$ m
- (SSC Graduate Level Tier-I
Exam. 21.04.2013, Ist Sitting)
- 23.** A kite is flying at a height of 50 metre. If the length of string is 100 metre then the inclination of string to the horizontal ground in degree measure is
- 90
 - 60
 - 45
 - 30
- (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014
TF No. 999 KPO)
- 24.** If the angle of elevation of a balloon from two consecutive kilometre-stones along a road are 30° and 60° respectively, then the height of the balloon above the ground will be
- $\frac{\sqrt{3}}{2}$ km
 - $\frac{1}{2}$ km
 - $\frac{2}{\sqrt{3}}$ km
 - $3\sqrt{3}$ km
- (SSC Graduate Level Tier-I
Exam. 19.05.2013)
- 25.** A vertical stick 12 cm long casts a shadow 8 cm long on the ground. At the same time, a tower casts a shadow 40 m long on the ground. The height of the tower is
- 72 m
 - 60 m
 - 65 m
 - 70 m
- (SSC Graduate Level Tier-I
Exam. 19.05.2013 Ist Sitting)

TRIGONOMETRY

26. A tower standing on a horizontal plane subtends a certain angle at a point 160 m apart from the foot of the tower. On advancing 100 m towards it, the tower is found to subtend an angle twice as before. The height of the tower is

- (1) 80 m (2) 100 m
 (3) 160 m (4) 200 m

(SSC Graduate Level Tier-II Exam. 29.09.2013)

27. The angle of elevation of a tower from a distance 50 m from its foot is 30° . The height of the tower is

- (1) $50\sqrt{3}$ m (2) $\frac{50}{\sqrt{3}}$ m
 (2) $75\sqrt{3}$ m (4) $\frac{75}{\sqrt{3}}$ m

(SSC Graduate Level Tier-II Exam. 29.09.2013)

28. The length of the shadow of a vertical tower on level ground increases by 10 metres when the altitude of the sun changes from 45° to 30° . Then the height of the tower is

- (1) $5\sqrt{3}$ metre
 (2) $10(\sqrt{3} + 1)$ metre
 (3) $5(\sqrt{3} + 1)$ metre
 (4) $10\sqrt{3}$ metre

(SSC CHSL DEO & LDC Exam. 20.10.2013)

29. The elevation of the top of a tower from a point on the ground is 45° . On travelling 60m from the point towards the tower, the elevation of the top becomes 60° . The height of the tower (in metres) is

- (1) 30 (2) $30(3 - \sqrt{3})$
 (3) $30(3 + \sqrt{3})$ (4) $30\sqrt{3}$

(SSC 1CHSL DEO & LDC Exam. 27.10.2013 IIInd Sitting)

30. From two points on the ground lying on a straight line through the foot of a pillar, the two angles of elevation of the top of the pillar are complementary to each other. If the distance of the two points from the foot of the pillar are 9

metres and 16 metres and the two points lie on the same side of the pillar, then the height of the pillar is

- (1) 5 m (2) 10 m
 (3) 7 m (4) 12 m

(SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting)

31. From a point P on the ground the angle of elevation of the top of a 10 m tall building is 30° . A flag is hoisted at the top of the building and the angle of elevation of the top of the flagstaff from P is 45° . Find the length of the flagstaff.

(Take $\sqrt{3} = 1.732$)

- (1) $10(\sqrt{3} + 2)$ m
 (2) $10(\sqrt{3} + 1)$ m
 (3) $10\sqrt{3}$ m
 (4) 7.32 m

(SSC CGL Tier-I Exam. 19.10.2014 (Ist Sitting))

32. The angle of elevation of the top of a vertical tower situated perpendicularly on a plane is observed as 60° from a point P on the same plane. From another point Q, 10m vertically above the point P, the angle of depression of the foot of the tower is 30° . The height of the tower is

- (1) 15 m (2) 30 m
 (3) 20 m (4) 25 m

(SSC CGL Tier-I Exam. 19.10.2014)

33. From a point 20 m away from the foot of a tower, the angle of elevation of the top of the tower is 30° . The height of the tower is

- (1) $10\sqrt{3}$ m (2) $20\sqrt{3}$ m
 (3) $\frac{10}{\sqrt{3}}$ m (4) $\frac{20}{\sqrt{3}}$ m

(SSC CGL Tier-I Exam. 26.10.2014)

34. The angle of elevation of a ladder leaning against a house is 60° and the foot of the ladder is 6.5 metres from the house. The length of the ladder is

- (1) $\frac{13}{\sqrt{3}}$ metres (2) 13 metres
 (3) 15 metres (4) 3.25 metres

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

35. The angle of elevation of sun changes from 30° to 45° , the length of the shadow of a pole decreases by 4 metres, the height of the pole is

(Assume $\sqrt{3} = 1.732$)

- (1) 1.464 m (2) 9.464 m
 (3) 3.648 cm (4) 5.464 m

(SSC CHSL DEO & LDC Exam. 02.11.2014 (IIInd Sitting))

36. A vertical pole and a vertical tower are standing on the same level ground. Height of the pole is 10 metres. From the top of the pole the angle of elevation of the top of the tower and angle of depression of the foot of the tower are 60° and 30° respectively. The height of the tower is

- (1) 20 m (2) 30 m
 (3) 40 m (4) 50 m

(SSC CHSL DEO & LDC Exam. 9.11.2014)

37. The length of the shadow of a vertical tower on level ground increases by 10 metres when the altitude of the sun changes from 45° to 30° . Then the height of the tower is

- (1) $5(\sqrt{3} + 1)$ metres
 (2) $5(\sqrt{3} - 1)$ metres
 (3) $5\sqrt{3}$ metres
 (4) $\frac{5}{\sqrt{3}}$ metres

(SSC CHSL DEO & LDC Exam. 9.11.2014)

38. If a pole of 12 m height casts a shadow of $4\sqrt{3}$ m long on the ground, then the sun's angle of elevation at that instant is

- (1) 30° (2) 60°
 (3) 45° (4) 90° 16 cm is

(SSC CHSL DEO & LDC Exam. 16.11.2014)

39. The angle of elevation of the top of a tower from a point on the ground is 30° and moving 70 metres towards the tower it becomes 60° . The height of the tower is

- (1) 10 metre (2) $\frac{10}{\sqrt{3}}$ metre
 (3) $10\sqrt{3}$ metre (4) $35\sqrt{3}$ metre
 (SSC CHSL DEO Exam. 16.11.2014 (Ist Sitting))

TRIGONOMETRY

- 40.** The shadow of a tower standing on a level plane is found to be 30 metre longer when the Sun's altitude changes from 60° to 45° . The height of the tower is
 (1) $15(3 + \sqrt{3})$ metre
 (2) $15(\sqrt{3} + 1)$ metre
 (3) $15(\sqrt{3} - 1)$ metre
 (4) $15(3 - \sqrt{3})$ metre
 (SSC CGL Tier-I Exam, 19.10.2014
 TF No. 022 MH 3)
- 41.** The angle of elevation of the top of a tower of height $100\sqrt{3}$ metre from a point at a distance of 100 metre from the foot of the tower on a horizontal plane is
 (1) 45° (2) 60°
 (3) 30° (4) $22\frac{1}{2}^\circ$
 (SSC CHSL (10+2) DEO & LDC Exam, 16.11.2014, Ist Sitting
 TF No. 333 LO 2)
- 42.** The shadow of a tower standing on a level plane is found to be 40m longer when the sun's altitude is 45° , than when it is 60° . The height of the tower is
 (1) $30(3 + \sqrt{3})$ metre
 (2) $40(3 + \sqrt{3})$ metre
 (3) $20(3 + \sqrt{3})$ metre
 (4) $10(3 + \sqrt{3})$ metre
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
 (Ist Sitting) TF No. 8037731)
- 43.** From two points on the ground and lying on a straight line through the foot of a pillar, the two angles of elevation of the top of the pillar are complementary to each other. If the distances of the two points from the foot of the pillar are 12 metres and 27 metres and the two points lie on the same side of the pillar, then the height (in metres) of the pillar is
 (1) 12 (2) 18
 (3) 15 (4) 16
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
 (Ist Sitting) TF No. 8037731)
- 44.** If the height of a pole is $2\sqrt{3}$ metre and the length of its shadow is 2 metre, then the angle of elevation of the sun is
 (1) 90° (2) 45°
 (3) 30° (4) 60°
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
 IInd Sitting)
- 45.** A 10 metre long ladder is placed against a wall. It is inclined at an angle of 30° to the ground. The distance (in m) of the foot of the ladder from the wall is (Given $\sqrt{3} = 1.732$)
 (1) 8.16 (2) 7.32
 (3) 8.26 (4) 8.66
 (SSC CGL Tier-I Exam, 09.08.2015
 (Ist Sitting) TF No. 1443088)
- 46.** The angle of elevation of a tower from a distance of 100 metre from its foot is 30° . Then the height of the tower is
 (1) $50\sqrt{3}$ metre (2) $100\sqrt{3}$ metre
 (3) $\frac{50}{\sqrt{3}}$ metre (4) $\frac{100}{\sqrt{3}}$ metre
 (SSC CGL Tier-I Exam, 09.08.2015
 (IInd Sitting) TF No. 4239378)
- 47.** A kite is flying at the height of 75m from the ground. The string makes an angle θ (where $\cot\theta = \frac{8}{15}$) with the level ground. Assuming that there is no slack in the string the length of the string is equal to :
 (1) 85 metre (2) 65 metre
 (3) 75 metre (4) 40 metre
 (SSC CGL Tier-I Exam, 16.08.2015
 (Ist Sitting) TF No. 3196279)
- 48.** Two towers A and B have lengths 45m and 15m respectively. The angle of elevation from the bottom of the tower B to the top of the tower A is 60° . If the angle of elevation from the bottom of tower A to the top of the tower B is θ then value of $\sin\theta$ is :
 (1) $\frac{1}{\sqrt{2}}$ (2) $\frac{1}{2}$
 (3) $\frac{\sqrt{3}}{2}$ (4) $\frac{2}{\sqrt{3}}$
 (SSC CGL Tier-I Exam, 16.08.2015
 (IInd Sitting) TF No. 2176783)
- 49.** If a 48 m tall building has a shadow of $48\sqrt{3}$ m., then the angle of elevation of the sun is
 (1) 15° (2) 60°
 (3) 45° (4) 30°
 (SSC CGL Tier-I Re-Exam, 30.08.2015)
- 50.** A telegraph post is bent at a point above the ground due to storm. Its top just touches the ground at a distance of $10\sqrt{3}$ metre from its foot and makes an angle of 30° with the horizontal. Then height (in metres) of the telegraph post is
 (1) 30 (2) 24
 (3) 20 (4) 25
 (SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)
- 51.** TF is a tower with F on the ground. The angle of elevation of T from A is x° such that $\tan x^\circ = \frac{2}{5}$ and AF = 200m. The angle of elevation of T from a nearer point B is y° with BF = 80m. The value of y° is
 (1) 60° (2) 30°
 (3) 75° (4) 45°
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IInd Sitting)
- 52.** If the angle of elevation of the sun changes from 45° to 60° , then the length of the shadow of a pillar decreases by 10 m. The height of the pillar is :
 (1) $5(3 - \sqrt{3})$ metre
 (2) $5(\sqrt{3} + 1)$ metre
 (3) $15(\sqrt{3} + 1)$ metre
 (4) $5(3 + \sqrt{3})$ metre
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015
 (Ist Sitting) TF No. 6636838)
- 53.** The ratio of the length of a rod and its shadow is $1 : \sqrt{3}$. The angle of elevation of the sun is :
 (1) 90° (2) 30°
 (3) 45° (4) 60°
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015
 (Ist Sitting) TF No. 6636838)

TRIGONOMETRY

- 54.** A tower is 50 metre high. Its shadow is x metres shorter when the sun's altitude is 45° than when it is 30° . The value of x in metre is :

- (1) $50\sqrt{3}$ (2) $50(\sqrt{3} - 1)$
 (3) $50(\sqrt{3} + 1)$ (4) 50

(SSC CHSL (10+2) Tier-I (CBE)
 Exam. 08.09.2016) (Ist Sitting)

- 55.** The angle of elevation of an aeroplane from a point on the ground is 45° . After flying for 15 seconds, the elevation changes to 30° . If the aeroplane is flying at a height of 2500 metres, then the speed of the aeroplane in km/hr. is

- (1) 600 (2) $600(\sqrt{3} + 1)$
 (3) $600\sqrt{3}$ (4) $600(\sqrt{3} - 1)$

(SSC CGL Tier-I (CBE)
 Exam. 11.09.2016) (Ist Sitting)

- 56.** A vertical tower stands on a horizontal plane and is surmounted by a vertical flag staff of height h . At a point on the plane, the angle of elevation of the bottom of the flag staff is α and that of the top of the flag staff is β . Then the height of the tower is

- (1) $h \tan \alpha$
 (2) $\frac{h \tan \alpha}{\tan \beta - \tan \alpha}$
 (3) $\frac{h \tan \alpha}{\tan \alpha - \tan \beta}$
 (4) None of these

(SSC CGL Tier-II Online
 Exam. 01.12.2016)

- 57.** A person observes that the angle of elevation at the top of a pole of height 5 metre is 30° . Then the distance of the person from the pole is :

- (1) $5\sqrt{3}$ metre (2) $\frac{5}{\sqrt{3}}$ metre
 (3) $\sqrt{3}$ metre (4) $10\sqrt{3}$ metre
 (SSC CPO Exam. 06.06.2016)
 (Ist Sitting)

- 58.** The angle of elevation of a ladder leaning against a wall is 60° and the foot of the ladder is 4.6 metre away from the wall. The length of the ladder is

- (1) 2.3 metre (2) 4.6 metre
 (3) 9.2 metre (4) 7.8 metre
 (SSC CGL Tier-I (CBE)
 Exam. 09.09.2016) (Ist Sitting)

- 59.** A ladder is placed along a wall such that its upper end is touching the top of the wall. The foot of the ladder is 10 ft away from the wall and the ladder is making an angle of 60° with the ground. When a man starts climbing on it, it slips and now ladder makes an angle of 30° with ground. How much did the ladder slip from the top of the wall?

- (1) 12 ft (2) 20 ft
 (3) 7.32 ft (4) 18 ft
 (SSC CAPFs (CPO) SI & ASI,
 Delhi Police Exam. 05.06.2016)
 (Ist Sitting)

- 60.** The angle of elevation of the sun when the length of the shadow of a pole is equal to its height is :

- (1) 30° (2) 45°
 (3) 60° (4) 90°
 (SSC CPO SI & ASI, Online
 Exam. 06.06.2016) (IIInd Sitting)

- 61.** The angles of elevation of top and bottom of a flag kept on a flag-post from 30 metres distance, are 45° and 30° respectively. Height of the flat is [taking $\sqrt{3} = 1.732$]

- (1) $12\sqrt{3}$ metre (2) 15 metre
 (3) 14.32 metre (4) 12.68 metre
 (SSC CGL Tier-I (CBE)
 Exam. 27.08.2016) (Ist Sitting)

- 62.** From 40m away from the foot of a tower, the angle of elevation of the top of the tower is 60° . What is the height of the tower?

- (1) $\frac{120}{\sqrt{3}}$ m. (2) $\frac{60}{\sqrt{3}}$ m.
 (3) $\frac{50}{\sqrt{3}}$ m. (4) $\frac{130}{\sqrt{7}}$ m.
 (SSC CGL Tier-I (CBE)
 Exam. 27.08.2016) (IIInd Sitting)

- 63.** A man standing on the bank of river observes that the angle subtended by a tree on the opposite bank is 60° . When he retires 36 m from the bank, he finds that the angle is 30° . The breadth of the river is

- (1) 15 metre (2) 18 metre
 (3) 16 metre (4) 11 metre
 (SSC CGL Tier-I (CBE)
 Exam. 28.08.2016) (IIInd Sitting)

- 64.** Two ships are sailing in the sea on the two sides of a light house. The angles of elevation of the top of the light house as observed from the two ships are 30° and

- 45° respectively. If the light house is 100m high, the distance between the two ships is : (take $\sqrt{3} = 1.73$)

- (1) 173 metre (2) 200 metre
 (3) 273 metre (4) 300 metre
 (SSC CGL Tier-I (CBE)
 Exam. 29.08.2016) (IIInd Sitting)

- 65.** An observer on the top of a mountain, 500 m above the sea level, observes the angles of depression of the two boats in his same place of vision to be 45° and 30° respectively. Then the distance between the boats, if the boats are on the same side of the mountain, is

- (1) 456 m (2) 584 m
 (3) 366 m (4) 699 m
 (SSC CGL Tier-I (CBE)
 Exam. 30.08.2016) (Ist Sitting)

- 66.** The angle of elevation of the top of a pillar from the foot and the top of a building 20 m high, are 60° and 30° respectively. The height of the pillar is

- (1) 10 m (2) $10\sqrt{3}$
 (3) 60 m (4) 30 m
 (SSC CGL Tier-I (CBE)
 Exam. 31.08.2016) (Ist Sitting)

- 67.** The angles of elevation of the top of a temple, from the foot and the top of a building 30 m high, are 60° and 30° respectively. Then, the height of the temple is

- (1) 50 metre (2) 43 metre
 (3) 40 metre (4) 45 metre
 (SSC CGL Tier-I (CBE)
 Exam. 01.09.2016) (Ist Sitting)

- 68.** The height of a tower is $50\sqrt{3}$ metre. The angle of elevation of a tower from a distance 50 metre from its foot is

- (1) 30° (2) 45°
 (3) 60° (4) 90°
 (SSC CGL Tier-I (CBE)
 Exam. 02.09.2016) (Ist Sitting)

- 69.** The respective ratio between the height of tower and the point at some distance from its foot is $5\sqrt{3}:5$. What will be the angle of elevation of the top of the tower?

- (1) 30° (2) 60°
 (3) 90° (4) 45°
 (SSC CGL Tier-I (CBE)
 Exam. 02.09.2016) (IIInd Sitting)

TRIGONOMETRY

70. The thread of a kite makes angle 60° with the horizontal plane. If the length of the thread be 80 m, then the vertical height of the kite will be

- (1) $\frac{40}{\sqrt{3}}$ metre (2) $80\sqrt{3}$ metre
 (3) 80 metre (4) $40\sqrt{3}$ metre

(SSC CGL Tier-I (CBE))

Exam. 03.09.2016 (IInd Sitting)

71. The angle of elevation of the top of a tower from a point A on the ground is 30° . On moving a distance of 20 metres towards the foot of the tower to a point B, the angle of elevation increases to 60° . The height of the tower in metres is

- (1) $\sqrt{3}$ (2) $5\sqrt{3}$
 (3) $10\sqrt{3}$ (4) $20\sqrt{3}$

(SSC CGL Tier-I (CBE))

Exam. 04.09.2016 (Ist Sitting)

72. A 1.6 m tall observer is 45 metres away from a tower. The angle of elevation from his eye to the top of the tower is 30° , then the height of the tower in metres is (Take $\sqrt{3} = 1.732$)

- (1) 25.98 (2) 26.58
 (3) 27.58 (4) 27.98

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (Ist Sitting)

73. A straight tree breaks due to storm and the broken part bends so that the top of the tree touches the ground making an angle of 30° with the ground. The distance from the foot of the tree to the point, where the top touches the ground is 10 m. Find the total height of the tree?

- (1) $10\sqrt{3}$ metre
 (2) $\frac{10\sqrt{3}}{3}$ metre
 (3) $10(\sqrt{3} + 1)$ metre
 (4) $10(\sqrt{3} - 1)$ metre

(SSC CGL Tier-I (CBE))

Exam. 30.08.2016 (IInd Sitting)

74. The top of a broken tree touches the ground at a distance of 15 metre from its base. If the tree is broken at a height of 8 metre from the ground, then the actual height of the tree is

- (1) 17 metre (2) 20 metre
 (3) 25 metre (4) 30 metre

(SSC CGL Tier-I (CBE))

Exam. 31.08.2016 (IInd Sitting)

75. From two points, lying on the same horizontal line, the angles of elevation of the top of the pillar are θ and ϕ ($\theta < \phi$). If the height of the pillar is ' h ' m and the two points lie on the same sides of the pillar, then the distance between the two points is

- (1) $h(\tan\theta - \tan\phi)$ metre
 (2) $h(\cot\phi - \cot\theta)$ metre
 (3) $h(\cot\theta - \cot\phi)$ metre
 (4) $h \frac{\tan\theta \tan\phi}{\tan\phi - \tan\theta}$ metre

(SSC CGL Tier-I (CBE))

Exam. 31.08.2016 (IInd Sitting)

76. The angle of elevation of the top of a tower from two horizontal points (in opposite sides) at distances of 25 metre and 64 metre from the base of tower are x and $90^\circ - x$ respectively. The height of the tower will be

- (1) 39 metre (2) 89 metre
 (3) 1.6 metre (4) 40 metre

(SSC CGL Tier-I (CBE))

Exam. 01.09.2016 (IInd Sitting)

77. If the length of the shadow of a vertical pole be $\sqrt{3}$ times the height of the pole, the angle of elevation of the sun is :

- (1) 60° (2) 45°
 (3) 30° (4) 90°

(SSC CGL Tier-I (CBE))

Exam. 02.09.2016 (IInd Sitting)

78. An aeroplane flying horizontally at a height of 3 km. above the ground is observed at a certain point on earth to subtend an angle of 60° . After 15 seconds of flight, its angle of elevation is changed to 30° . The speed of the aeroplane (Take, $\sqrt{3} = 1.732$) is

- (1) 230.63 m./sec.
 (2) 230.93 m./sec.
 (3) 235.85 m./sec.
 (4) 236.25 m./sec.

(SSC CGL Tier-II (CBE))

Exam. 30.11.2016

79. If the angle of elevation of the sun decreases from 45° to 30° , then the length of the shadow of a pillar increases by 60m. The height of the pillar is

- (1) $60(\sqrt{3} + 1)$ metre
 (2) $30(\sqrt{3} - 1)$ metre
 (3) $30(\sqrt{3} + 1)$ metre
 (4) $60(\sqrt{3} - 1)$ metre

(SSC CGL Tier-II (CBE))

Exam. 30.11.2016

80. The angle of elevation of the top of a tower, vertically erected in the middle of a paddy field, from two points on a horizontal line through the foot of the tower are given to be α and β ($\alpha > \beta$). The height of the tower is h unit. A possible distance (in the same unit) between the points is

- (1) $\frac{h(\cot\beta - \cot\alpha)}{\cos(\alpha + \beta)}$
 (2) $h(\cot\alpha - \cot\beta)$
 (3) $\frac{h(\tan\beta - \tan\alpha)}{\tan\alpha \tan\beta}$
 (4) $h(\cot\alpha + \cot\beta)$

(SSC CGL Tier-II (CBE))

Exam. 30.11.2016

81. The angle of elevation of the top of an unfinished pillar at a point 150 metres from its base is 30° . The height (in metres) that the pillar must be raised so that its angle of elevation at the same point may be 45° , is (Take, $\sqrt{3} = 1.732$)

- (1) 63.4 (2) 86.6
 (3) 126.8 (4) 173.2

(SSC CGL Tier-II (CBE))

Exam. 30.11.2016

82. If the angle of elevation of a cloud from a point 200m above a lake is 30° and the angle of depression of its reflection in the lake is 60° . Then the height of the cloud above the lake is :

- (1) 100 m (2) 200 m
 (3) 300 m (4) 400 m

(SSC CGL Tier-I (CBE))

Exam. 28.08.2016 (Ist Sitting)

TRIGONOMETRY

83. At 129 metre away from the foot of a cliff on level of ground, the angle of elevation of the top of the cliff is 30° . The height of this cliff is :

- (1) $50\sqrt{3}$ metre
- (2) $45\sqrt{3}$ metre
- (3) $43\sqrt{3}$ metre
- (4) $47\sqrt{3}$ metre

(SSC CGL Tier-I (CBE))

Exam. 29.08.2016 (Ist Sitting)

84. Find the angular elevation of the Sun when the shadow of a 15

metre long pole is $\frac{15}{\sqrt{3}}$ metre.

- (1) 45°
- (2) 60°
- (3) 30°
- (4) 90°

(SSC CGL Tier-I (CBE))

Exam. 01.09.2016 (IIInd Sitting)

85. If the angle of elevation of the top of a pillar from the ground level is raised from 30° to 60° , the length of the shadow of a pillar of height $50\sqrt{3}$ will be decreased by

- (1) 60 metre
- (2) 75 metre
- (3) 100 metre
- (4) 50 metre

(SSC CGL Tier-I (CBE))

Exam. 02.09.2016 (IIInd Sitting)

86. From a point P on a level ground, the angle of elevation to the top of the tower is 30° . If the tower is 100 metre high, the distance of point P from the foot of the tower is

(Take $\sqrt{3} = 1.73$)

- (1) 149 metre
- (2) 156 metre
- (3) 173 metre
- (4) 188 metre

(SSC CGL Tier-I (CBE))

Exam. 03.09.2016 (IIInd Sitting)

87. Two men standing on same side of a pillar 75 metre high, observe the angles of elevation of the top of the pillar to be 30° and 60° respectively. The distance between two men is :

- (1) $100\sqrt{3}$ metre
- (2) 100 metre
- (3) $50\sqrt{3}$ metre
- (4) $25\sqrt{3}$ metre

(SSC CGL Tier-I (CBE))

Exam. 03.09.2016 (IIInd Sitting)

88. The angles of elevation of an aeroplane flying vertically above the ground, as observed from the two consecutive stones, 1 km apart; are 45° and 60° aeroplane from the ground is :

$$(1) (\sqrt{3} + 1) \text{ km.}$$

$$(2) (\sqrt{3} + 3) \text{ km.}$$

$$(3) \frac{1}{2}(\sqrt{3} + 1) \text{ km.}$$

$$(4) \frac{1}{2}(\sqrt{3} + 3) \text{ km.}$$

(SSC CGL Tier-I (CBE))

Exam. 04.09.2016 (IIInd Sitting)

89. On a ground, there is a vertical tower with a flagpole on its top. At a point 9 metre away from the foot of the tower, the angles of elevation of the top and bottom of the flagpole are 60° and 30° respectively. The height of the flagpole is :

$$(1) 5\sqrt{3} \text{ metre}$$

$$(2) 6\sqrt{3} \text{ metre}$$

$$(3) 6\sqrt{2} \text{ metre}$$

$$(4) 6\sqrt{5} \text{ metre}$$

(SSC CGL Tier-I (CBE))

Exam. 04.09.2016 (IIInd Sitting)

90. If the elevation of the Sun changes from 30° to 60° , then the difference between the lengths of shadows of a pole 15 metre high, is

$$(1) 7.5 \text{ metre}$$

$$(2) 15 \text{ metre}$$

$$(3) 10\sqrt{3} \text{ metre}$$

$$(4) 5\sqrt{3} \text{ metre}$$

(SSC CGL Tier-I (CBE))

Exam. 06.09.2016 (IIInd Sitting)

91. Two persons are on either side of a temple, 75 m high, observe the angle of elevation of the top of the temple to be 30° and 60° respectively. The distance between the persons is :

$$(1) 173.2 \text{ metre}$$

$$(2) 100 \text{ metre}$$

$$(3) 157.7 \text{ metre}$$

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (IIInd Sitting)

92. From the top of a 20 metre high building, the angle of elevation of the top of a tower is 60° and the angle of depression of its foot is at 45° , then the height of the tower is

$$(\sqrt{3} = 1.732)$$

$$(1) 45.46 \text{ metre}$$

$$(2) 45.64 \text{ metre}$$

$$(3) 54.64 \text{ metre}$$

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (IIInd Sitting)

93. The length of shadow of a tower is $\sqrt{3}$ times that of its length. The angle of elevation of the sun is :

$$(1) 45^\circ$$

$$(2) 30^\circ$$

$$(3) 60^\circ$$

$$(4) \text{None}$$

(SSC CGL Tier-I (CBE))

Exam. 08.09.2016 (IIInd Sitting)

94. The upper part of a tree broken at a certain height makes an angle of 60° with the ground at a distance of 10 metre from its foot. The original height of the tree was

$$(1) 20\sqrt{3} \text{ metre}$$

$$(2) 10\sqrt{3} \text{ metre}$$

$$(3) 10(2 + \sqrt{3}) \text{ metre}$$

$$(4) 10(2 - \sqrt{3}) \text{ metre}$$

(SSC CGL Tier-I (CBE))

Exam. 09.09.2016 (IIInd Sitting)

95. A telegraph post is bent at a point above the ground. Its top just touches the ground at a distance of $8\sqrt{3}$ metre from its foot and makes an angle of 30° with the horizontal. The height (in metre) of the post is :

$$(1) 12$$

$$(2) 16$$

$$(3) 18$$

$$(4) 24$$

(SSC CGL Tier-I (CBE))

Exam. 10.09.2016 (IIInd Sitting)

96. The angles of elevation of the top of a tower from two points at a distance of 4 m and 9 m from the base of the tower and in the same straight line with it are complementary. The height of the tower is :

$$(1) 4 \text{ metre}$$

$$(2) 7 \text{ metre}$$

$$(3) 9 \text{ metre}$$

$$(4) 6 \text{ metre}$$

(SSC CGL Tier-I (CBE))

Exam. 10.09.2016 (IIInd Sitting)

97. The shadow of a tower when the angle of elevation of the sun is 45° , is found to be 10 metre longer than when it was 60° . The height of the tower is

$$(1) 5(\sqrt{3} - 1) \text{ metre}$$

$$(2) 5(3 + \sqrt{3}) \text{ metre}$$

$$(3) 10(\sqrt{3} - 1) \text{ metre}$$

$$(4) 10(\sqrt{3} + 1) \text{ metre}$$

(SSC CGL Tier-I (CBE))

Exam. 11.09.2016 (IIInd Sitting)

98. Two men are on opposite sides of a tower. They measure the angles of elevation of the top of the tower as 30° and 45° respectively. If the height of the tower is 50 metre, the distance between the two men is (Take $\sqrt{3} = 1.73$)

$$(1) 136.5 \text{ metre}$$

$$(2) 50\sqrt{3} \text{ metre}$$

$$(3) 100\sqrt{3} \text{ metre}$$

$$(4) 135.5 \text{ metre}$$

(SSC CGL Tier-I (CBE))

Exam. 11.09.2016 (IIInd Sitting)

TRIGONOMETRY

99. The shadow of a vertical tower on ground level increases by 10 metre when the altitude of the sun changes from 45° to 30° . The height of the tower is :

- (1) $5(\sqrt{3} + 1)$ metre
- (2) $10(\sqrt{3} - 1)$ metre
- (3) 9 metre
- (4) 13 metre

(SSC CGL Tier-I (CBE)
Exam. 27.10.2016 (1st Sitting)

100. A man standing on the bank of a river observes that the angle of elevation of the top of a tree just on the opposite bank is 60° . But angle of elevation is 30° from a point which is at a distance $20\sqrt{3}$ ft away from the bank. Then the height of the tree is :

- (1) 60 ft (2) 45 ft
- (3) 30 ft (4) 15 ft

(SSC CGL Tier-I (CBE)
Exam. 27.10.2016 (1st Sitting)

101. The distance between two pillars is 120 metres. The height of one pillar is thrice the other. The angles of elevation of their tops from the mid point of the line connecting their feet are complementary to each other. The height (in metres) of the taller pillar is

(Use : $\sqrt{3} = 1.732$)

- (1) 34.64 (2) 51.96
- (3) 69.28 (4) 103.92

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

102. A hydrogen filled balloon ascending at the rate of 18 kmph was drifted by wind. Its angle of elevation at 10th and 15th minutes were found to be 60° and 45° respectively. The wind speed (in whole numbers) during the last five minutes, approximately, is equal to

- (1) 7 km./hr. (2) 11 km./hr.
- (3) 26 km./hr. (4) 33 km./hr.

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

TYPE-IV

1. There are two vertical posts, one on each side of a road, just opposite to each other. One post is 108 metre high. From the top of this post, the angle of depression of the top and foot of the other post are 30° and 60° respectively. The height of the other post (in metre) is

- (1) 36 (2) 72
- (3) 108 (4) 110

(SSC CHSL DEO & LDC Exam.
11.12.2011 (1st Sitting (East Zone))

2. There are two temples, one on each bank of a river, just opposite to each other. One temple is 54m high. From the top of this temple, the angles of depression of the top and the foot of the other temple are 30° and 60° respectively. The length of the temple is :

- (1) 18 m (2) 36 m
- (3) $36\sqrt{3}$ m (4) $18\sqrt{3}$ m

(SSC & LDC Exam. 21.10.2012
(IInd Sitting))

3. The top of two poles of height 24 m and 36 m are connected by a wire. If the wire makes an angle of 60° with the horizontal, then the length of the wire is

- (1) 6 m (2) $8\sqrt{3}$ m
- (3) 8 m (4) $6\sqrt{3}$ m

(SSC Graduate Level Tier-I
Exam. 19.05.2013 1st Sitting)

4. From the top of a hill 200 m high, the angle of depression of the top and the bottom of a tower are observed to be 30° and 60° . The height of the tower is (in m) :

- (1) $\frac{400\sqrt{3}}{3}$ (2) $166\frac{2}{3}$
- (3) $133\frac{1}{3}$ (4) $200\sqrt{3}$

(SSC CAPFs SI & CISF ASI
Exam. 23.06.2013)

5. From a tower 125 metres high, the angle of depression of two objects, which are in horizontal line through the base of the tower, are 45° and 30° and they are on the same side of the tower. The distance (in metres) between the objects is

- (1) $125\sqrt{3}$
- (2) $125(\sqrt{3} - 1)$
- (3) $125/(\sqrt{3} - 1)$
- (4) $125(\sqrt{3} + 1)$

(SSC CHSL DEO & LDC
Exam. 10.11.2013, 1st Sitting)

6. From the top of a tower of height 180 m the angles of depression of two objects on either sides of the tower are 30° and 45° . Then the distance between the objects are

- (1) $180(3 + \sqrt{3})$ m
- (2) $180(3 - \sqrt{3})$ m
- (3) $180(\sqrt{3} - 1)$ m
- (4) $180(\sqrt{3} + 1)$ m

(SSC CGL Tier-II Exam. 21.09.2014)

7. From the peak of a hill which is 300 m high, the angle of depression of two sides of a bridge lying on a ground are 45° and 30° (both ends of the bridge are on the same side of the hill). Then the length of the bridge is

- (1) $300(\sqrt{3} - 1)$ m
- (2) $300(\sqrt{3} + 1)$ m
- (3) $300\sqrt{3}$ m

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

8. From an aeroplane just over a river, the angle of depression of two palm trees on the opposite bank of the river are found to be 60° and 30° respectively. If the breadth of the river is 400 metres, then the height of the aeroplane above the river at that instant is

(Assume $\sqrt{3} = 1.732$)

- (1) 173.2 metres
- (2) 346.4 metres
- (3) 519.6 metres
- (4) 692.8 metres

(SSC CHSL DEO & LDC
Exam. 02.11.2014 (IInd Sitting))

9. From the top of a light-house at a height 20 metres above sea-level, the angle of depression of a ship is 30° . The distance of the ship from the foot of the light house is

- (1) 20 m (2) $20\sqrt{3}$ m
- (3) 30 m (4) $30\sqrt{3}$ m

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014
TF No. 999 KPO)

TRIGONOMETRY

- 10.** From an aeroplane just over a straight road, the angles of depression of two consecutive kilometre stones situated at opposite sides of the aeroplane were found to be 60° and 30° respectively. The height (in km) of the aeroplane from the road at that instant, is

$$\begin{array}{ll} (1) \frac{\sqrt{3}}{2} & (2) \frac{\sqrt{3}}{3} \\ (3) \frac{\sqrt{3}}{4} & (4) \sqrt{3} \end{array}$$

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region)
TF No. 789 TH 7)

- 11.** From an aeroplane just over a straight road, the angles of depression of two consecutive kilometre stones situated at opposite sides of the aeroplane were found to be 60° and 30° respectively. The height (in km) of the aeroplane from the road at that instant was

(Given $\sqrt{3} = 1.732$)
 (1) 0.433 (2) 8.66
 (3) 4.33 (4) 0.866

(SSC CGL Tier-I Re-Exam, 30.08.2015)

- 12.** The angle of depression of a point situated at a distance of 70 m from the base of a tower is 60° . The height of the tower is :

$$\begin{array}{ll} (1) 35\sqrt{3} \text{ m} & (2) 70\sqrt{3} \text{ m} \\ (3) \frac{70\sqrt{3}}{3} \text{ m} & (4) 70 \text{ m} \end{array}$$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (Ist Sitting) TF No. 6636838)

- 13.** A pilot in an aeroplane at an altitude of 200 metre observes two points lying on either side of a river. If the angles of depression of the two points be 45° and 60° , then the width of the river is

$$\begin{array}{ll} (1) \left(200 + \frac{200}{\sqrt{3}}\right) \text{ metre} & \\ (2) \left(200 - \frac{200}{\sqrt{3}}\right) \text{ metre} & \\ (3) 400\sqrt{3} \text{ metre} & \\ (4) \left(\frac{400}{\sqrt{3}}\right) \text{ metre} & \end{array}$$

(SSC CGL Tier-I (CBE) Exam.10.09.2016)

- 14.** A person from the top of a hill observes a vehicle moving towards him at a uniform speed. It takes 10 minutes for the angle of depression to change from 45° to 60° . After this the time required by the vehicle to reach the bottom of the hill is
- (1) 12 minutes 20 seconds
 - (2) 13 minutes
 - (3) 13 minutes 40 seconds
 - (4) 14 minutes 24 seconds

(SSC CGL Tier-II Online Exam.01.12.2016)

- 18.** The cliff of a mountain is 180 m high and the angles of depression of two ships on the either side of cliff are 30° and 60° . What is the distance between the two ships?
- (1) 400 metre
 - (2) $400\sqrt{3}$ metre
 - (3) 415.68 metre
 - (4) 398.6 metre

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016)
(1st Sitting)

- 19.** From the top of a tower 60 metre high the angle of depression of the top and bottom of a pole are observed to be 45° and 60° respectively. If the pole and tower stand on the same plane, the height of the pole in metre is

$$\begin{array}{ll} (1) 60(\sqrt{3}-1) & (2) 20(\sqrt{3}-1) \\ (3) 20(3-\sqrt{3}) & (4) 20(\sqrt{3}+1) \end{array}$$

(SSC CGL Tier-I (CBE) Exam. 06.09.2016) (1st Sitting)

- 20.** A helicopter, at an altitude of 1500 metre, finds that two ships are sailing towards it, in the same direction. The angles of depression of the ships as observed from the helicopter are 60° and 30° respectively. Distance between the two ships, in metre is

$$\begin{array}{ll} (1) 1000\sqrt{3} & (2) \frac{1000}{\sqrt{3}} \\ (3) 500\sqrt{3} & (4) \frac{500}{\sqrt{3}} \end{array}$$

(SSC CGL Tier-I (CBE) Exam. 30.08.2016 (IIIrd Sitting))

- 21.** The angles of depression of two ships from the top of a light house are 45° and 30° toward east. If the ships are 200m apart, the height of the light

house is (Take $\sqrt{3} = 1.73$)

$$\begin{array}{ll} (1) 273 \text{ metre} & (2) 270 \text{ metre} \\ (3) 253 \text{ metre} & (4) 263 \text{ metre} \end{array}$$

(SSC CGL Tier-I (CBE) Exam. 31.08.2016 (IIIrd Sitting))

- 22.** From the top of a building 60 metre high, the angles of depression of the top and bottom of a tower are observed to be 30° and 60° respectively. The height of the tower in metre is :

$$\begin{array}{ll} (1) 40 & (2) 45 \\ (3) 50 & (4) 55 \end{array}$$

(SSC CGL Tier-I (CBE) Exam. 06.09.2016 (IIIrd Sitting))

TRIGONOMETRY

- 23.** From a point on a bridge across the river, the angles of depression of the banks on opposite sides of the river are 30° and 45° respectively. If the bridge is at a height of 2.5 m from the banks, then the width of the river is

(Take $\sqrt{3} = 1.732$)

- (1) 5.83 metre (2) 6.83 metre
(3) 5.76 metre (4) 6.87 metre

(SSC CGL Tier-I (CBE)

Exam. 08.09.2016 (IIInd Sitting)

- 24.** A boat is moving away from an observation tower. It makes an angle of depression of 60° with an observer's eye when at a distance of 50 metre from the tower. After 8 seconds, the angle of depression becomes 30° . By assuming that it is running in still water, the approximate speed of the boat is :

- (1) 33 km/hr (2) 42 km/hr
(3) 45 km/hr (4) 50 km/hr

(SSC CGL Tier-I (CBE)

Exam. 09.09.2016 (IIInd Sitting)

- 25.** The angle of elevation of an aeroplane as observed from a point 30 metre above the transparent water-surface of a lake is 30° and the angle of depression of the image of the aeroplane in the water of the lake is 60° . The height of the aeroplane from the water-surface of the lake is

- (1) 60 metre (2) 45 metre
(3) 50 metre (4) 75 metre

(SSC CGL Tier-II (CBE)

Exam. 12.01.2017)

- 26.** The angles of depression of two ships from the top of a light house are 60° and 45° towards east. If the ships are 300 metre apart, the height of the light house is

- (1) $200(3 + \sqrt{3})$ meter
(2) $250(3 + \sqrt{3})$ meter
(3) $150(3 + \sqrt{3})$ meter
(4) $160(3 + \sqrt{3})$ meter

(SSC CGL Tier-II (CBE)

Exam. 12.01.2017)

TYPE-V

- 1.** A pole stands vertically, inside a scalene triangular park ABC. If the angle of elevation of the top of the pole from each corner of the park is same, then in $\triangle ABC$, the foot of the pole is at the
(1) centroid (2) circumcentre
(3) incentre (4) orthocentre
(SSC Graduate Level Tier-I Exam. 21.04.2013 IIInd Sitting)

- 2.** The base of a triangle is $12\sqrt{3}$ cm and two angles at the base are 30° and 60° respectively. The altitude of the triangle is
(1) 12 cm (2) 6 cm
(3) $10\sqrt{3}$ cm (4) 9 cm
(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

- 3.** The two banks of a canal are straight and parallel. A, B, C are three persons of whom A stands on one bank and B and C on the opposite banks. B finds the angle ABC is 30° , while C finds that the angle ACB 60° . If B and C are 100 metres apart, the breadth of the canal is

- (1) $\frac{25}{\sqrt{3}}$ metres
(2) $20\sqrt{3}$ metres
(3) $25\sqrt{3}$ metres
(4) $\frac{20}{\sqrt{3}}$ metres

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015 IIInd Sitting)

- 4.** A person of height 6ft. wants to pluck a fruit which is on a $\frac{26}{3}$ ft. high tree. If the person is standing $\frac{8}{\sqrt{3}}$ ft. away from the base of the tree, then at what angle should he throw a stone so that it hits the fruit ?

- (1) 75° (2) 30°
(3) 45° (4) 60°
(SSC CGL Tier-I Exam, 09.08.2015 IIInd Sitting) TF No. 4239378)

- 5.** If $x = a \cos\theta + b \sin\theta$ and $y = b \cos\theta - a \sin\theta$, then $x^2 + y^2$ is equal to
(1) ab (2) $a^2 + b^2$
(3) $a^2 - b^2$ (4) 1
(SSC CGL Tier-I (CBE)

Exam. 29.08.2016 (IIInd Sitting)

SHORT ANSWERS

TYPE-I

1. (1)	2. (2)	3. (3)	4. (2)
5. (3)	6. (3)	7. (2)	8. (1)
9. (4)	10. (3)	11. (2)	12. (1)

TYPE-II

1. (3)	2. (3)	3. (3)	4. (2)
5. (1)	6. (1)	7. (2)	8. (3)
9. (4)	10. (2)	11. (1)	12. (1)
13. (1)	14. (4)	15. (4)	16. (2)
17. (4)	18. (4)	19. (3)	20. (3)
21. (2)	22. (2)	23. (2)	24. (4)
25. (1)	26. (2)	27. (4)	28. (2)
29. (4)	30. (1)	31. (3)	32. (3)
33. (2)	34. (1)	35. (2)	36. (1)
37. (3)	38. (2)	39. (2)	40. (2)
41. (3)	42. (4)	43. (4)	44. (3)
45. (2)	46. (3)	47. (1)	48. (3)
49. (2)	50. (3)	51. (4)	52. (1)
53. (3)	54. (2)	55. (3)	56. (2)
57. (1)	58. (4)	59. (4)	60. (2)
61. (2)	62. (1)	63. (2)	64. (3)
65. (2)	66. (3)	67. (1)	68. (1)
69. (2)	70. (3)	71. (3)	72. (2)
73. (1)	74. (3)	75. (3)	76. (1)
77. (4)	78. (2)	79. (2)	80. (4)
81. (3)	82. (2)	83. (3)	84. (2)
85. (4)	86. (4)	87. (4)	88. (1)
89. (3)	90. (3)	91. (3)	92. (4)
93. (3)	94. (3)	95. (1)	96. (1)
97. (1)	98. (4)	99. (2)	100. (1)
101. (2)	102. (1)	103. (3)	104. (1)
105. (1)	106. (3)	107. (1)	108. (4)
109. (1)	110. (4)	111. (3)	112. (1)
113. (1)	114. (3)	115. (2)	116. (4)
117. (3)	118. (2)	119. (3)	120. (1)

Importance : It is very important chapter for competitive exams and questions on different difficulty levels are asked.

Scope of questions : Questions are based on angles, ratio/measure of sides angles or bisectors, measure/ratio of trapezium/square/rectangle/parallelogram/pentagon sides/angles, centre, radius, diameter, angle, area and circumference of circle.

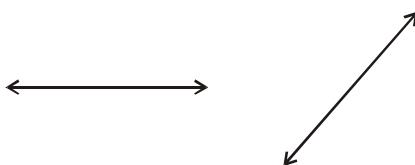
Way to success : The complete and thorough study of this chapter is a must.

- **Line :** A figure formed by joining collinear or non-collinear points is known as line. It has no width e.g.



There are two types of line :

- Straight line :** A line travels a distance without any diversion on straight path, is called straight line. It represents the shortest path between any two points lying on it.



- Curved line :** Line when travels on a diverted path, that is called curved line.



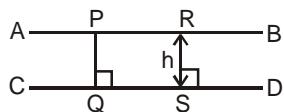
Line segment : A line segment has two end points. i.e. it can not be extended in any direction. Sometimes, a line and a line segment may be used in same sense as that of a line.



- **Ray :** A ray can be extended in one direction only, which is denoted by an arrow. On the other side we have an end point, called the initial point.

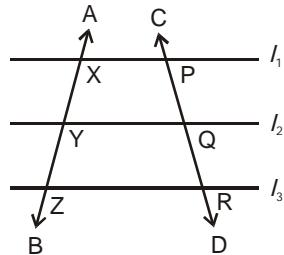
A B represents as \overrightarrow{AB}

- **Parallel lines :** Two lines are said to be parallel, if they do not intersect each other at any point and the distance (perpendicular distance h) between them is constant. They are denoted by the symbol \parallel .



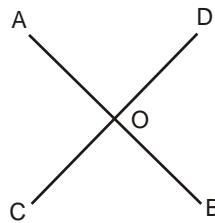
In the above figure $AB \parallel CD$.

- **Transversal line :** A line that intersects two or more parallel lines at different points, is called a transversal.

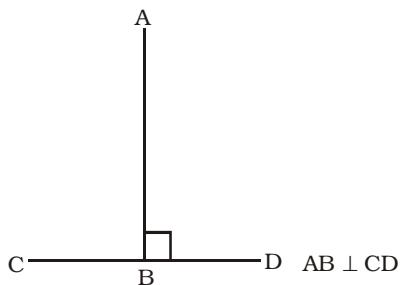


Here, $l_1 \parallel l_2 \parallel l_3$ and AB and CD are two transversal lines.

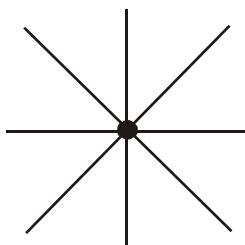
- **Intersecting lines :** Two lines that intersect each other or in other words, share a common point (Called point of intersection) are called intersecting lines.



- **Perpendicular lines :** Two lines that intersect each other at right angle (90°) are called perpendicular lines. They are denoted by the symbol " \perp ".



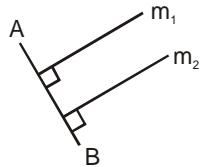
- **Concurrent lines :** Three or more lines are said to be concurrent if they all intersect at one common point as shown below.



- **Coplanar lines :** The lines that lie in the same plane are said to be coplanar lines, otherwise they are called non-coplanar lines. Same holds good for coplanar points (i.e., points that lie in the same plane) and non-coplanar points. (Points that not lie in the same plane.)

Points to remember :

- Three or more points lying on the same line are called collinear points.
- Only one line can be drawn through any two given points.
- Two lines can intersect maximum at one point.
- If two different lines are perpendicular to a third line, then the former are parallel to each other, as shown below.



Here, $m_1 \perp AB$ and $m_2 \perp AB$. Hence, as per above rule $m_1 \parallel m_2$

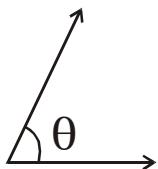
- There are infinite number of points on a straight line.
- Infinite number of lines can be made from a single point

ANGLES

- **Angle :** When two rays have same starting point or an ending point, then an angle is formed.

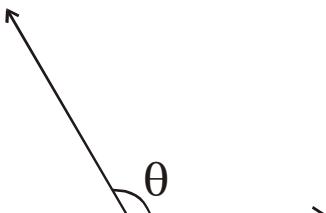
Types of Angles :

- **Acute angle :** An angle greater than 0° but less than 90° (i.e. $\frac{\pi}{2}$ radians) is an acute angle.



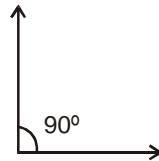
Here $0^\circ < \theta < 90^\circ$ or $0 < \frac{\pi}{2}$

- **Obtuse angle :** An angle which is greater than 90° and less than 180° (π radians) is an obtuse angle.



Here $90^\circ < \theta < 180^\circ$ or $\frac{\pi}{2} < \theta < \pi$

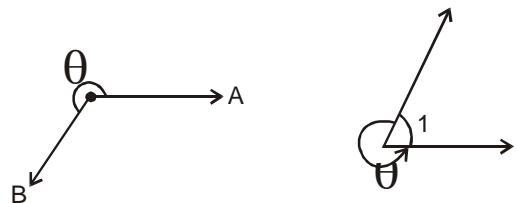
- **Right angle :** An angle equals to 90° (or $\frac{\pi}{2}$ radians) is right angle.



- **Straight angle :** An angle equals to 180° (or π radians) is straight angle.

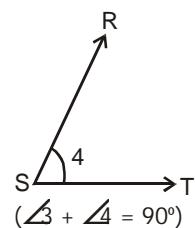
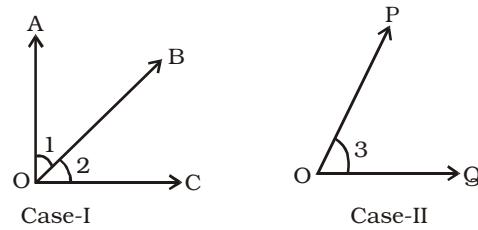


- **Reflex angle :** It is an angle greater than 180° and (or π radians) but less than 360° (2π radians).



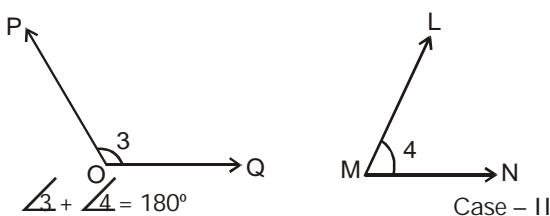
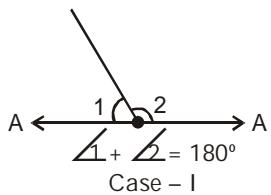
Here, $180^\circ < \theta < 360^\circ$ ($\angle \theta = 360^\circ - \angle 1$)
or $\pi < \theta < 2\pi$

- **Complementary angle :** Two angles are said to be complementary if their sum is equal to 90° (or $\frac{\pi}{2}$ radians).

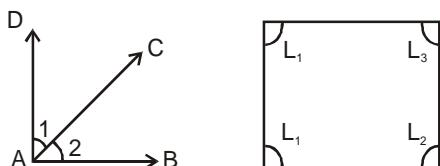


In the above figure, $\angle 1 + \angle 2 = 90^\circ$: Hence, they are complementary angles. Also $\angle 3 + \angle 4 = 90^\circ$, therefore, they are also complementary angles.

- **Supplementary angles :** If the sum of the angles is equal to 180° , then they are called supplementary angles. For example supplementary (or π radians) angle of 50° is $= 180^\circ - 50^\circ = 130^\circ$

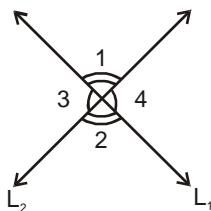


- **Linear pair :** In the case I above, $\angle 1$ and $\angle 2$ form a linear pair. Two angles form a linear pair, if they have one side common between them and the two angles are supplementary.
- **Adjacent angles :** $\angle 1$ and $\angle 2$ are called adjacent angles, since they have one side common between them.

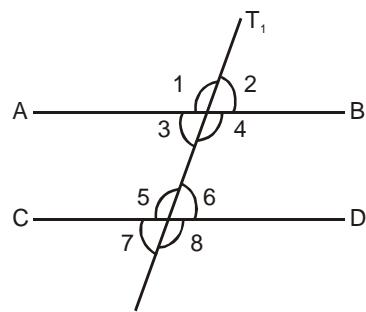


L_1 & L_2 are adjacent angles.

- **Vertically opposite angles :** Let L_1 and L_2 be two intersecting lines as shown below, then $\angle 1$ and $\angle 2$ are said to be vertically opposite angles. Also, $\angle 3$ and $\angle 4$ are vertically opposite angles.



- **Angles between parallel lines :** Let AB and CD be two parallel lines that are intercepted by a transversal T_1 , then we have.



Corresponding angles : $\angle 1 = \angle 5$, $\angle 2 = \angle 6$, $\angle 4 = \angle 8$, and $\angle 3 = \angle 7$ are pair of corresponding angles will be equal.

Interior Alternate angles : $\angle 3 = \angle 6$, $\angle 4 = \angle 5$.

- **Vertically opposite angles :** $\angle 1 = \angle 4$, $\angle 2 = \angle 3$, $\angle 5 = \angle 8$, $\angle 6 = \angle 7$ are pair of vertically opposite angles.
- **Opposite interior angles :** $\angle 3 + \angle 5 = 180^\circ$ and $\angle 4 + \angle 6 = 180^\circ$.

TRIANGLES

Types of Triangle : According to Sides :

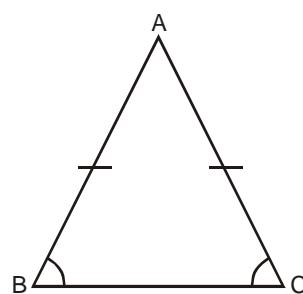
(i) **Equilateral Triangle :** A triangle whose all the three sides are equal, is called an equilateral Δ . If in ΔABC , if $AB = BC = AC$, then ΔABC is an equilateral triangle. Also, all angles of an equilateral triangle are equal i.e., $\angle A = \angle B = \angle C = 60^\circ$.

(ii) **Isosceles triangle :** A triangle with two equal sides is an isosceles triangle.

Also, angles opposite to equal sides are equal.

In isosceles ΔABC , if $AB = AC$

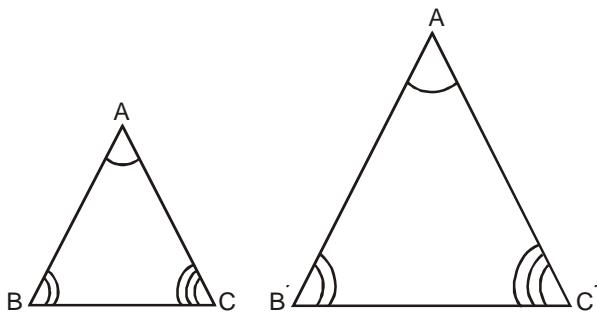
then $\angle ACB = \angle ABC$.



(iii) **Scalene triangle :** A triangle in which none of the three sides is equal is called a scalene triangle. In a scalene triangle $AB \neq BC \neq CA$ and $\angle A \neq \angle B \neq \angle C$

According to Angles :

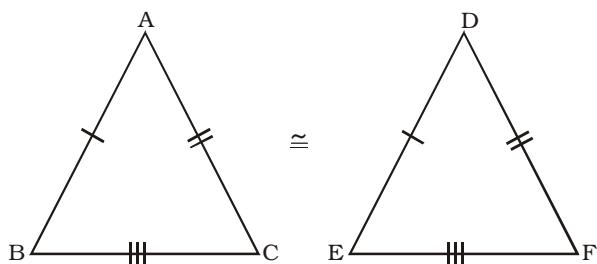
- (i) **Acute angled triangle** : It is one in which all the angles are less than 90° or in other words, all the angles are acute.
- (ii) **Right angled triangle** : It is one with one angle equals to 90° . side opposite to 90° is called hypotenuse.
- (iii) **Obtuse angled triangle** : A triangle with one of its angle greater than 90° or obtuse.
- **Similar Triangles** : If all the angles of a triangle are equal to the angles of another triangle, then both are called similar triangles [relation represented as \sim] to each other.



Here, $\angle A = \angle A'$, $\angle B = \angle B'$, $\angle C = \angle C'$, then $\triangle ABC$ and $\triangle A'B'C'$ will be similar. So, $\triangle ABC \sim \triangle A'B'C'$

$$\therefore \frac{AB}{A'B'} = \frac{BC}{B'C'} = \frac{CA}{C'A'}$$

- **Congruent Triangles** : Any two triangles are called congruent triangles (relation represented as \cong), when a triangle covers totally the other triangle. In other words if both triangles are exactly same (identical) to each other in sides or angles.



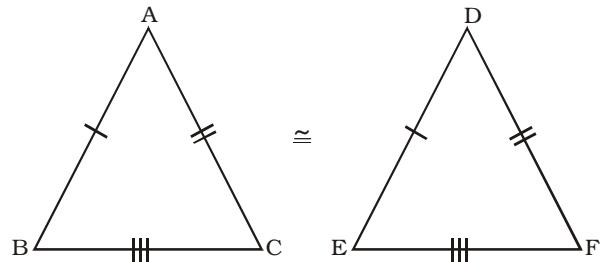
Here, in $\triangle ABC$ and $\triangle DEF$

$\angle A = \angle D$, $\angle B = \angle E$, $\angle C = \angle F$, and $AB = DE$, $BC = EF$, $CA = FD$ then

$$\therefore \triangle ABC \cong \triangle DEF.$$

Congruency conditions :

- **S-S-S (Side-Side-Side)** : Here, $AB = DE$, $BC = EF$ and $AC = DF$, then
 $\therefore \triangle ABC \cong \triangle DEF$ by S-S-S congruency condition.

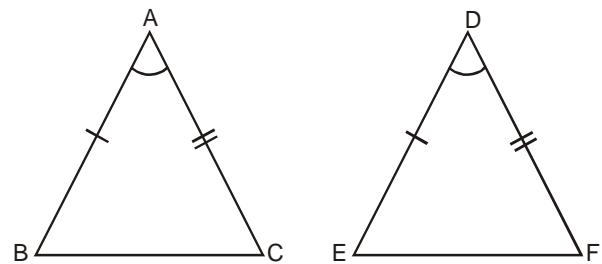


- **S-A-S (Side-Angle-Side)** :

Here, $AB = DE$, $AC = DF$

and $\angle A = \angle D$ then

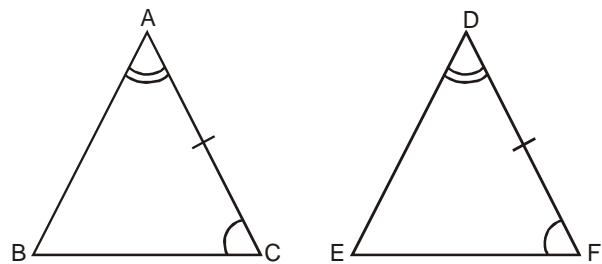
$$\therefore \triangle ABC \cong \triangle DEF \text{ by SAS congruency condition.}$$



Note : The angle involved in SAS condition must lie between the sides.

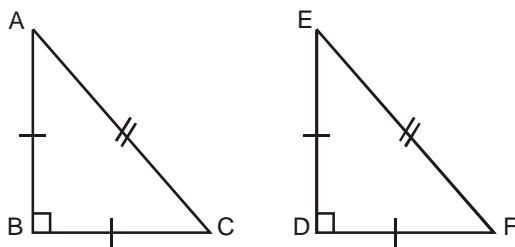
- **A-S-A (Angle-Side-Angle)** : Here, $\angle A = \angle D$, $\angle C = \angle F$ and $AC = DF$, then

$$\therefore \triangle ABC \cong \triangle DEF \text{ by ASA congruency condition.}$$



Note : The side involved in ASA condition must lie between the angles.

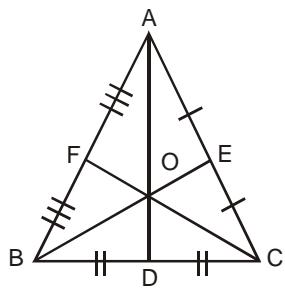
R.H.S (Right-Hypotenuse-Side) :



If any two sides of a right angled triangle are equal (separately) to any two corresponding sides of another right angled triangle then both triangles are congruent.

Here, $\angle B = \angle D = 90^\circ$ and $AB = DE$ and $AC = EF$, then
 $\therefore \triangle ABC \cong \triangle DEF$.

Median :



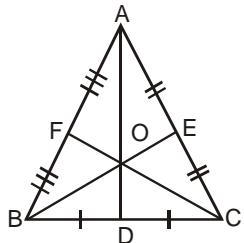
A line drawn from a vertex to the opposite side of a triangle, which divides the side into 2 equal parts is called a median.

Here, AD, BE and CF are medians and

$BD = DC$, $CE = AE$ and

$AF = BF$

Centroid (Centre of gravity) :



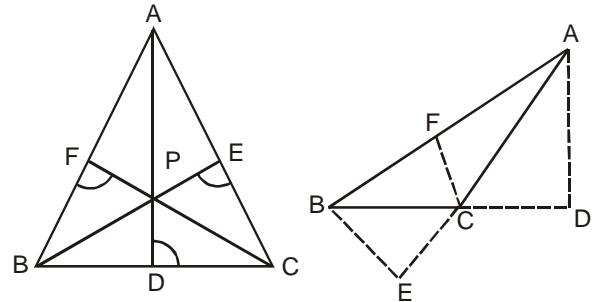
A Centroid (point in figure) is the point of intersection of three medians.

Rule 1. The centroid divides a median in the ratio of 2 : 1 with the larger part towards the vertex, i.e., G divides BE, CF and AD in the ratio of 2 : 1.

$$\therefore \frac{AO}{OD} = \frac{BO}{OE} = \frac{CO}{OF} = \frac{2}{1}$$

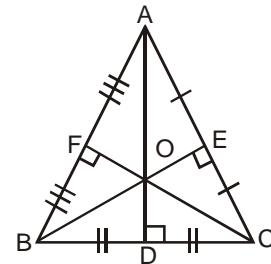
The medians make 6 triangles of equal areas, as-
 $\text{ar } \triangle AFO = \text{ar } \triangle FOB = \text{ar } \triangle OBD = \text{ar } \triangle ODC = \text{ar } \triangle COE$
 $= \text{ar } \triangle AOE = \frac{1}{6} \text{ ar } \triangle ABC$

- **Altitude :** An altitude is nothing but the height of a triangle. It is a perpendicular drawn from a vertex to the opposite side.

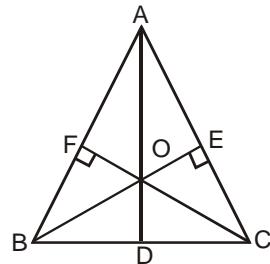


A triangle can have three altitudes. In case of an obtuse triangle atleast one altitude lies out side the triangle.
AD, BE and CF are altitudes.

- **Perpendicular Bisector :** A line that bisect a side of the triangle at right angle is called the perpendicular Bisector. OD is the perpendicular bisector of BC if $BD = DC$ and $\angle ODC = \angle ODB = 90^\circ$.



- **Ortho centre :** It is the point of intersection of three Altitudes of a triangle. In $\triangle ABC$, O is the Orthocentre.



Here, AD, BE and CF are altitudes of $\triangle ABC$.

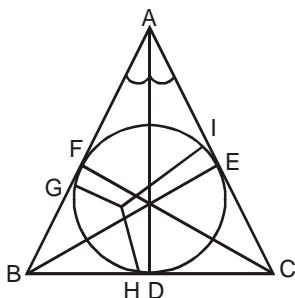
$$\therefore \angle BOC + \angle A = 180^\circ$$

GEOMETRY

$$\angle AOB + \angle C = 180^\circ$$

$$\angle COA + \angle B = 180^\circ$$

- **Incentre :** The point of intersection of the Angle Bisectors of a triangle is called the Incentre.



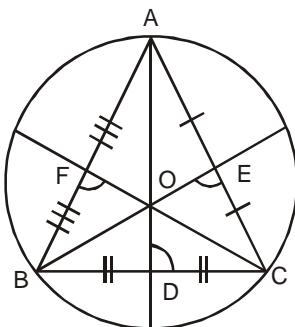
In $\triangle ABC$, given above AD, BE and CF are the angle bisectors of A, B and C respectively. Therefore O is the incentre, and OH, OI and OG are in-radii.

Circumcentre :

The point of intersection of the Perpendicular Bisectors of the sides of a triangle is called the circumcentre.

Here, O is the circum centre and OA, OB and OC are circum radii.

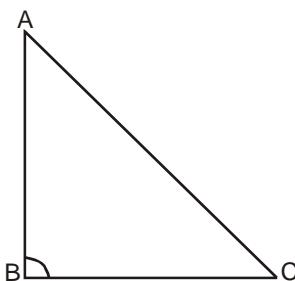
Here, $\angle BOC = 2 \angle A$, $\angle COA = 2 \angle B$, $\angle AOB = 2 \angle C$.



Properties of Triangles :

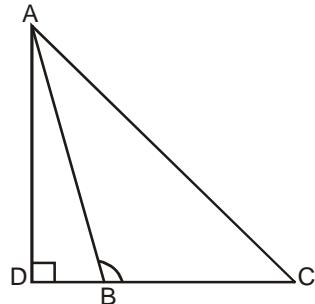
- (1) **Pythagoras theorem :** In any right angled triangle $AB^2 + BC^2 = AC^2$, where

AB is Perpendicular, BC is Base, AC is Hypotenuse

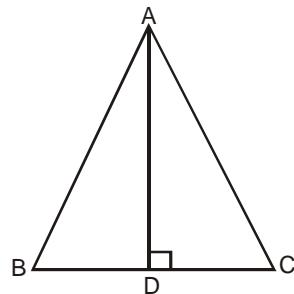


- (2) If in a certain triangle ABC, $\angle B$ is obtuse angle, and $AD \perp BC$, then

$$AC^2 = AB^2 + BC^2 + 2BC \cdot AD$$

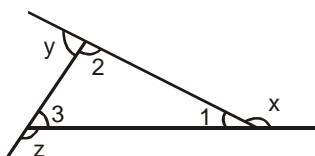


- (3) If in a certain $\triangle ABC$,



$\angle C$ is acute angle, and $AD \perp BC$, then $AB^2 = BC^2 + AC^2 - 2BC \cdot DC$.

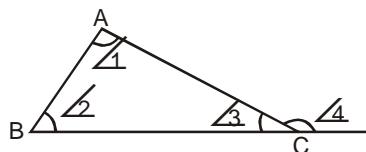
- (4) Sum of interior angles of a triangle is 180° and sum of exterior angles is 360°



$$\therefore \angle 1 + \angle 2 + \angle 3 = 180^\circ. \angle x + \angle y + \angle z = 360^\circ.$$

- (5) In a triangle, sum of two sides is always greater than third side.

- (6) In the given $\triangle ABC$



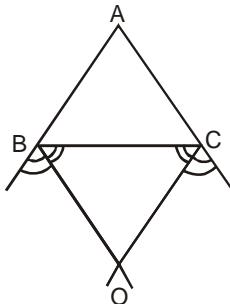
$$\angle 4 = \angle 1 + \angle 2 \text{ and } \angle 3 + \angle 4 = 180^\circ.$$

GEOMETRY

- (7) In the given $\triangle ABC$ If OB and OC are the bisectors of angles of triangle $\angle B$ and $\angle C$, then $\angle BOC = 90^\circ + \frac{\angle A}{2}$

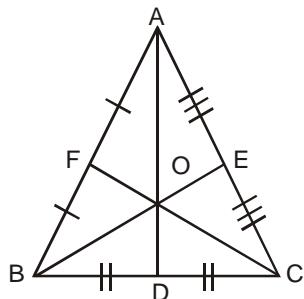
$$= 90^\circ + \frac{\angle A}{2}$$

- (8) If in the $\triangle ABC$, the sides AB and AC are extended and the bisectors of exterior angles of $\angle B$ and $\angle C$ meet at O then $\angle BOC = 90^\circ - \frac{\angle A}{2}$

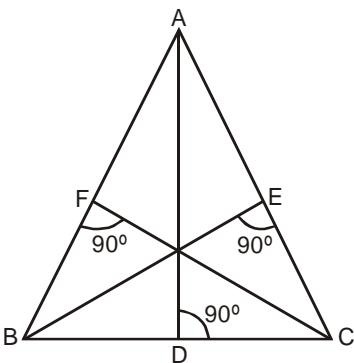


- (9) In the given $\triangle ABC$, AD, BE and CF are the medians, then

$$AD + BE + CF > \frac{AB + BC + CA}{2}$$

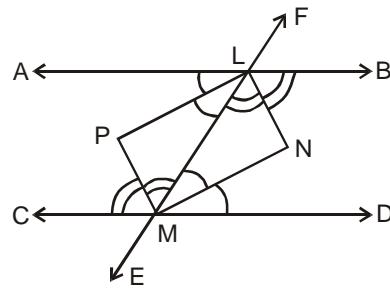


- (10) In the given $\triangle ABC$, if AD, BE and CF are the Perpendiculars, then, $AB + BC + CA > AD + BE + CF$.

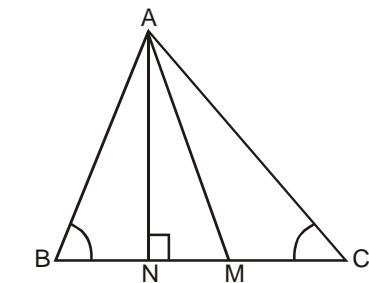


- (11) If a line intersects two parallel lines, then bisectors of the interior angles make a rectangle.

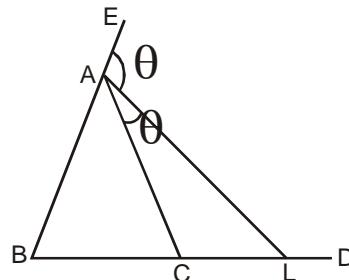
\therefore LNMP is a rectangle.



- (12) In the given $\triangle ABC$, AM is the bisector of angle $\angle BAC$ and $AN \perp BC$ then $\angle MAN = \frac{1}{2} (\angle B - \angle C)$

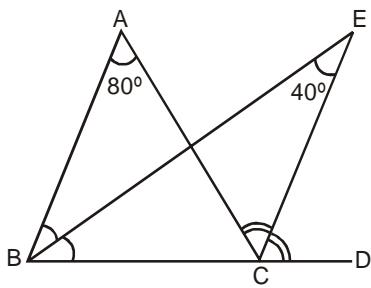


- (13) In $\triangle ABC$, If BC is extended to D, and AL is the bisector of exterior angle $\angle A$ then $\angle ABC + \angle ACD = 2 \angle ALC$.

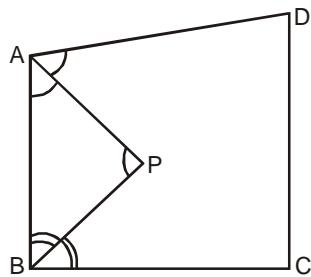


Here, BA is extended to BE.

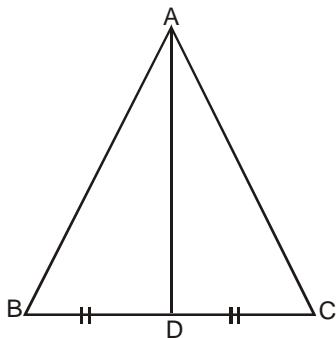
- (14) In a $\triangle ABC$, if BC is extended to D and BE and CE are the bisectors of $\angle ABC$ and $\angle ACD$ which meet at E, then $\angle BEC = \frac{1}{2} \angle A$



- (15) In the given quadrilateral, the bisectors of adjacent angles meet at P, then, $\angle APB = - \frac{1}{2} (\angle C - \angle D)$ where $\angle C > \angle D$

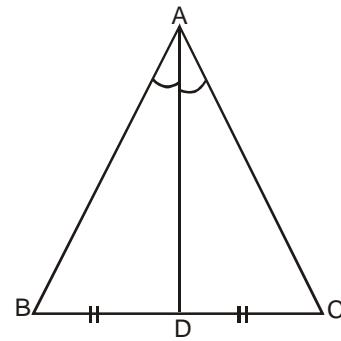


- (16) In any $\triangle ABC$, if AD is the median then $\frac{AB}{AC} = \frac{BD}{DC}$.

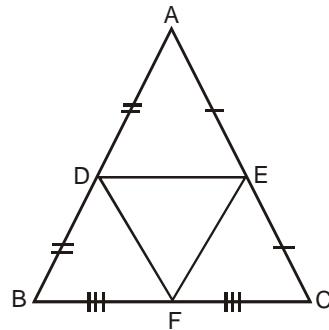


- (17) In any $\triangle ABC$, if AD is the bisector of angle $\angle A$ then,

$$\frac{AB}{AC} = \frac{BD}{DC}$$

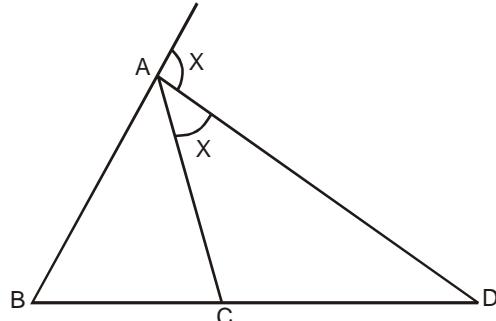


- (18) In any $\triangle ABC$, D and E are the mid-points of sides AB and AC respectively, then $DE \parallel BC$ and $DE = \frac{1}{2} BC$,
 $\text{area } \triangle ADE = \frac{1}{4} \text{ area } (\triangle ABC)$ and $\frac{AD}{BD} = \frac{AE}{EC}$



According to figure, F is mid-point of BC then area
 $\triangle DEF = \frac{1}{4} \text{ area } (\triangle ABC)$

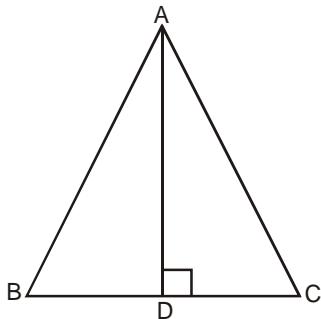
- (19) In $\triangle ABC$, AD is the bisector of exterior angle $\angle A$,
then, $\frac{BD}{DC} = \frac{AB}{AC}$



- (20) In an equilateral $\triangle ABC$, if $AD \perp BC$, then,

$$\frac{\|AB\|^2}{\|AD\|^2} = \frac{4}{3}$$

$$\therefore 3(AB)^2 = 4(AD)^2$$

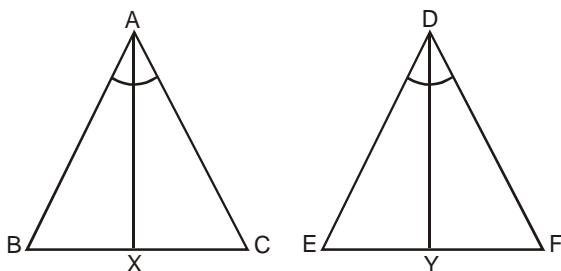


(21) Here, $\triangle ABC$ and $\triangle DEF$ are similar, then

$$\frac{\text{area } \triangle ABC}{\text{area } \triangle DEF} = \left(\frac{AB}{DE}\right)^2 = \left(\frac{BC}{EF}\right)^2 = \left(\frac{AC}{DF}\right)^2 = \left(\frac{AX}{DY}\right)^2 \\ = \left(\frac{P_1}{P_2}\right)^2$$

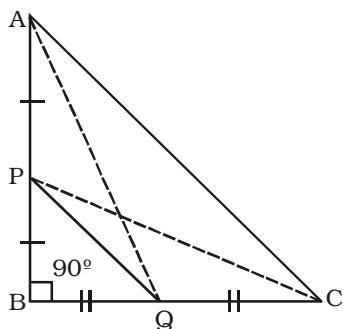
P_1 = Perimeter of $\triangle ABC$

P_2 = Perimeter of $\triangle DEF$

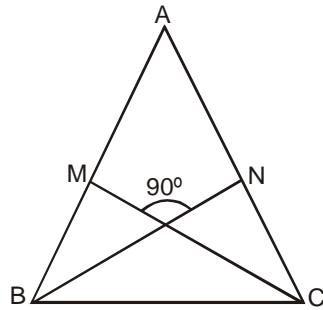


(22) In the given figure, $\triangle ABC$ is a right angled triangle, in which P and Q are the mid-point on the side AB and BC respectively.

$$\text{then } 4((AQ)^2 + (CP)^2) = 5(AC)^2 = 20(PQ)^2$$

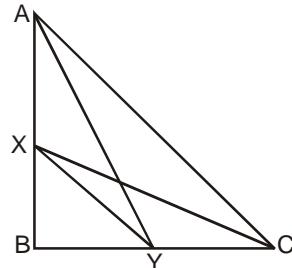


(23) If in $\triangle ABC$, BN and CM are the medians of the triangle intersecting at 90° , then $(AB)^2 + (AC)^2 = 5(BC)^2$.

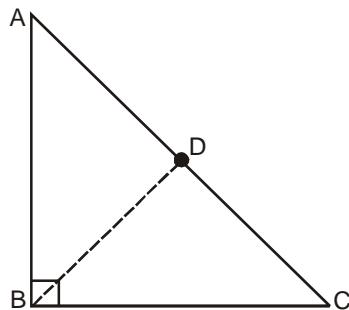


(24) In $\triangle ABC$, $\angle B = 90^\circ$ and X and Y are the points on sides AB and BC respectively.

$$\text{then } (AY)^2 + (XC)^2 = (AC)^2 + (XY)^2$$

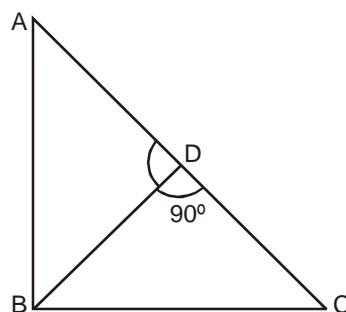


(26) Circumcentre of a right angled triangle lies on the mid-point of the hypotenuse, therefore, $AD = BD = DC = \text{radius of circumcircle}$



(27) If $\triangle ABC$ is a right angled Δ , such that $\angle B = 90^\circ$. And $BD \perp AC$.

$$\text{then, } BD = \sqrt{AD \times DC} \text{ and } BD = \frac{AB \times BC}{AC}$$

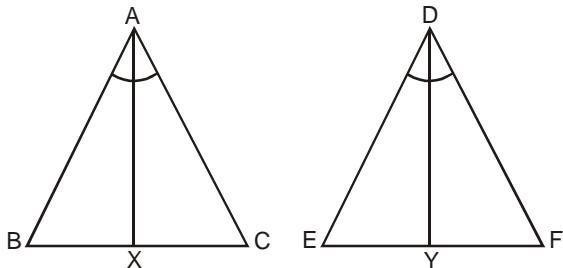


- (28) In the given figure $\triangle ABC \sim \triangle DEF$

P_1 = Perimeter of $\triangle ABC$

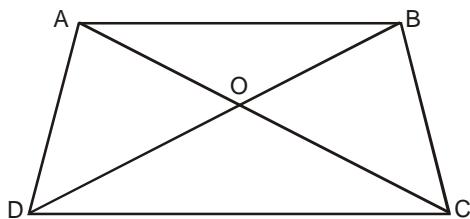
P_2 = Perimeter of $\triangle DEF$

$$\therefore \frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF} = \frac{AX}{DY} = \frac{P_1}{P_2}$$

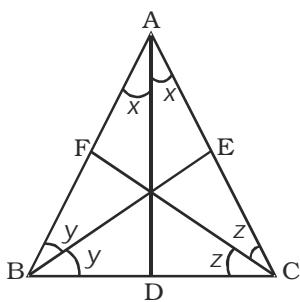


- (29) In the given figure, $\square ABCD$ is a trapezium with $AB \parallel DC$

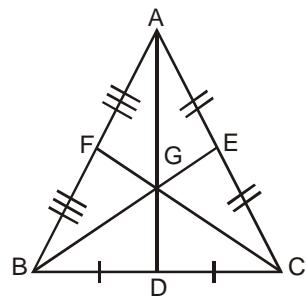
then, $\frac{OA}{OC} = \frac{OB}{OD}$.



- (30) If all of these medians bisect the angles from where it start, then Δ will be equilateral. In the given figure, AD and BE are medians of $\triangle ABC$, then $BD = DC$, $AE = CE$, $\angle BAD = \angle CAD$, $\angle EBC = \angle EBA$ then $AB = BC = AC$
 $\therefore \triangle ABC$ is an equilateral triangle.

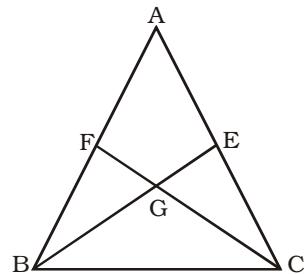


- (31) In the given $\triangle ABC$, AD, BE and CF are the medians. If $AD = BE = CF$, then $AB = BC = AC$ So, triangle $\triangle ABC$ will be an equilateral triangle.

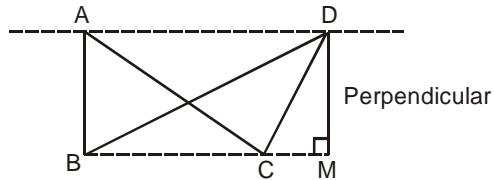


- (32) In the triangle ABC If medians BE and CF are equal i.e., $BE = CF$ then $AB = AC$

$\therefore \triangle ABC$ is an isosceles triangle.



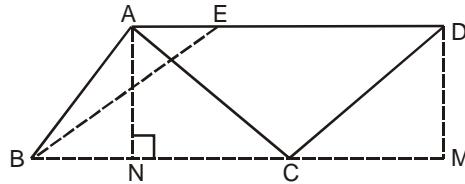
- (33) Triangles on the same base and between two parallel lines are equal in area.



\therefore Area $\triangle ABC$ = Area $\triangle BDC$. (as both triangles lie on base BC)

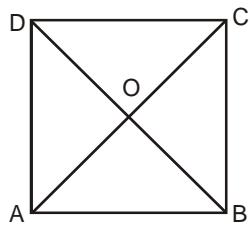
- (34) If a parallelogram and a triangle lie on same base and between two parallel lines, then area of $\triangle ABC$

$$= \frac{1}{2} (\text{Area parallelogram EBCD})$$

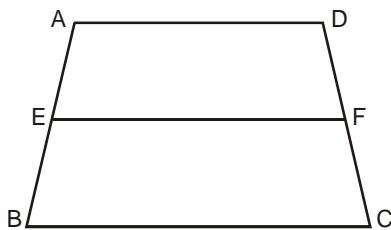


- (35) The perimeter of a quadrilateral is greater than the sum of its diagonals.

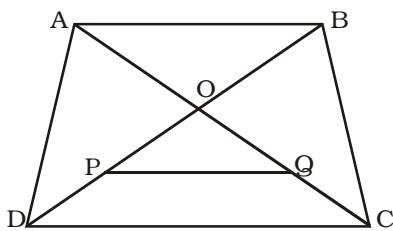
$\therefore AB + BC + CD + DA > AC + BD$.



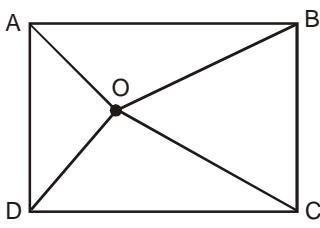
- (36) \square ABCD is a trapezium, $AD \parallel BC$ and E and F are the mid-points of AB and DC respectively, then $EF = \frac{1}{2} (AB + CD)$



- (37) \square ABCD is a trapezium, then $AB \parallel DC$, P and Q are the mid-points of diagonals BD and AC respectively, then $PQ = \frac{|DC - AB|}{2}$

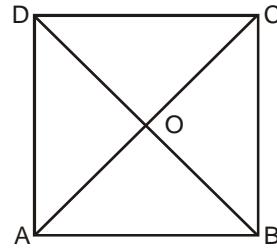


- (38) \square ABCD is a rectangle, O is any point in \square ABCD. then. $OA^2 + OC^2 = OB^2 + OD^2$.



QUADRILATERALS

- **Quadrilaterals :** Quadrilateral is a figure which is bounded by four straight lines. Here, ABCD is a quadrilateral in which BD and AC are two diagonals, which cut each other at O. $\angle A + \angle B + \angle C + \angle D = 360^\circ$



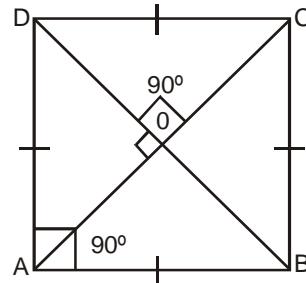
- **Square :** The quadrilateral whose all sides are equal is called square. Every angle is right angle (90°). Diagonals AC and BD are equal and cut each other at 90° .

$$\therefore \begin{aligned} \text{(i)} \ AB &= BC = CA = AD = \text{side} = a \\ \text{(ii)} \ \text{diagonal } (AC) &= \text{diagonal } (BD) = \sqrt{2} \text{ side} = a\sqrt{2} \end{aligned}$$

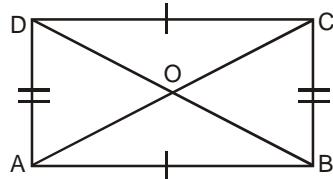
$$\text{(iii)} \ \angle A = \angle B = \angle C = \angle D = 90^\circ \text{ (every angle)}$$

$$\text{(iv)} \ OD = OB = OA = OC$$

(v) Note that square is a special kind of rectangle as well as rhombus. Hence, all properties of Rectangle and Rhombus will be satisfied for a square.



- **Rectangle :** \square ABCD is a rectangle whose properties are –



$$\text{(i)} \ AB = CD \text{ and } AB \parallel CD, BC = DA \text{ and } BC \parallel AD.$$

$$\text{(ii)} \ \text{Diagonal } AC = \text{Diagonal } BD.$$

$$\text{(iii)} \ \angle A = \angle B = \angle C = \angle D = 90^\circ$$

$$\text{(iv)} \ AC^2 = AB^2 + BC^2 = BD^2 = BC^2 + CD^2$$

$$\text{(v)} \ AC \text{ bisects } BD \text{ and vice versa}$$

Parallelogram :

- \square ABCD is a parallelogram whose properties are –

$$\text{(i)} \ AB = CD \text{ and } AB \parallel CD \text{ and } BC = DA \text{ and } BC \parallel DA.$$

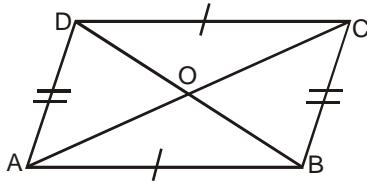
$$\text{(ii)} \ \text{diagonals } AC \text{ and } BD \text{ bisect each other means } OA = OC \text{ and } OB = OD, \text{ but } AC \neq BD. \text{ [Note]}$$

$$\text{(iii)} \ \angle A = \angle C, \angle B = \angle D \text{ (opposite angles are equal)}$$

GEOMETRY

(iv) $\angle A + \angle B = \angle B + \angle C = \angle C + \angle D = \angle D + \angle A = 180^\circ$

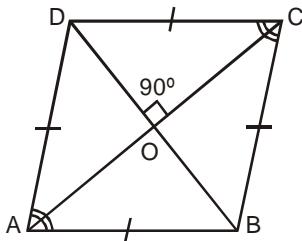
(Sum of adjacent angles is 180°)



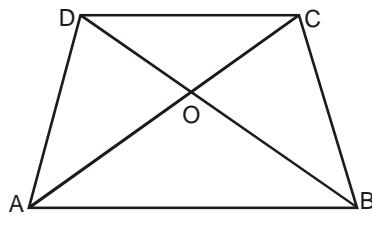
Rhombus :

\square ABCD is a Rhombus whose properties are-

- (i) $AB = BC = CD = DA$ (all sides are equal)
- (ii) $AD \parallel BC$, and $AB \parallel CD$.
- (iii) $\angle A = \angle C$ and $\angle B = \angle D$ (but not equal to 90°)
- (iv) $\angle A + \angle B = 180^\circ$, $\angle B + \angle C = 180^\circ$, $\angle C + \angle D = 180^\circ$, $\angle D + \angle A = 180^\circ$ [i.e. sum of Adjacent angles is 180°]
- (v) The diagonals AC and BD bisect each other at 90° . It means $AC \perp BD$ and $OA = OC$ and $OD = OB$ but $AC \neq BD$. [Note]



- **Trapezium :** \square ABCD is a quadrilateral in which two sides ($AB \parallel DC$) are parallel to each other but they are not equal ($AB \neq DC$), that is called trapezium.



Here, $AB \parallel DC$ But $AD \neq BC$

- **Rhomboid :** The quadrilateral in which two adjacent sides are equal to each other.

Some Properties of Quadrilaterals

- **Polygon :** Polygon is a sector (2D-shape) which is bounded by three or more than three straight lines. On the basis of number of sides, there are different names of polygon. In Regular Polygons all sides are equal.

Polygon	No. of sides
Quadrilateral	4
Pentagon	5
Hexagon	6
Heptagon	7
Octagon	8
Nonagon	9
Decagon	10

Properties of Regular Polygons :

- (i) Sum of interior angles of a polygon
 $= (n - 2) \times 180^\circ$ where n is no. of sides.
- (ii) Each exterior angle of a polygon $= 180^\circ -$ (every interior angle).

$$(iii) \text{ Each interior angle of a polygon} = \frac{(n - 2) \times 180^\circ}{n}$$

- (iv) Sum of all exterior angles of a polygon is 360°

$$(v) \text{ Every exterior angle of a polygon} = \frac{360^\circ}{n}.$$

- (vi) Measurement of each angle at the centre made by any side of a polygon $= \frac{360^\circ}{n}$

$$(vii) \text{ Number of diagonals of a polygon} = \frac{n(n - 3)}{2}$$

Area of polygon :

- (i) The area of a polygon of n sides

$$= \frac{na^2}{4} \cot \frac{\pi}{n}$$

, where n = no. of sides, a

= length of side.

- (ii) Radius of outer circle of a polygon having n sides

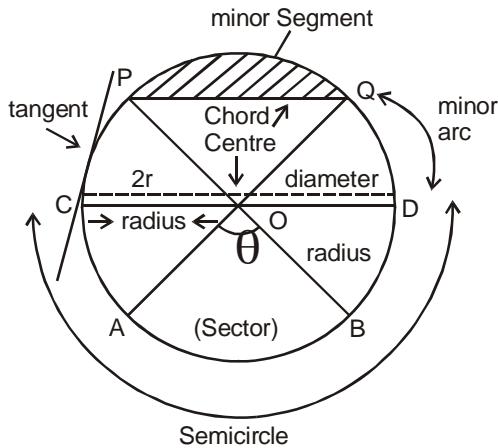
$$(R) = \frac{a}{2} \operatorname{cosec} \frac{180^\circ}{n}.$$

- (iii) Radius of inner circle of a polygon having n sides (r)

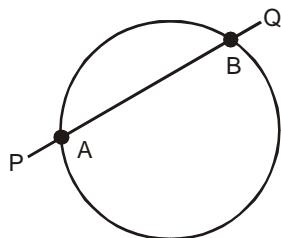
$$= \frac{a}{2} \cot \frac{180^\circ}{n}.$$

CIRCLE

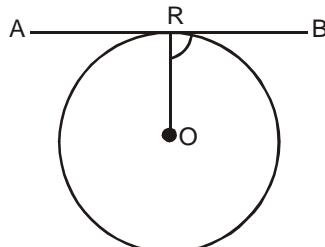
- **Circle :** A circle is a set of points, lying at a constant distance from a fixed point. That constant distance is called radius (r) and the fixed point is called its centre.



- **Centre :** The fixed point is called the centre of the circle. In the above figure, O is the centre of the circle.
- **Radius :** OA, OB, OC are the radii of circle in the above figure. A radius is the distance from centre of a circle to any point on its circumference.
- **Chord :** Any line segment whose end points lie on the circle is called a chord. PQ is the chord of circle with centre O as shown above.
- **Diameter :** Diameter is the longest chord of the circle. It is that chord, which passes through the centre. A diameter is twice the radius of a circle.
- **Secant :** A line segment that intersects a circle at two points is called a secant. Here, PQ is the secant that intersects the circle at points A and B.



- **Tangent :** A line that touches the circle at one and only one point is called a tangent.

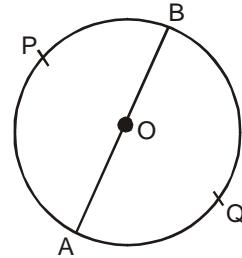


Note : Radius is always perpendicular to the tangent.

$$\therefore \angle ORB = \angle ORA = 90^\circ, \text{ So, } OR \perp AB.$$

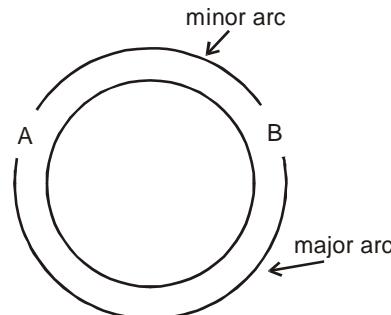
- **Semi-circle :** As the name suggest, semicircle is half the circle.

A diameter divides a circle into two semi-circles. APB and AQB are two semicircles made by diameter AB. Measure of a semicircle = 180°

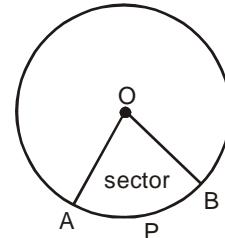


- **Arc :** In the given circle, let A and B be any two points on the circle.

We get two arcs here (by two points) i.e. minor arc AB and major arc AB. An arc is denoted by the symbol \cap e.g. arc AB or (\overarc{AB})

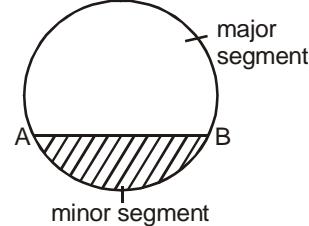


- **Sector :** The part of the circle which is bounded by an arc and two radius is called sector.



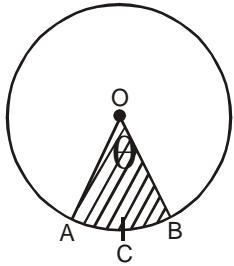
Here, OAPB is a sector.

- **Segment :** A circle is divided into two parts by a chord, which are called segments. In the given figure, chord AB divides circle into two segments, minor segment and major segment.

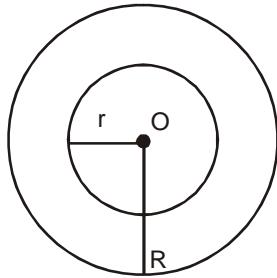


- **Circumference :** The perimeter of a circle is called its circumference (C) and it is equal to $2\pi r$. i.e. $C = 2\pi r$

- **Area of Sector :** Area of sector OACB = $\frac{\pi r^2 \theta}{360^\circ}$, where θ is the angle sub-tended at centre by \widehat{ACB} .

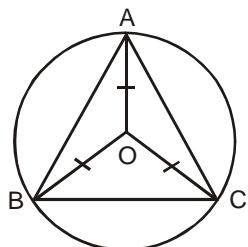


- **Concentric circles :** Two circles are said to be concentric if they have the same centre.



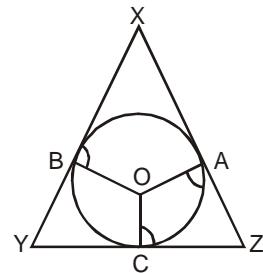
In the given figure, we have two concentric circles with radius r and R , but with same centre O .

- **Congruent Circles :** Two circles having equal radii, are called congruent circles.
- **Central angle :** Angle subtended at the centre is called the central angle.
- **Circumcircle :** It is the circle drawn around a triangle, in such a way that the vertices of a triangle lie on the circle, as shown here.

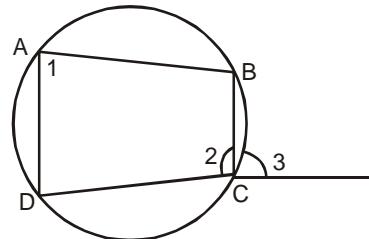


- **Incircle :** It is the circle drawn inside a triangle such that all the three sides of triangle are tangents to the circle.

Since radius is perpendicular to the tangent $OA \perp XZ$, $OC \perp YZ$ and $OB \perp XY$. Also $OA = OB = OC = r$, O is the incentre.

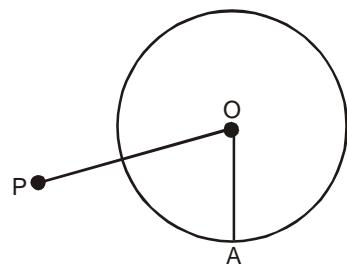


- **Cyclic Quadrilateral :** It is a quadrilateral whose all four vertices lie on the circle. Also the sum of opposite angles is equal to 180° .
 $\therefore \angle 1 + \angle 2 = 180^\circ$, also $\angle 2 + \angle 3 = 180^\circ$
 $\Rightarrow \angle 1 = \angle 3$.
 i.e. In a cyclic quadrilateral, exterior angle is equal to interior opposite angle.

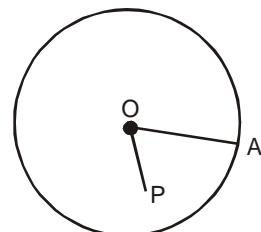


Properties of Circles :

- If a point lies outside the circle, then distance from that point to centre is greater than radius i.e. $OP > OA$

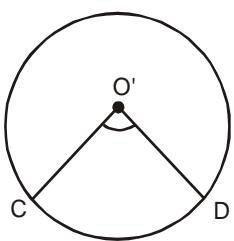
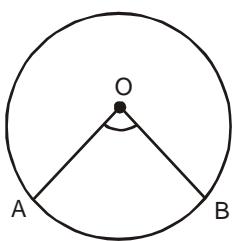


- If a point lies inside the circle, then distance from that i.e. $OP < OA$ point to centre is less than radius.



- In the given figure. In two circles of same radii.

GEOMETRY



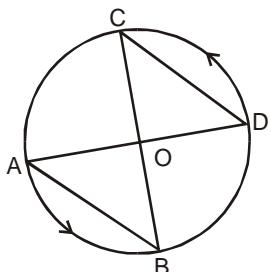
If $m \widehat{AB} = m \widehat{CD}$ then $\widehat{AB} \cong \widehat{CD}$
It means, $\angle AOB = \angle CO'D$ then arc $AB \cong$ arc CD

Again, if $\widehat{AB} \cong \widehat{CD}$ then $m \widehat{AB} = m \widehat{CD}$
i.e. if arc $AB \cong$ arc CD then $\angle AOB = \angle CO'D$.

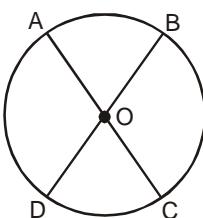
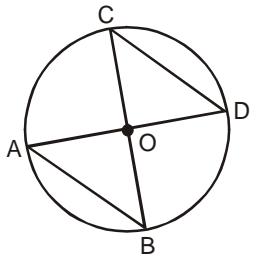
* In the given circle,

If $\widehat{AB} = \widehat{CD}$

$\therefore AB = CD$ (Chords)



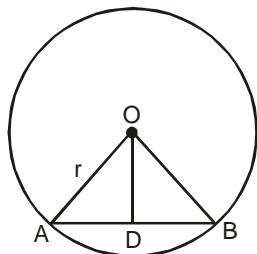
- In the given figure chord $AB =$ Chord CD , then minor arc $AB \cong$ minor arc CD as chord $AC =$ Chord BD
 $\therefore \widehat{AC} \cong \widehat{BD}$



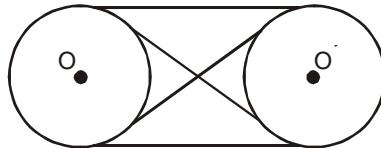
- In the given figure, if $OD \perp AB$

$$\therefore AD = BD = \frac{AB}{2}$$

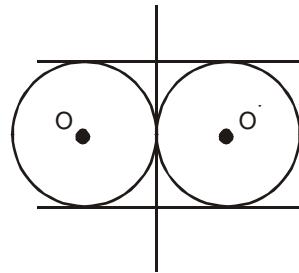
$$\therefore OD = \sqrt{OA^2 - AD^2}$$



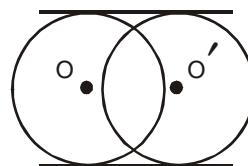
- If two circles do not touch each other then 4 tangents can be drawn.



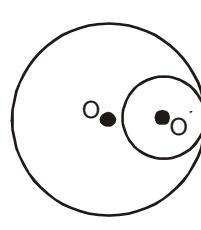
- If two circles touch each other externally, then 3 tangents can be drawn.



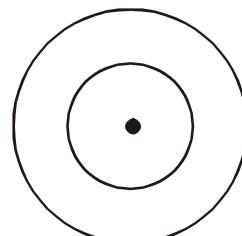
- If two circles cut each other, then two tangents can be drawn.



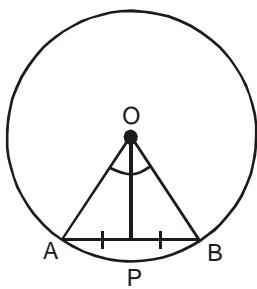
- If one circle touches another circle internally, then only one tangent can be drawn.



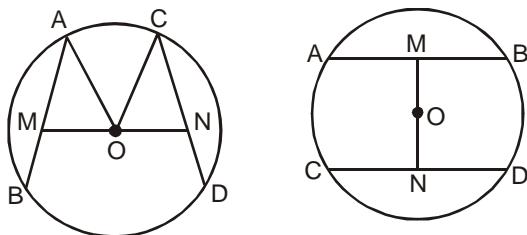
- There is no common tangent of two concentric circles.



- In the given figure if OP bisect AB , such that $AP = BP$, then $OP \perp AB$.

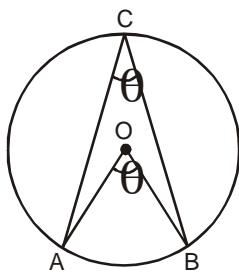


- Only one circle can be drawn through 3 non-collinear points.
- In the given figure, if $AB = CD$, then $OM = ON$ where $OM \perp AB$ and $ON \perp CD$

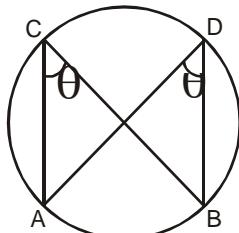


Converse : If $OM = ON$ then, $AB = CD$.

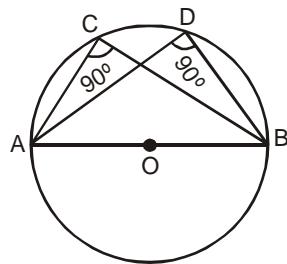
- In the given figure, $\angle AOB = 2 \angle ACB$. i.e. Angle made by an Arc on centre = $2 \times$ Angle made at circumference by same arc.



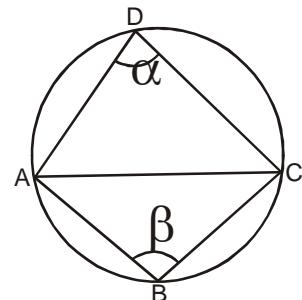
- Two angles subtended by the same arc AB on two different points C & D at circumference are equal i.e. $\angle ACB = \angle ADB$.



- Angles subtended by semicircle is right angle i.e. (90°), $\angle ACB = \angle ADB = 90^\circ$

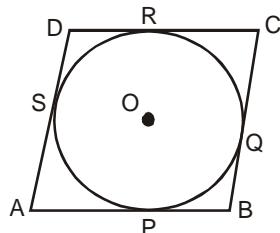


- Angles lying on both sides of segments subtended by a chord are supplementary to each other. Here AC is a chord, then, $\angle \alpha + \angle \beta = 180^\circ$

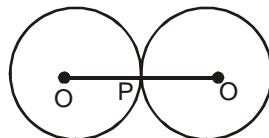


- If a circle drawn interior to a parallelogram touches all its sides, then the parallelogram is a Rhombus.

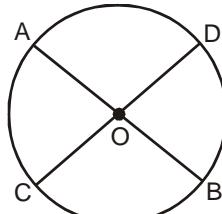
$\therefore \square ABCD$ is a rhombus.



- Only one tangent can be drawn through a point on circumference of circle.
- Two circles touch each other at point P then their centres O and O' and P will be collinear.

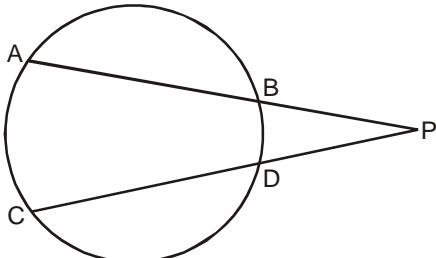


- AB and CD are chords of circle which cut each other at O. then $OA \times OB = OC \times OD$.

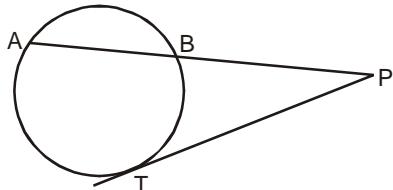


GEOMETRY

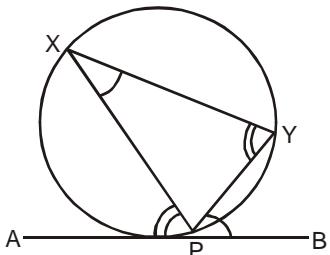
- According to given figure, chords AB and CD cut each other at P externally, then,
 $PA \times PB = PC \times PD$.



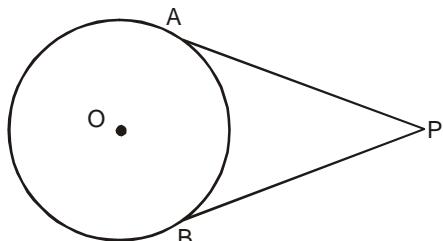
- According to figure, PT is tangent at point T and AB is a chord, then, $PA \times PB = (PT)^2$.



- According to figure, AB is tangent at point P, then, $\angle APX = \angle PYX$, $\angle BPY = \angle PXY$.

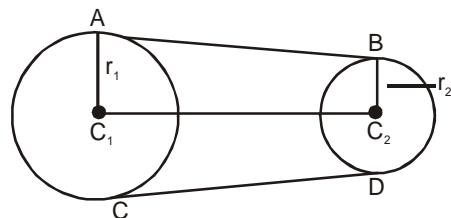


- In the given figure, PA and PB are two tangents, from a point P, then $PA = PB$.



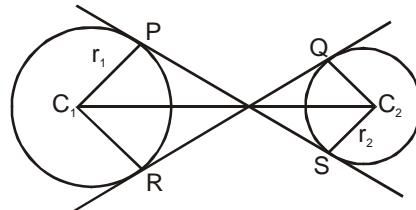
- Here, C_1C_2 is the distance between centre of circles.
 \therefore length of each of the common tangent

$$AB = CD = \sqrt{C_1C_2^2 - r_1^2 - r_2^2}$$

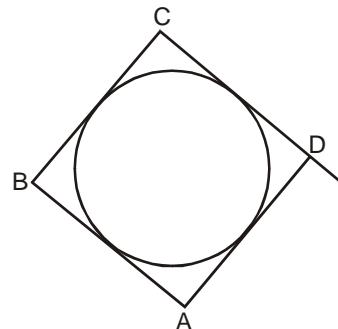


and length of the transverse tangent

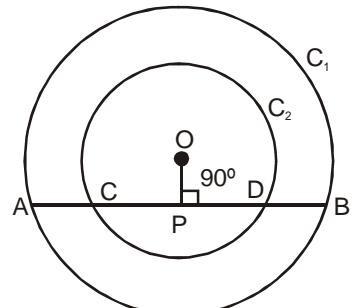
$$= PS = QR = \sqrt{C_1C_2^2 - r_1^2 + r_2^2}$$



- If a circle touches all the four sides of a quadrilateral then sum of the opposite sides is equal.
 $\therefore AB + DC = AD + BC$

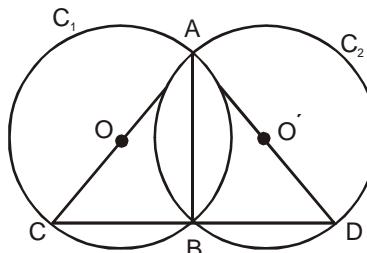


- If C_1 and C_2 are two concentric circles and AB is common chord and point P is such that $OP \perp AB$, then $AC = BD$



- C_1 and C_2 are two circles having centres O and O' and AC and AD diameters respectively. Both circles cut each other at A and B. Then, C, B and D will be collinear.

B lies on CD . $\therefore \angle CBD = 180^\circ$

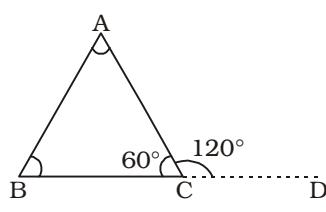


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QUESTIONS ASKED IN PREVIOUS SSC EXAMS

TYPE-I

1. The in-radius of an equilateral triangle is of length 3 cm. Then the length of each of its medians is
 (1) 12 cm (2) $\frac{9}{2}$ cm
 (3) 4 cm (4) 9 cm
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (East Zone))
2. If the orthocentre and the centroid of a triangle are the same, then the triangle is :
 (1) Scalene
 (2) Right angled
 (3) Equilateral
 (4) Obtuse angled
 (SSC CHSL DEO & LDC Exam. 21.10.2012 (IIInd Sitting))
3. If in a triangle, the circumcentre, incentre, centroid and orthocentre coincide, then the triangle must be
 (1) Acute angled (2) Isosceles
 (3) Right angled (4) Equilateral
 (SSC CHSL DEO & LDC Exam. 28.10.2012, Ist Sitting)
4. In a triangle, if three altitudes are equal, then the triangle is
 (1) Obtuse (2) Equilateral
 (3) Right (4) Isosceles
 (SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)
5. If ABC is an equilateral triangle and D is a point on BC such that $AD \perp BC$, then
 (1) $AB : BD = 1 : 1$
 (2) $AB : BD = 1 : 2$
 (3) $AB : BD = 2 : 1$
 (4) $AB : BD = 3 : 2$
 (SSC Graduate Level Tier-II Exam. 29.09.2013)
6. The side QR of an equilateral triangle PQR is produced to the point S in such a way that $QR = RS$ and P is joined to S. Then the measure of $\angle PSR$ is
 (1) 30° (2) 15°
 (3) 60° (4) 45°
 (SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting)

7. If the circumradius of an equilateral triangle be 10 cm, then the measure of its in-radius is
 (1) 5 cm. (2) 10 cm.
 (3) 20 cm. (4) 15 cm.
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting (East Zone)))
 8. If the incentre of an equilateral triangle lies inside the triangle and its radius is 3 cm, then the side of the equilateral triangle is
 (1) $9\sqrt{3}$ cm (2) $6\sqrt{3}$ cm
 (3) $3\sqrt{3}$ cm (4) 6 cm
 (SSC Graduate Level Tier-II Exam. 16.09.2012)
 9. In a triangle, if orthocentre, circumcentre, incentre and centroid coincide, then the triangle must be
 (1) obtuse angled
 (2) isosceles
 (3) equilateral
 (4) right-angled
 (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)
 10. If ABC is an equilateral triangle and P, Q, R respectively denote the middle points of AB, BC, CA then.
 (1) PQR must be an equilateral triangle
 (2) $PQ + QR + PR = AB$
 (3) $PQ + QR + PR = 2 AB$
 (4) PQR must be a right angled triangle
 (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)
 11. Let ABC be an equilateral triangle and AX, BY, CZ be the altitudes. Then the right statement out of the four given responses is
 (1) $AX = BY = CZ$
 (2) $AX \neq BY = CZ$
 (3) $AX = BY \neq CZ$
 (4) $AX \neq BY \neq CZ$
 (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))
 12. ABC is an equilateral triangle and CD is the internal bisector of $\angle C$. If DC is produced to E such that $AC = CE$, then $\angle CAE$ is equal to
 (1) 45° (2) 75°
 (3) 30° (4) 15°
 (SSC CGL Tier-I Exam. 26.10.2014)
 13. G is the centroid of the equilateral ΔABC . If $AB = 10$ cm then length of AG is
 (1) $\frac{5\sqrt{3}}{3}$ cm (2) $\frac{10\sqrt{3}}{3}$ cm
 (3) $5\sqrt{3}$ cm (4) $10\sqrt{3}$ cm
 (SSC CGL Tier-II Exam. 21.09.2014)
 14. The radius of the incircle of the equilateral triangle having each side 6 cm is
 (1) $2\sqrt{3}$ cm (2) $\sqrt{3}$ cm
 (3) $6\sqrt{3}$ cm (4) 2 cm
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)
 15. If the three medians of a triangle are same then the triangle is
 (1) equilateral (2) isosceles
 (3) right-angled (4) obtuse-angle
 (SSC CHSL DEO & LDC Exam. 9.11.2014)
 16. If in a triangle ABC as drawn in the figure, $AB = AC$ and $\angle ACD = 120^\circ$, then $\angle A$ is equal to
- 

(1) 50° (2) 60°
 (3) 70° (4) 80°
 (SSC CGL Tier-I Exam. 19.10.2014 (Ist Sitting))
17. The side BC of a triangle ABC is extended to D. If $\angle ACD = 120^\circ$ and $\angle ABC = \frac{1}{2} \angle CAB$, then the value of $\angle ABC$ is
 (1) 80° (2) 40°
 (3) 60° (4) 20°
 (SSC CHSL DEO Exam. 16.11.2014 (Ist Sitting))

GEOMETRY

- 18.** For an equilateral triangle, the ratio of the in-radius and the ex-radius is

(1) $1 : 2$ (2) $1 : \sqrt{2}$
 (3) $1 : 3$ (4) $1 : \sqrt{3}$

(SSC CGL Tier-II Exam. 12.04.2015
TF No. 567 TL 9)

- 19.** If the three angles of a triangle are :

$$(x + 15^\circ), \left(\frac{6x}{5} + 6^\circ\right) \text{ and } \left(\frac{2x}{3} + 30^\circ\right), \text{ then the triangle is :}$$

(1) isosceles (2) right angled
 (3) equilateral (4) scalene
 (SSC CGL Tier-I Exam. 16.08.2015
(Ist Sitting) TF No. 3196279)

- 20.** Let ABC be an equilateral triangle and AD perpendicular to BC. Then

$AB^2 + BC^2 + CA^2 = ?$
 (1) $2AD^2$ (2) $3AD^2$
 (3) $4AD^2$ (4) $5AD^2$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 01.11.2015, IIInd Sitting)

- 21.** The centroid of an equilateral triangle ABC is G and $AB = 10$ cm. The length of AG (in cm) is :

(1) $3 \frac{1}{3}$ (2) $\frac{10}{\sqrt{3}}$
 (3) $\frac{10\sqrt{3}}{3}$ (4) $\frac{\sqrt{3}}{3}$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 06.12.2015
(Ist Sitting) TF No. 1375232)

- 22.** Let $AX \perp BC$ of an equilateral triangle ABC. Then the sum of the perpendicular distances of the sides of ΔABC from any point inside the triangle is :

(1) Equal to BC
 (2) Equal to AX
 (3) Less than AX
 (4) Greater than AX

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 06.12.2015
(Ist Sitting) TF No. 1375232)

- 23.** Let G be the centroid of the equilateral triangle ABC of perimeter 24 cm. Then the length of AG is

(1) $2\sqrt{3}$ cm (2) $\frac{8}{\sqrt{3}}$ cm
 (3) $8\sqrt{3}$ cm (4) $4\sqrt{3}$ cm

(SSC CGL Tier-II Online Exam. 01.12.2016)

- 24.** O is the orthocentre of ΔABC , and if $\angle BOC = 110^\circ$, then $\angle BAC$ will be

(1) 110° (2) 70°
 (3) 100° (4) 90°

(SSC CHSL (10+2) Tier-I (CBE)
Exam. 08.09.2016) (Ist Sitting)

- 25.** The altitude of an equilateral tri-

angle of side $\frac{2}{\sqrt{3}}$ cm is :

(1) $\frac{4}{3}$ m (2) $\frac{4}{\sqrt{3}}$ m
 (3) $\frac{4}{3}$ m (4) 1 m

(SSC CPO SI & ASI, Online Exam. 06.06.2016) (IIInd Sitting)

- 26.** ABC is an equilateral triangle. Points D, E, F are taken in sides AB, BC, CA respectively, so that $AD = CF$. Then AE, BF, CD enclosed a triangle which is :

(1) equilateral triangle
 (2) isosceles triangle
 (3) right angle triangle
 (4) None of these

(SSC CPO SI & ASI, Online Exam. 06.06.2016) (IIInd Sitting)

- 27.** The centroid of an equilateral triangle ABC is G. If AB is 6 cms, the length of AG is

(1) $\sqrt{3}$ cm (2) $2\sqrt{3}$ cm
 (3) $3\sqrt{2}$ cm (4) $2\sqrt{2}$ cm

(SSC CGL Tier-I (CBE)

Exam. 01.09.2016) (Ist Sitting) and
 (SSC CGL Tier-II (CBE) Exam.
30.11.2016) and (SSC CGL Tier-II
(CBE) Exam. 30.11.2016)

- 28.** In ΔABC , the line parallel to BC intersects AB and AC at P and Q respectively. If $AB : AP = 5 : 3$, then $AQ : QC$ is :

(1) $3 : 2$ (2) $2 : 3$
 (3) $3 : 5$ (4) $1 : 2$

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 20.03.2016)
(IIInd Sitting)

- 29.** The ratio of circumradius and radius of an equilateral triangle is

(1) $1 : 2$ (2) $3 : 1$
 (3) $2 : 1$ (4) $1 : 3$

(SSC CGL Tier-I (CBE)

Exam. 30.08.2016) (IIInd Sitting)

- 30.** If one angle of a triangle is equal to half the sum of the other two equal angles, then the triangle is :

(1) isosceles (2) scalene
 (3) equilateral (4) right angled

(SSC CGL Tier-I (CBE)

Exam. 02.09.2016) (IIInd Sitting)

- 31.** G is the centroid of the equilateral triangle ABC. If $AB = 9$ cm, then AG is equal to

(1) $3\sqrt{3}$ cm. (2) 3 cm.
 (3) $\frac{3\sqrt{3}}{2}$ cm. (4) 6 cm.

(SSC CGL Tier-I (CBE)

Exam. 08.09.2016 (IIIrd Sitting)

- 32.** The lengths of the sides of a triangle are a , b and c respectively. If $a^2 + b^2 + c^2 = ab + bc + ca$, then the triangle is :

(1) isosceles (2) equilateral
 (3) scalene (4) right-angled

(SSC CGL Tier-I (CBE)

Exam. 10.09.2016) (IIInd Sitting)

- 33.** PQR is an equilateral triangle. MN is drawn parallel to QR such that M is on PQ and N is on PR. If PN = 6 cm, then the length of MN is

(1) 3 cm (2) 6 cm
 (3) 12 cm (4) 4.5 cm

(SSC CGL Tier-I (CBE)

Exam. 11.09.2016 (IIIrd Sitting)

TYPE-II

- 1.** If ΔABC is an isosceles triangle with $\angle C = 90^\circ$ and $AC = 5$ cm, then AB is :

(1) 5 cm (2) 10 cm
 (3) $5\sqrt{2}$ cm (4) 2.5 cm

(SSC CHSL DEO & LDC Exam.

04.11.2012, Ist Sitting)

- 2.** ABC is an isosceles triangle such that $AB = AC$ and $\angle B = 35^\circ$. AD is the median to the base BC. Then $\angle BAD$ is:

(1) 70° (2) 35°
 (3) 110° (4) 55°

(SSC Graduate Level Tier-I

Exam. 21.04.2013, Ist Sitting)

GEOMETRY

- 3.** ABC is an isosceles triangle with AB = AC. A circle through B touching AC at the middle point intersects AB at P. Then AP : AB is :
- 4 : 1
 - 2 : 3
 - 3 : 5
 - 1 : 4

(SSC Graduate Level Tier-I Exam. 21.04.2013)

- 4.** In an isosceles triangle, if the unequal angle is twice the sum of the equal angles, then each equal angle is
- 120°
 - 60°
 - 30°
 - 90°

(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

- 5.** ΔABC is an isosceles triangle and $\overline{AB} = \overline{AC} = 2a$ unit, $\overline{BC} = a$ unit. Draw $\overline{AD} \perp \overline{BC}$, and find the length of \overline{AD} .

$$(1) \sqrt{15} a \text{ unit} \quad (2) \frac{\sqrt{15}}{2} a \text{ unit}$$

$$(3) \sqrt{17} a \text{ unit} \quad (4) \frac{\sqrt{17}}{2} a \text{ unit}$$

(SSC Graduate Level Tier-II Exam. 29.09.2013)

- 6.** An isosceles triangle ABC is right-angled at B. D is a point inside the triangle ABC. P and Q are the feet of the perpendiculars drawn from D on the side AB and AC respectively of ΔABC . If $AP = a$ cm, $AQ = b$ cm and $\angle BAD = 15^\circ$, $\sin 75^\circ =$

$$(1) \frac{2b}{\sqrt{3}a} \quad (2) \frac{a}{2b}$$

$$(3) \frac{\sqrt{3}a}{2b} \quad (4) \frac{2a}{\sqrt{3}b}$$

(SSC Graduate Level Tier-II Exam. 29.09.2013)

- 7.** ABC is an isosceles triangle with AB = AC. The side BA is produced to D such that AB = AD. If $\angle ABC = 30^\circ$, then $\angle BCD$ is equal to

$$(1) 45^\circ \quad (2) 90^\circ \\ (3) 30^\circ \quad (4) 60^\circ$$

(SSC CHSL DEO & LDC Exam. 10.11.2013, IInd Sitting)

- 8.** In a triangle ABC, AB = AC, $\angle BAC = 40^\circ$. Then the external angle at B is :

$$(1) 90^\circ \quad (2) 70^\circ \\ (3) 110^\circ \quad (4) 80^\circ$$

(SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting)

- 9.** If ΔFGH is isosceles and $FG < 3$ cm, $GH = 8$ cm, then of the following, the true relation is.
- $GH = FH$
 - $GF = GH$
 - $FH > GH$
 - $GH < GF$

(SSC CGL Tier-I)

Re-Exam. (2013) 27.04.2014)

- 10.** If angle bisector of a triangle bisect the opposite side, then what type of triangle is it?

$$(1) \text{Right angled} \quad (2) \text{Scalene} \\ (3) \text{Similar} \quad (4) \text{Isosceles}$$

(SSC CGL Tier-I Exam.

19.10.2014 (Ist Sitting)

- 11.** ABC is an isosceles triangle such that $AB = AC$ and AD is the median to the base BC with $\angle ABC = 35^\circ$. Then $\angle BAD$ is

$$(1) 35^\circ \quad (2) 55^\circ \\ (3) 70^\circ \quad (4) 110^\circ$$

(SSC CGL Tier-II Exam. 21.09.2014)

- 12.** In ΔABC , BD and CE are perpendicular to AC and AB respectively. If BD = CE, then ΔABC is

$$(1) \text{Equilateral} \quad (2) \text{Isosceles} \\ (3) \text{Right-angled} \quad (4) \text{Scalene}$$

(SSC CHSL (10+2) DEO & LDC

Exam. 16.11.2014, Ist Sitting

TF No. 333 LO 2)

- 13.** In an isosceles triangle, if the vertex angle is twice the sum of the base angles, then the measure of the half of the vertex angle of the triangle is

$$(1) 60^\circ \quad (2) 70^\circ \\ (3) 80^\circ \quad (4) 50^\circ$$

(SSC CGL Tier-II Exam,

2014 12.04.2015 (Kolkata Region)

TF No. 789 TH 7)

- 14.** ΔABC is an isosceles triangle with $AB = AC = 10$ cm, $AD = 8$ cm is the median on BC from A. The length of BC is

$$(1) 8 \text{ cm} \quad (2) 12 \text{ cm} \\ (3) 10 \text{ cm} \quad (4) 6 \text{ cm}$$

(SSC CGL Tier-I

Re-Exam, 30.08.2015)

- 15.** ABC is an isosceles triangle inscribed in a circle. If $AB = AC = 12\sqrt{5}$ cm and $BC = 24$ cm then the radius of circle is

$$(1) 10 \text{ cm.} \quad (2) 15 \text{ cm.} \\ (3) 12 \text{ cm.} \quad (4) 14 \text{ cm.}$$

(SSC CGL Tier-II Online

Exam. 01.12.2016)

- 16.** ABC is an isosceles triangle where $AB = AC$ which is circumscribed about a circle. If P is the point where the circle touches the side BC, then which of the following is true?

$$(1) BP = PC \quad (2) BP > PC$$

$$(3) BP < PC \quad (4) BP = \frac{1}{2} PC$$

(SSC CGL Tier-II Online Exam. 01.12.2016)

- 17.** In an isosceles triangle ABC, $AB = AC$, $XY \parallel BC$. If $\angle A = 30^\circ$, then $\angle BXY = ?$

$$(1) 75^\circ \quad (2) 30^\circ$$

$$(3) 150^\circ \quad (4) 105^\circ$$

(SSC CGL Tier-I (CBE) Exam. 07.09.2016) (Ist Sitting)

- 18.** The vertical angle A of an isosceles triangle ΔABC is three times the angle B of it. The measure of the angle A is

$$(1) 90^\circ \quad (2) 108^\circ$$

$$(3) 100^\circ \quad (4) 36^\circ$$

(SSC CGL Tier-I (CBE) Exam. 02.09.2016) (IInd Sitting)

- 19.** ΔABC is isosceles having $AB = AC$ and $\angle A = 40^\circ$. Bisectors PO and OQ of the exterior angles $\angle ABD$ and $\angle ACE$ formed by producing BC on both sides, meet at O. Then the value of $\angle BOC$ is

$$(1) 70^\circ \quad (2) 110^\circ$$

$$(3) 80^\circ \quad (4) 55^\circ$$

(SSC CGL Tier-II (CBE) Exam. 30.11.2016)

- 20.** ΔABC is an isosceles triangle with $AB = AC = 15$ cm and altitude from A to BC is 12 cm. The length of side BC is :

$$(1) 9 \text{ cm.} \quad (2) 12 \text{ cm.}$$

$$(3) 18 \text{ cm.} \quad (4) 20 \text{ cm.}$$

(SSC CGL Tier-I (CBE)

Exam. 28.08.2016 (Ist Sitting)

- 21.** In an isosceles ΔABC , AD is the median to the unequal side meeting BC at D. DP is the angle bisector of $\angle ADB$ and PQ is drawn parallel to BC meeting AC at Q. Then the measure of $\angle PDQ$ is :

$$(1) 130^\circ \quad (2) 90^\circ$$

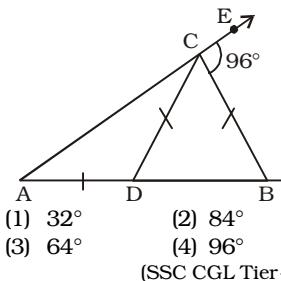
$$(3) 180^\circ \quad (4) 45^\circ$$

(SSC CGL Tier-I (CBE)

Exam. 29.08.2016 (Ist Sitting)

GEOMETRY

- 22.** In the figure (not drawn to scale) given below, if $AD = DC = BC$ and $\angle BCE = 96^\circ$, then $\angle DBC$ is :



- (1) 32° (2) 84°
(3) 64° (4) 96°

(SSC CGL Tier-I (CBE)

Exam. 08.09.2016 (IIInd Sitting)

- 23.** In an isosceles triangle ΔABC , $AB = AC$ and $\angle A = 80^\circ$. The bisector of $\angle B$ and $\angle C$ meet at D. The $\angle BDC$ is equal to
(1) 90° (2) 100°
(3) 130° (4) 80°

(SSC CGL Tier-I (CBE)

Exam. 10.09.2016 (IIInd Sitting)

- 24.** ΔABC is an isosceles right angled triangle having $\angle C = 90^\circ$. If D is any point on AB, then $AD^2 + BD^2$ is equal to
(1) CD^2 (2) $2CD^2$
(3) $3CD^2$ (4) $4CD^2$

(SSC CGL Tier-II (CBE)

Exam. 12.01.2017)

TYPE-III

- 1.** The sides of a triangle are in the ratio $3 : 4 : 6$. The triangle is :
(1) acute-angled
(2) right-angled
(3) obtuse-angled
(4) either acute-angled or right-angled

(SSC CPO Sub-Inspector
Exam. 16.12.2007)

- 2.** O and C are respectively the orthocentre and circumcentre of an acute-angled triangle PQR. The points P and O are joined and produced to meet the side QR at S. If $\angle PQS = 60^\circ$ and $\angle QCR = 130^\circ$, then $\angle RPS =$
(1) 30° (2) 35°
(3) 100° (4) 60°

(SSC CHSL DEO & LDC Exam.
04.12.2011 (Ist Sitting (North Zone))

- 3.** In ΔABC , AD is the internal bisector of $\angle A$, meeting the side BC at D. If $BD = 5$ cm, $BC = 7.5$ cm, then $AB : AC$ is
(1) $2 : 1$ (2) $1 : 2$
(3) $4 : 5$ (4) $3 : 5$

(SSC CHSL DEO & LDC Exam.
04.12.2011 (Ist Sitting (North Zone))

- 4.** If the circumcentre of a triangle lies outside it, then the triangle is
(1) Equilateral
(2) Acute angled
(3) Right angled
(4) Obtuse angled

(SSC CHSL DEO & LDC Exam.
04.11.2012 (IInd Sitting))

- 5.** Taking any three of the line segments out of segments of length 2 cm, 3 cm, 5 cm and 6 cm, the number of triangles that can be formed is :
(1) 3 (2) 2
(3) 1 (4) 4

(SSC Graduate Level Tier-I
Exam. 21.04.2013)

- 6.** If the length of the sides of a triangle are in the ratio $4 : 5 : 6$ and the inradius of the triangle is 3 cm, then the altitude of the triangle corresponding to the largest side as base is :
(1) 7.5 cm (2) 6 cm
(3) 10cm (4) 8 cm

(SSC Graduate Level Tier-I
Exam. 21.04.2013)

- 7.** ABC is a triangle. The bisectors of the internal angle $\angle B$ and external angle $\angle C$ intersect at D. If $\angle BDC = 50^\circ$, then $\angle A$ is
(1) 100° (2) 90°
(3) 120° (4) 60°

(SSC Graduate Level Tier-I
Exam. 21.04.2013)

- 8.** In a triangle ABC, the side BC is extended up to D. Such that $CD = AC$, if $\angle BAD = 109^\circ$ and $\angle ACB = 72^\circ$ then the value of $\angle ABC$ is
(1) 35° (2) 60°
(3) 40° (4) 45°

(SSC Graduate Level Tier-I
Exam. 21.04.2013)

- 9.** The sum of three altitudes of a triangle is
(1) equal to the sum of three sides
(2) less than the sum of sides
(3) greater than the sum of sides
(4) twice the sum of sides

(SSC Graduate Level Tier-I
Exam. 19.05.2013)

- 10.** I is the incentre of ΔABC , $\angle ABC = 60^\circ$ and $\angle ACB = 50^\circ$. Then $\angle BIC$ is :
(1) 55° (2) 125°
(3) 70° (4) 65°

(SSC CHSL DEO & LDC
Exam. 11.12.2011 (IInd Sitting
(Delhi Zone))

- 11.** I is the incentre of a triangle ABC. If $\angle ABC = 65^\circ$ and $\angle ACB = 55^\circ$, then the value of $\angle BIC$ is

- (1) 130° (2) 120°
(3) 140° (4) 110°

(SSC Graduate Level Tier-II
Exam. 16.09.2012)

- 12.** If two angles of a triangle are 21° and 38° , then the triangle is
(1) Right-angled triangle
(2) Acute-angled triangle
(3) Obtuse-angled triangle
(4) Isosceles triangle

(SSC CGL Tier-I Re-Exam. (2013)
20.07.2014 (Ist Sitting))

- 13.** In ΔABC , $\angle C$ is an obtuse angle. The bisectors of the exterior angles at A and B meet BC and AC produced at D and E respectively. If $AB = AD = BE$, then $\angle ACB =$
(1) 105° (2) 108°
(3) 110° (4) 135°

(SSC CGL Tier-I Exam. 19.10.2014)

- 14.** A man goes 24 m due west and then 10 m due north. Then the distance of him from the starting point is
(1) 17 m (2) 26 m
(3) 28 m (4) 34 m

(SSC CGL Tier-II Exam. 21.09.2014)

- 15.** The perpendiculars drawn from the vertices to the opposite sides of a triangle, meet at the point whose name is
(1) incentre
(2) circumcentre
(3) centroid
(4) orthocentre

(SSC CHSL DEO & LDC
Exam. 20.10.2013)

- 16.** If in ΔABC , $\angle ABC = 5 \angle ACB$ and $\angle BAC = 3 \angle ACB$, then $\angle ABC =$?
(1) 130° (2) 80°
(3) 100° (4) 120°

(SSC CHSL DEO & LDC
Exam. 20.10.2013)

- 17.** The exterior angles obtained on producing the base BC of a triangle ABC in both ways are 120° and 105° , then the vertical $\angle A$ of the triangle is of measure
(1) 36° (2) 40°
(3) 45° (4) 55°

(SSC CHSL DEO & LDC
Exam. 27.10.2013 IInd Sitting)

- 18.** If AD, BE and CF are medians of ΔABC , then which one of the following statements is correct ?
(1) $(AD + BE + CF) < AB + BC + CA$
(2) $AD+BE + CF > AB + BC + CA$
(3) $AD+BE + CF = AB + BC + CA$
(4) $AD+BE+CF = \sqrt{2} (AB+BC+CA)$

(SSC CHSL DEO & LDC
Exam. 27.10.2013 IInd Sitting)

GEOMETRY

- 19.** In $\triangle ABC$, the internal bisectors of $\angle ABC$ and $\angle ACB$ meet at I and $\angle BAC = 50^\circ$. The measure of $\angle BIC$ is
 (1) 105° (2) 115°
 (3) 125° (4) 130°

(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

- 20.** AD is the median of a triangle ABC and O is the centroid such that $AO = 10$ cm. The length of OD (in cm) is
 (1) 4 (2) 5
 (3) 6 (4) 8

FCI Assistant Grade-III Exam. 25.02.2012 (Paper-I)

North Zone (Ist Sitting)

- 21.** O is the incentre of $\triangle ABC$ and $\angle A = 30^\circ$, then $\angle BOC$ is
 (1) 100° (2) 105°
 (3) 110° (4) 90°

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone))

- 22.** Let O be the in-centre of a triangle ABC and D be a point on the side BC of $\triangle ABC$, such that $OD \perp BC$. If $\angle BOD = 15^\circ$, then $\angle ABC$ =
 (1) 75° (2) 45°
 (3) 150° (4) 90°

(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (Delhi Zone))

- 23.** In a triangle ABC, incentre is O and $\angle BOC = 110^\circ$, then the measure of $\angle BAC$ is :
 (1) 20° (2) 40°
 (3) 55° (4) 110°

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting (East Zone))

- 24.** The equidistant point from the vertices of a triangle is called its :
 (1) Centroid (2) Incentre
 (3) Circumcentre (4) Orthocentre
 (SSC CHSL DEO & LDC Exam. 21.10.2012 (IIInd Sitting))

- 25.** O is the in-centre of the $\triangle ABC$, if $\angle BOC = 116^\circ$, then $\angle BAC$ is
 (1) 42° (2) 62°
 (3) 58° (4) 52°

(SSC FCI Assistant Grade-III Main Exam. 07.04.2013)

- 26.** The external bisector of $\angle B$ and $\angle C$ of $\triangle ABC$ (where AB and AC extended to E and F respectively) meet at point P. If $\angle BAC = 100^\circ$, then the measure of $\angle BPC$ is
 (1) 50° (2) 80°
 (3) 40° (4) 100°

FCI Assistant Grade-III Exam. 25.02.2012 (Paper-I)

North Zone (Ist Sitting)

- 27.** The points D and E are taken on the sides AB and AC of $\triangle ABC$ such that $AD = \frac{1}{3} AB$, $AE = \frac{1}{3}$

AC. If the length of BC is 15 cm, then the length of DE is :
 (1) 10 cm (2) 8 cm
 (3) 6 cm (4) 5 cm

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone))

- 28.** D is any point on side AC of $\triangle ABC$. If P, Q, X, Y are the mid-points of AB, BC, AD and DC respectively, then the ratio of PX and QY is
 (1) 1 : 2 (2) 1 : 1
 (3) 2 : 1 (4) 2 : 3

(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (Delhi Zone))

- 29.** In $\triangle ABC$, PQ is parallel to BC. If $AP : PB = 1 : 2$ and $AQ = 3$ cm; AC is equal to
 (1) 6 cm (2) 9 cm
 (3) 12 cm (4) 8 cm

(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (East Zone))

- 30.** In a triangle ABC, $AB + BC = 12$ cm, $BC + CA = 14$ cm and $CA + AB = 18$ cm. Find the radius of the circle (in cm) which has the same perimeter as the triangle.

- (1) $\frac{5}{2}$ (2) $\frac{7}{2}$
 (3) $\frac{9}{2}$ (4) $\frac{11}{2}$

(SSC Graduate Level Tier-II Exam. 16.09.2012)

- 31.** If I be the incentre of $\triangle ABC$ and $\angle B = 70^\circ$ and $\angle C = 50^\circ$, then the magnitude of $\angle BIC$ is
 (1) 130° (2) 60°
 (3) 120° (4) 105°

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

- 32.** For a triangle ABC, D, E, F are the mid-points of its sides. If $\Delta ABC = 24$ sq. units then ΔDEF is
 (1) 4 sq. units (2) 6 sq. units
 (3) 8 sq. units (4) 12 sq. units

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

- 33.** Angle between sss $\angle B$ is

- (1) 50° (2) 80°
 (3) 40° (4) 60°
 (SSC CGL Tier-II Exam. 21.09.2014)

- 42.** In a $\triangle ABC$, $\angle A + \angle B = 70^\circ$ and $\angle B + \angle C = 130^\circ$, value of $\angle A$ is
 (1) 20° (2) 50°
 (3) 110° (4) 30°

(SSC CHSL DEO & LDC Exam. 02.11.2014 (IIInd Sitting))

- 43.** In a $\triangle ABC$, if $2 \angle A = 3 \angle B = 6 \angle C$, value of $\angle B$ is
 (1) 60° (2) 30°
 (3) 45° (4) 90°

(SSC CHSL DEO & LDC Exam. 02.11.2014 (IIInd Sitting))

- 44.** If in a triangle ABC, D and E are on the sides AB and AC, such that, DE is parallel to BC and

$$\frac{AD}{BD} = \frac{3}{5} . \text{ If } AC = 4 \text{ cm, then}$$

AE is

- (1) 1.5 cm (2) 2.0 cm
 (3) 1.8 cm (4) 2.4 cm

(SSC CHSL DEO & LDC Exam. 02.11.2014 (IIInd Sitting))

- 45.** AD is the median of a triangle ABC and O is the centroid such that $AO = 10$ cm. Length of OD (in cm) is
 (1) 2 (2) 4
 (3) 5 (4) 7

(SSC CHSL DEO & LDC Exam. 16.11.2014)

- 46.** The measure of the angle between the internal and external bisectors of an angle is
 (1) 60° (2) 70°
 (3) 80° (4) 90°

(SSC CHSL DEO & LDC Exam. 16.11.2014)

- 47.** The internal bisectors of the angles B and C of a triangle ABC

$$\text{meet at I. If } \angle BIC = \frac{\angle A}{2} + X,$$

then X is equal to

- (1) 60° (2) 30°
 (3) 90° (4) 45°

(SSC CHSL DEO Exam. 02.11.2014 (Ist Sitting))

GEOMETRY

48. In a $\triangle ABC$, the medians AD, BE and CF meet at G, then which of the following is true ?

- (1) $AD + BE + CF > \frac{1}{2} (AB + BC + AC)$
 - (2) $2(AD + BE + CF) > (AB + BC + AC)$
 - (3) $3(AD + BE + CF) > 4(AB + BC + AC)$
 - (4) $AB + BC + AC > AD + BE + CF$
- (SSC CHSL DEO Exam. 02.11.2014
(Ist Sitting))

49. In $\triangle ABC$, D is the mid-point of BC. Length AD is 27 cm. N is a point in AD such that the length of DN is 12 cm. The distance of N from the centroid of $\triangle ABC$ is equal to

- (1) 3 cm
 - (2) 6 cm
 - (3) 9 cm
 - (4) 15 cm
- (SSC CHSL DEO Exam. 16.11.2014
(Ist Sitting))

50. In a $\triangle ABC$,

$$\frac{AB}{AC} = \frac{BD}{DC}, \angle B = 70^\circ \text{ and } \angle C = 50^\circ, \text{ then } \angle BAD = ?$$

- (1) 60°
- (2) 20°
- (3) 30°
- (4) 50°

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014
TF No. 999 KPO)

51. In a $\triangle ABC$, AD, BE and CF are three medians. The perimeter of $\triangle ABC$ is always

- (1) equal to $(\overline{AD} + \overline{BE} + \overline{CF})$
- (2) greater than $(\overline{AD} + \overline{BE} + \overline{CF})$
- (3) less than $(\overline{AD} + \overline{BE} + \overline{CF})$
- (4) None of these

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014
TF No. 999 KPO)

52. In a $\triangle ABC$, \overline{AD} , \overline{BE} and \overline{CF} are three medians. Then the ratio $(\overline{AD} + \overline{BE} + \overline{CF})$:

- (1) equal to $\frac{3}{4}$
 - (2) less than $\frac{3}{4}$
- $(\overline{AB} + \overline{AC} + \overline{BC})$ is

- (3) greater than $\frac{3}{4}$
- (4) equal to $\frac{1}{2}$

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014
TF No. 999 KPO)

53. In $\triangle ABC$, $\angle A < \angle B$. The altitude to the base divides vertex angle C into two parts C_1 and C_2 , with C_2 adjacent to BC. Then

- (1) $C_1 + C_2 = A + B$
- (2) $C_1 - C_2 = A - B$
- (3) $C_1 - C_2 = B - A$
- (4) $C_1 + C_2 = B - A$

(SSC CGL Tier-I Exam. 19.10.2014
TF No. 022 MH 3)

54. If O is the in-centre of $\triangle ABC$; if $\angle BOC = 120^\circ$, then the measure of $\angle BAC$ is

- (1) 30°
- (2) 60°
- (3) 150°
- (4) 75°

(SSC CGL Tier-I Exam. 19.10.2014
TF No. 022 MH 3)

55. In $\triangle ABC$, $\angle B = 60^\circ$, $\angle C = 40^\circ$, AD is the bisector of $\angle A$ and AE is drawn perpendicular on BC from A. Then the measure of $\angle EAD$ is

- (1) 40°
- (2) 30°
- (3) 10°
- (4) 80°

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, Ist Sitting
TF No. 333 LO 2)

56. If the sides of a triangle are extended in both the sides then the sum of the exterior angles so formed in both sides is

- (1) 360°
- (2) 540°
- (3) 720°
- (4) 180°

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting
TF No. 545 QP 6)

57. In $\triangle ABC$, $\angle A = 90^\circ$, BP and CQ are two medians. Then the value

of $\frac{BP^2 + CQ^2}{BC^2}$ is

- (1) $\frac{4}{5}$
- (2) $\frac{5}{4}$
- (3) $\frac{3}{4}$
- (4) $\frac{3}{5}$

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting
TF No. 545 QP 6)

58. In $\triangle ABC$, AB = AC, O is a point on BC such that BO = CO and OD is perpendicular to AB and OE is perpendicular to AC. If $\angle BOD = 30^\circ$ then measure of $\angle AOE$ is

- (1) 45°
 - (2) 60°
 - (3) 75°
 - (4) 30°
- (SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region)
TF No. 789 TH 7)

59. O is the orthocentre of $\triangle ABC$. Then $\angle BOC + \angle BAC$ is equal to

- (1) 120°
 - (2) 135°
 - (3) 180°
 - (4) 90°
- (SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region)
TF No. 789 TH 7)

60. ABC is a triangle and the sides AB, BC and CA are produced to E, F and G respectively. If $\angle CBE = \angle ACF = 130^\circ$ then the value of $\angle GAB$ is

- (1) 100°
 - (2) 130°
 - (3) 80°
 - (4) 90°
- (SSC CGL Tier-I Exam, 09.08.2015
(IIInd Sitting) TF No. 4239378)

61. The measures of two angles of a triangle are in the ratio 4 : 5. If the sum of these two measures is equal to the measure of the third angle, find the smallest angle.

- (1) 10°
 - (2) 50°
 - (3) 90°
 - (4) 40°
- (SSC CGL Tier-I Exam, 09.08.2015
(IIInd Sitting) TF No. 4239378)

62. Internal bisectors of $\angle Q$ and $\angle R$ of $\triangle PQR$ intersect at O. If $\angle ROQ = 96^\circ$ then the value of $\angle RPQ$ is

- (1) 36°
 - (2) 24°
 - (3) 12°
 - (4) 6°
- (SSC CGL Tier-I Exam, 16.08.2015
(Ist Sitting) TF No. 3196279)

63. G is the centroid of $\triangle ABC$. The medians AD and BE intersect at right angles. If the lengths of AD and BE are 9 cm and 12 cm respectively; then the length of AB (in cm) is

- (1) 9.5
 - (2) 10
 - (3) 11
 - (4) 10.5
- (SSC CGL Tier-I Exam, 16.08.2015
(Ist Sitting) TF No. 3196279)

64. In $\triangle ABC$, D and E are two mid points of sides AB and AC respectively. If $\angle BAC = 40^\circ$ and $\angle ABC = 65^\circ$ then $\angle CED$ is :

- (1) 130°
 - (2) 75°
 - (3) 125°
 - (4) 105°
- (SSC CGL Tier-I Exam, 16.08.2015
(IIInd Sitting) TF No. 2176783)

GEOMETRY

- 65.** O is the incentre of $\triangle PQR$ and $\angle QPR = 50^\circ$, then the measure of $\angle QOR$ is :

(1) 125° (2) 100°
 (3) 130° (4) 115°

(SSC CGL Tier-I Exam, 16.08.2015
 (IInd Sitting) TF No. 2176783)

- 66.** The internal bisectors of the $\angle B$ and $\angle C$ of the $\triangle ABC$, intersect at O. If $\angle A = 100^\circ$, then the measure of $\angle BOC$ is :

(1) 140° (2) 120°
 (3) 110° (4) 130°

(SSC CGL Tier-I Exam, 16.08.2015
 (IInd Sitting) TF No. 2176783)

- 67.** In $\triangle ABC$ $\angle BAC = 90^\circ$ and $AD \perp BC$. If $BD = 3$ cm and $CD = 4$ cm, then the length of AD is

(1) 3.5 cm (2) 5 cm
 (3) $2\sqrt{3}$ cm (4) 6 cm

(SSC CGL Tier-II Exam,
 25.10.2015, TF No. 1099685)

- 68.** AD is perpendicular to the internal bisector of $\angle ABC$ of $\triangle ABC$. DE is drawn through D and parallel to BC to meet AC at E. If the length of AC is 12 cm, then the length of AE (in cm.) is

(1) 3 (2) 8
 (3) 4 (4) 6

(SSC CGL Tier-II Exam,
 25.10.2015, TF No. 1099685)

- 69.** What is the position of the circumcentre of an obtuse-angled triangle?

(1) It lies inside the triangle.
 (2) It lies outside the triangle.
 (3) It is the mid-point of the largest side.
 (4) It is the vertex opposite to the largest side.

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IInd Sitting)

- 70.** In $\triangle ABC$, the external bisectors of the angles $\angle B$ and $\angle C$ meet at the point O. If $\angle A = 70^\circ$, then the measure of $\angle BOC$ is :

(1) 55° (2) 75°
 (3) 60° (4) 50°

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015
 (Ist Sitting) TF No. 6636838)

- 71.** E is the mid-point of the median AD of $\triangle ABC$. BE is joined and produced to meet AC at F. F divides AC in the ratio :

(1) $2 : 3$ (2) $2 : 1$
 (3) $1 : 3$ (4) $3 : 2$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015
 (Ist Sitting) TF No. 6636838)

- 72.** In $\triangle ABC$, the internal bisectors of $\angle B$ and $\angle C$ meet at point O. If $\angle A = 80^\circ$, then $\angle BOC$ is equal to :

(1) 100° (2) 120°
 (3) 130° (4) 140°

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015
 (Ist Sitting) TF No. 1375232)

- 73.** The sides of a triangle are in the ratio of $7 : 9 : 12$. The difference between the lengths of largest and smallest sides is 15 cm. The length of the largest side would be :

(1) 36 cm (2) 12 cm
 (3) 60 cm (4) 24 cm

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015
 (Ist Sitting) TF No. 1375232)

- 74.** In $\triangle ABC$, $\angle B = 60^\circ$, and $\angle C = 40^\circ$, AD and AE are respectively the bisector of $\angle A$ and perpendicular on BC. The measure of $\angle EAD$ is :

(1) 11° (2) 10°
 (3) 12° (4) 9°

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015
 (IInd Sitting) TF No. 3441135)

- 75.** The side BC of a triangle ABC is produced to D. If $\angle ACD = 112^\circ$

and $\angle B = \frac{3}{4} \angle A$, then the measure of $\angle B$ is

(1) 30° (2) 48°
 (3) 45° (4) 64°

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015
 (Ist Sitting) TF No. 9692918)

- 76.** In a triangle ABC, if $\angle A + \angle C = 140^\circ$ and $\angle A + 3\angle B = 180^\circ$, then $\angle A$ is equal to

(1) 80° (2) 40°
 (3) 60° (4) 20°

(SSC CGL Tier-I (CBE)
 Exam.10.09.2016)

- 77.** Which of the set of three sides can't form a triangle?

(1) 5 cm, 6 cm, 7 cm
 (2) 5 cm, 8 cm, 15 cm
 (3) 8 cm, 15 cm, 18 cm
 (4) 6 cm, 7 cm, 11 cm

(SSC CGL Tier-I (CBE)
 Exam.10.09.2016)

- 78.** The orthocentre of a triangle is the point where

(1) the medians meet
 (2) the altitudes meet
 (3) the right bisectors of the sides meet

- (4) the bisectors of the angles meet

(SSC CGL Tier-I (CBE)

Exam.11.09.2016) (Ist Sitting)

- 79.** G is the centroid of $\triangle ABC$. If $AG = BC$, then measure of $\angle BGC$ is

(1) 45° (2) 60°
 (3) 90° (4) 120°

(SSC CGL Tier-I (CBE)

Exam.11.09.2016) (Ist Sitting)

- 80.** B₁ is a point on the side AC of $\triangle ABC$ and B₁B is joined. A line is drawn through A parallel to B₁B meeting BC at A₁ and another line is drawn through C parallel to B₁B meeting AB produced at C₁. Then

$$(1) \frac{1}{CC_1} - \frac{1}{AA_1} = \frac{1}{BB_1}$$

$$(2) \frac{1}{CC_1} + \frac{1}{AA_1} = \frac{1}{BB_1}$$

$$(3) \frac{1}{BB_1} - \frac{1}{AA_1} = \frac{2}{CC_1}$$

$$(4) \frac{1}{AA_1} - \frac{1}{CC_1} = \frac{2}{BB_1}$$

(SSC CGL Tier-II Online
 Exam.01.12.2016)

- 81.** Astha cuts a triangle out of a cardboard and tries to balance the triangle horizontally at the tip of her finger. On what point will she be able to balance the shape for any kind of triangle?

(1) Incentre
 (2) Circumcentre
 (3) Centroid
 (4) Orthocentre

(SSC CPO Exam. 06.06.2016)
 (Ist Sitting)

- 82.** BE and CF are two altitudes of a triangle ABC. If $AB = 6$ cm, $AC = 5$ cm and $CF = 4$ cm, then the length of BE is

(1) 4.8 cm (2) 7.5 cm
 (3) 3.33 cm (4) 5.5 cm

(SSC CHSL (10+2) Tier-I (CBE)
 Exam. 08.09.2016) (Ist Sitting)

- 83.** In a $\triangle ABC$, BC is extended upto

D. $\angle ACD = 120^\circ$, $\angle B = \frac{1}{2} \angle A$.

Then $\angle A$ is

(1) 60° (2) 75°
 (3) 80° (4) 90°

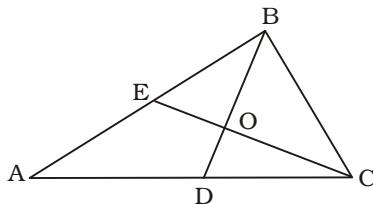
(SSC CHSL (10+2) Tier-I (CBE)
 Exam. 08.09.2016) (Ist Sitting)

GEOMETRY

- 84.** In ΔABC , D is the mid-point of BC and G is the centroid. If GD = 5 cm, then the length of AD is :
 (1) 10 cm (2) 12 cm
 (3) 15 cm (4) 20 cm
 (SSC CAPFs (CPO) SI & ASI,
 Delhi Police Exam. 05.06.2016)
 (Ist Sitting)

- 85.** Possible measures of three angles of a triangle are
 (1) $33^\circ, 42^\circ, 115^\circ$
 (2) $40^\circ, 70^\circ, 80^\circ$
 (3) $30^\circ, 60^\circ, 100^\circ$
 (4) $50^\circ, 60^\circ, 70^\circ$
 (SSC CGL Tier-I (CBE)
 Exam. 27.08.2016) (Ist Sitting)

- 86.** BD and CE are two medians of the triangle ABC. If EO = 7 cm, then the length of CE is



- (1) 28 cm (2) 14 cm
 (3) 21 cm (4) 35 cm
 (SSC CGL Tier-I (CBE)
 Exam. 27.08.2016) (Ist Sitting)

- 87.** In ΔABC , $AB = a - b$, $AC = \sqrt{a^2 + b^2}$ and $BC = \sqrt{2ab}$, then find angle B.
 (1) 60° (2) 30°
 (3) 90° (4) 45°
 (SSC CGL Tier-I (CBE)
 Exam. 27.08.2016) (IIInd Sitting)

- 88.** Possible lengths of the three sides of a triangle are :
 (1) 2 cm, 3 cm and 6 cm
 (2) 3 cm, 4 cm and 5 cm
 (3) 2.5 cm, 3.5 cm and 6 cm
 (4) 4 cm, 4 cm and 9 cm
 (SSC CGL Tier-I (CBE)
 Exam. 28.08.2016) (IIInd Sitting)

- 89.** AD is the median of ΔABC . If O is the centroid and $AO = 10$ cm, then OD is
 (1) 5 cm (2) 20 cm
 (3) 10 cm (4) 30 cm
 (SSC CGL Tier-I (CBE)
 Exam. 28.08.2016) (IIInd Sitting)

- 90.** Incentre of ΔABC is I. $\angle ABC = 90^\circ$ and $\angle ACB = 70^\circ$. $\angle AIC$ is
 (1) 115° (2) 100°
 (3) 110° (4) 105°
 (SSC CGL Tier-I (CBE)
 Exam. 28.08.2016) (IIInd Sitting)

- 91.** If in ΔABC , $DE \parallel BC$, $AB = 7.5$ cm, $BD = 6$ cm. and $DE = 2$ cm, then the length of BC in cm is :
 (1) 6 (2) 8
 (3) 10 (4) 10.5
 (SSC CGL Tier-I (CBE)
 Exam. 29.08.2016) (IIInd Sitting)

- 92.** Suppose that the medians BD, CE and AF of a triangle ABC meet at G. Then $AG : GF$ is
 (1) 1 : 2 (2) 2 : 1
 (3) 1 : 3 (4) 2 : 3
 (SSC CGL Tier-I (CBE)
 Exam. 29.08.2016) (IIInd Sitting)

- 93.** In case of an acute angled triangle, its orthocentre lies
 (1) inside the triangle
 (2) outside the triangle
 (3) on the triangle
 (4) on one of the vertices of the triangle
 (SSC CGL Tier-I (CBE)
 Exam. 30.08.2016) (Ist Sitting)

- 94.** The centroid of a triangle is the point where
 (1) the medians meet
 (2) the altitudes meet
 (3) the right bisectors of the sides of the triangle meet
 (4) the bisectors of the angles of the triangle meet
 (SSC CGL Tier-I (CBE)
 Exam. 31.08.2016) (Ist Sitting)

- 95.** In a triangle PQR, the side QR is extended to S. $\angle QPR = 72^\circ$ and $\angle PRS = 110^\circ$, then the value of $\angle PQR$ is :
 (1) 38° (2) 32°
 (3) 25° (4) 29°
 (SSC CGL Tier-I (CBE)
 Exam. 31.08.2016) (Ist Sitting)

- 96.** In ΔABC , $\angle B = 70^\circ$ and $\angle C = 60^\circ$. The internal bisectors of the two smallest angles of ΔABC meet at O. The angle so formed at O is
 (1) 125° (2) 120°
 (3) 115° (4) 110°
 (SSC CGL Tier-I (CBE)
 Exam. 31.08.2016) (Ist Sitting)

- 97.** If the angles of a triangle are in the ratio of $2 : 3 : 4$, then the difference of the measure of greatest angle and smallest angle is
 (1) 20° (2) 30°
 (3) 40° (4) 50°
 (SSC CGL Tier-I (CBE)
 Exam. 01.09.2016) (Ist Sitting)

- 98.** In ΔABC , $\angle A = 90^\circ$, $AD \perp BC$ and $AD = BD = 2$ cm. The length of CD is
 (1) 3 cm (2) 3.5 cm
 (3) 3.2 cm (4) 2 cm
 (SSC CGL Tier-I (CBE)
 Exam. 01.09.2016) (Ist Sitting)

- 99.** The side BC of ΔABC is extended to the point D. If $\angle ACD = 112^\circ$ and $\angle B = \frac{3}{4} \angle A$, then the value of $\angle B$ is
 (1) 64° (2) 48°
 (3) 46° (4) 50°
 (SSC CGL Tier-I (CBE)
 Exam. 02.09.2016) (Ist Sitting)

- 100.** The lengths of side AB and side BC of a scalene triangle ABC are 12 cm and 8 cm respectively. The size of angle C is 90° . Find the approximate length of side AC.
 (1) 12 (2) 9
 (3) 14 (4) 16
 (SSC CGL Tier-I (CBE)
 Exam. 02.09.2016) (IIInd Sitting)

- 101.** In ΔABC , $DE \parallel BC$ such that $\frac{AD}{BD} = \frac{3}{5}$. If $AC = 5.6$ cm., then AE is equal to
 (1) 4.2 cm. (2) 3.1 cm.
 (3) 2.8 cm. (4) 2.1 cm.
 (SSC CGL Tier-I (CBE)
 Exam. 03.09.2016) (IIInd Sitting)

- 102.** In a triangle PQR, $PQ = PR$ and $\angle Q$ is twice that of $\angle P$. Then $\angle Q$ is equal to
 (1) 72° (2) 36°
 (3) 144° (4) 108°
 (SSC CGL Tier-I (CBE)
 Exam. 03.09.2016) (IIInd Sitting)

- 103.** G and AD are respectively the centroid and median of the triangle ΔABC . The ratio AG:AD is equal to
 (1) 3:2 (2) 2:3
 (3) 2:1 (4) 1:2
 (SSC CGL Tier-I (CBE)
 Exam. 04.09.2016) (Ist Sitting)

- 104.** A point P lying inside a triangle is equidistant from the vertices of the triangle. Then the triangle has P as its
 (1) Centroid (2) Incentre
 (3) Orthocentre (4) Circumcentre
 (SSC CGL Tier-I (CBE)
 Exam. 04.09.2016) (Ist Sitting)

GEOMETRY

- 105.** In $\triangle ABC$ if the median $\frac{1}{2} AD = BC$, then $\angle BAC$ is equal to
 (1) 90° (2) 45°
 (3) 60° (4) 75°
 (SSC CGL Tier-I (CBE)
 Exam. 04.09.2016) (Ist Sitting)
- 106.** In $\triangle ABC$ two medians BE and CF intersect at the point O and P, Q are the midpoints of BO and CO respectively. If the length of PQ = 3cm, then the length of FE will be
 (1) 3 cm (2) 6 cm
 (3) 9 cm (4) 12 cm
 (SSC CGL Tier-I (CBE)
 Exam. 06.09.2016) (Ist Sitting)
- 107.** In a triangle PQR, S and T are the points on PQ and PR respectively, such that ST \parallel QR and

$$\frac{PS}{SQ} = \frac{3}{5}$$
, PR = 6 cm, then PT is
 (1) 2 cm (2) 2.25 cm
 (3) 3.5 cm (4) 4 cm
 (SSC CGL Tier-I (CBE)
 Exam. 06.09.2016) (Ist Sitting)
- 108.** The point where all three medians of a triangle meet is called
 (1) Centroid (2) Incentre
 (3) Circumcentre (4) Orthocentre
 (SSC CGL Tier-I (CBE)
 Exam. 07.09.2016) (Ist Sitting)
- 109.** An exterior angle of a triangle is 115° and one of the interior opposite angles is 45° . Then the other two angles are
 (1) $65^\circ, 70^\circ$ (2) $60^\circ, 75^\circ$
 (3) $45^\circ, 90^\circ$ (4) $50^\circ, 85^\circ$
 (SSC CGL Tier-I (CBE)
 Exam. 31.08.2016) (IIInd Sitting)
- 110.** In a $\triangle ABC$, $\angle A + \angle B = 75^\circ$ and $\angle B + \angle C = 140^\circ$, then $\angle B$ is
 (1) 40° (2) 35°
 (3) 55° (4) 45°
 (SSC CGL Tier-I (CBE)
 Exam. 31.08.2016) (IIInd Sitting)
- 111.** In $\triangle PQR$, straight line parallel to the base QR cuts PQ at X and PR at Y. If $PX : XQ = 5 : 6$, then $XY : QR$ will be
 (1) $5 : 11$ (2) $6 : 5$
 (3) $11 : 6$ (4) $11 : 5$
 (SSC CGL Tier-I (CBE)
 Exam. 31.08.2016) (IIInd Sitting)
- 112.** The mid points of AB and AC of the $\triangle ABC$ are P and Q respectively. If PQ = 6 cm., then the side BC is
 (1) 10 cm. (2) 12 cm.
 (3) 8 cm. (4) 14 cm.
 (SSC CGL Tier-I (CBE)
 Exam. 01.09.2016) (IIInd Sitting)
- 113.** The difference between the largest and the smallest angles of a triangle whose angles are in the ratio of $5 : 3 : 10$ is
 (1) 20° (2) 30°
 (3) 50° (4) 70°
 (SSC CGL Tier-I (CBE)
 Exam. 01.09.2016) (IIInd Sitting)
- 114.** In $\triangle ABC$, $AC = BC$ and $\angle ABC = 50^\circ$, the side BC is produced to D so that $BC = CD$ then the value of $\angle BAD$ is
 (1) 80° (2) 40°
 (3) 90° (4) 50°
 (SSC CGL Tier-II (CBE)
 Exam. 30.11.2016)
- 115.** $\triangle ABC$ is a triangle, PQ is line segment intersecting AB in P and AC in Q and PQ \parallel BC. The ratio of AP : BP = 3 : 5 and length of PQ is 18 cm. The length of BC is
 (1) 28 cm. (2) 48 cm.
 (3) 84 cm. (4) 42 cm.
 (SSC CGL Tier-II (CBE)
 Exam. 30.11.2016)
- 116.** The mid-points of sides AB and AC of a triangle ABC are respectively X and Y. If $(BC + XY) = 12$ units, then the value of $(BC - XY)$ is :
 (1) 2 units (2) 6 units
 (3) 8 units (4) 4 units
 (SSC CGL Tier-I (CBE)
 Exam. 28.08.2016 (Ist Sitting) and
 (SSC CGL Tier-I (CBE)
 Exam. 29.08.2016 (Ist Sitting))
- 117.** In a triangle ABC, OB and OC are the bisectors of angles $\angle B$ and $\angle C$ respectively. $\angle BAC = 60^\circ$. The angle $\angle BOC$ will be :
 (1) 150° (2) 120°
 (3) 100° (4) 90°
 (SSC CGL Tier-I (CBE)
 Exam. 30.08.2016 (IIInd Sitting))
- 118.** If the difference between the measures of the two smaller angles of a right angled triangle is 8° , then the smallest angle is :
 (1) 37° (2) 41°
 (3) 42° (4) 49°
 (SSC CGL Tier-I (CBE)
 Exam. 30.08.2016 (IIInd Sitting))
- 119.** Let O be the orthocentre of the triangle ABC. If $\angle BOC = 150^\circ$, Then $\angle BAC$ is
 (1) 30° (2) 60°
 (3) 90° (4) 120°
 (SSC CGL Tier-I (CBE)
 Exam. 30.08.2016 (IIInd Sitting))
- 120.** The orthocentre of a triangle lies on one of the sides. Then
 (1) The orthocentre lies on a vertex
 (2) circumcentre lies outside the triangle
 (3) circumcentre lies on the same side
 (4) centroid coincides with orthocentre
 (SSC CGL Tier-I (CBE)
 Exam. 31.08.2016 (IIIrd Sitting))
- 121.** Three sides of a triangle are 5 cm, 9 cm and x cm. The minimum integral value of x is :
 (1) 2 (2) 3
 (3) 4 (4) 5
 (SSC CGL Tier-I (CBE)
 Exam. 31.08.2016 (IIIrd Sitting))
- 122.** If the measures of the angles of a triangle are in the ratio. $1 : 2 : 3$ and if the length of the smallest side of the triangle is 10 cm, then the length of the longest side is
 (1) 20 cm. (2) 25 cm.
 (3) 30 cm. (4) 35 cm.
 (SSC CGL Tier-I (CBE)
 Exam. 31.08.2016 (IIIrd Sitting))
- 123.** In $\triangle ABC$, the height CD intersects AB at D. The mid-points of AB and BC are P and Q respectively. If AD = 8 cm and CD = 6 cm, then the length of PQ is
 (1) 3 cm (2) 7 cm
 (3) 9 cm (4) 5 cm
 (SSC CGL Tier-I (CBE)
 Exam. 01.09.2016 (IIIrd Sitting))
- 124.** The lengths of three line segments are given. Is construction of a triangle possible with the segments in the given cases?
 (1) 8 cm, 7 cm, 18 cm
 (2) 8 cm, 15 cm, 17 cm
 (3) 10 cm, 6 cm, 4 cm
 (4) 8 cm, 10 cm, 20 cm
 (SSC CGL Tier-I (CBE)
 Exam. 01.09.2016 (IIIrd Sitting))
- 125.** The point equidistant from the vertices of a triangle is called its
 (1) incentre (2) circumcentre
 (3) orthocentre (4) centroid
 (SSC CGL Tier-I (CBE)
 Exam. 02.09.2016 (IIInd Sitting))
- 126.** The sum of two angles of a triangle is 116° and their difference is 24° . The measure of the smallest angle of the triangle is :
 (1) 38° (2) 28°
 (3) 46° (4) 64°
 (SSC CGL Tier-I (CBE)
 Exam. 02.09.2016 (IIInd Sitting))

GEOMETRY

127. In a $\triangle ABC$, $DE \parallel BC$. D and E lie on AB and AC respectively. If $AB = 7$ cm and $BD = 3$ cm, then find $BC : DE$.

- (1) 2 : 3 (2) 3 : 2
 - (3) 3.5 : 2 (4) 7 : 2
- (SSC CGL Tier-I (CBE))

Exam. 02.09.2016 (IIInd Sitting)

128. In $\triangle ABC$, $\angle B = 35^\circ$, $\angle C = 65^\circ$ and the bisector of $\angle BAC$ meets BC in D. Then $\angle ADB$ is :

- (1) 40° (2) 75°
 - (3) 90° (4) 105°
- (SSC CGL Tier-I (CBE))

Exam. 03.09.2016 (IIInd Sitting)

129. The orthocentre of an obtuse-angled triangle lies

- (1) inside the triangle
 - (2) outside the triangle
 - (3) on one side of a triangle
 - (4) None of these
- (SSC CGL Tier-I (CBE))

Exam. 03.09.2016 (IIIrd Sitting)

130. In an acute-angled triangle ABC

$$\text{if } \sin(B + C - A) = \frac{\sqrt{3}}{2} \text{ and } \tan(C + A - B) = 1, \text{ then } C \text{ is equal to}$$

- (1) 37.5° (2) 67.5°
- (3) 52.5° (4) 72.5°

(SSC CGL Tier-I (CBE))

Exam. 04.09.2016 (IIInd Sitting)

131. In a triangle XYZ, which of the following conditions is true?

- (1) $XY - YZ > ZX$
 - (2) $XY + YZ < ZX$
 - (3) $XY - YZ < XZ$
 - (4) $XY + ZX < YZ$
- (SSC CGL Tier-I (CBE))

Exam. 04.09.2016 (IIInd Sitting)

132. In $\triangle ABC$, if $\angle BAC = 90^\circ$ and $AB = AC$, then $\angle ABC$ is :

- (1) 30° (2) 60°
 - (3) 45° (4) 25°
- (SSC CGL Tier-I (CBE))

Exam. 06.09.2016 (IIInd Sitting)

133. The point equidistant from the sides of a triangle is called

- (1) Circumcentre
 - (2) Incentre
 - (3) Orthocentre
 - (4) Centroid
- (SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (IIInd Sitting)

134. In $\triangle ABC$ and $\triangle DEF$, if $\angle A = 50^\circ$, $\angle B = 70^\circ$, $\angle C = 60^\circ$, $\angle D = 60^\circ$, $\angle E = 70^\circ$ and $\angle F = 50^\circ$, then

- (1) $\triangle ABC \sim \triangle FED$
 - (2) $\triangle ABC \sim \triangle DFE$
 - (3) $\triangle ABC \sim \triangle EDF$
 - (4) $\triangle ABC \sim \triangle DEF$
- (SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (IIInd Sitting)

135. In a $\triangle ABC$, if $4\angle A = 3\angle B = 12\angle C$, find $\angle A$.

- (1) 22.5° (2) 90°
 - (3) 67.5° (4) 112.5°
- (SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (IIInd Sitting)

136. Which one of the following combination of measurements can form the sides of a triangle?

- (1) 9 cm., 6 cm., 2 cm..
 - (2) 11 cm., 3 cm., 12 cm..
 - (3) 3 cm., 5 cm., 8 cm..
 - (4) 5 cm., 7 cm., 13 cm..
- (SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (IIIrd Sitting)

137. In triangle ABC, $\angle BAC = 90^\circ$ and AD is perpendicular to BC. If $AD = 6$ cm and $BD = 4$ cm, then the length of BC is :

- (1) 10 cm. (2) 12 cm.
- (3) 13 cm. (4) 15 cm.

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (IIIrd Sitting)

138. D and E are the points on the sides AB and AC respectively of a $\triangle ABC$ and $AD = 8$ cm, $DB = 12$ cm, $AE = 6$ cm and $EC = 9$ cm, then BC is equal to :

- (1) $\frac{2}{5}DE$ (2) $\frac{5}{2}DE$
 - (3) $\frac{3}{2}DE$ (4) $\frac{2}{3}DE$
- (SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (IIIrd Sitting)

139. If in $\triangle ABC$, $\angle B = 5\angle C$ and $\angle A = 3\angle C$, then the measure of $\angle C$ is

- (1) 45° (2) 30°
- (3) 20° (4) 5°

(SSC CGL Tier-I (CBE))

Exam. 08.09.2016 (IIInd Sitting)

140. X and Y are the mid-points of sides AB and AC of a triangle ABC. If $(BC + XY) = 12$ units, then $(BC - XY)$ is

- (1) 8 units (2) 4 units
- (3) 6 units (4) 2 units

(SSC CGL Tier-I (CBE))

Exam. 09.09.2016 (IIInd Sitting)

141. In $\triangle PQR$, L and M are two points on the sides PQ and PR respectively such that LM is parallel to QR. If $PL = 2$ cm, $LQ = 6$ cm and $PM = 1.5$ cm, then MR (in cm) is

- (1) 0.5 (2) 4.5
- (3) 9 (4) 8

(SSC CGL Tier-I (CBE))

Exam. 09.09.2016 (IIInd Sitting)

142. The point of intersection of all the three medians of a triangle is called its

- (1) orthocentre
- (2) incentre
- (3) centroid
- (4) circumcentre

(SSC CGL Tier-I (CBE))

Exam. 09.09.2016 (IIIrd Sitting)

143. In a triangle, the distance of the centroid from the three vertices is 4 cm, 6 cm and 8 cm respectively. Then the length of the smallest median is :

- (1) 8 (2) 7
- (3) 6 (4) 5

(SSC CGL Tier-I (CBE))

Exam. 09.09.2016 (IIIrd Sitting)

144. The ratio of the angles of a triangle is $1 : \frac{2}{3} : 3$. Then the smallest angle is :

- (1) $21\frac{4}{7}^\circ$ (2) 25°
- (3) $25\frac{5}{7}^\circ$ (4) $38\frac{4}{7}^\circ$

(SSC CGL Tier-I (CBE))

Exam. 10.09.2016 (IIIrd Sitting)

145. In $\triangle ABC$, $DE \parallel AC$, where D and E are two points lying on AB and BC respectively. If $AB = 5$ cm and $AD = 3$ cm, then $BE : EC$ is

- (1) 2 : 3 (2) 3 : 2
- (3) 5 : 3 (4) 3 : 5

(SSC CGL Tier-I (CBE))

Exam. 11.09.2016 (IIInd Sitting)

146. In a $\triangle ABC$, if $\angle A + \angle B = 135^\circ$ and $\angle C + 2\angle B = 180^\circ$, then the correct relation is :

- (1) $CA > AB$ (2) $CA = AB$
- (3) $CA < AB$ (4) $CA + AB = CB$

(SSC CGL Tier-I (CBE))

Exam. 27.10.2016 (Ist Sitting)

147. In a $\triangle ABC$, D and E are points on AC and BC respectively, AB and DE are perpendicular to BC. If $AB = 9$ cm, $DE = 3$ cm and $AC = 24$ cm, then AD is :

- (1) 32cm (2) 16cm
- (3) 8 cm (4) 4 cm

(SSC CGL Tier-I (CBE))

Exam. 27.10.2016 (Ist Sitting)

148. I is the incentre of $\triangle ABC$ and if $\angle BAC = 70^\circ$, then $\angle BIC$ is

- (1) 140° (2) 55°
- (3) 125° (4) 35°

(SSC CGL Tier-I (CBE))

Exam. 27.10.2016 (Ist Sitting)

GEOMETRY

- 149.** In a triangle the length of the side opposite the angle which measures 45° is 8 cm, what is the length of the side opposite to the angle which measures 90° ?

- (1) $8\sqrt{2}$ cm. (2) $4\sqrt{2}$ cm.
 (3) $8\sqrt{3}$ cm. (4) $4\sqrt{3}$ cm.

(SSC CHSL (10+2) Tier-I (CBE) Exam. 15.01.2017) (IInd Sitting)

- 150.** In a triangle ABC, $\angle A = 70^\circ$, $\angle B = 80^\circ$ and D is the incentre of $\triangle ABC$. $\angle ACB = 2x^\circ$ and $\angle BDC = y^\circ$. The values of x and y, respectively are

- (1) 15, 130 (2) 15, 125
 (3) 35, 40 (4) 30, 150

(SSC CGL Tier-II (CBE) Exam. 12.01.2017)

- 151.** If O is the orthocentre of a triangle ABC and $\angle BOC = 100^\circ$, the measure of $\angle BAC$ is

- (1) 100° (2) 180°
 (3) 80° (4) 200°

(SSC CGL Tier-II (CBE) Exam. 12.01.2017)

TYPE-IV

- 1.** Two medians AD and BE of $\triangle ABC$ intersect at G at right angles. If AD = 9 cm and BE = 6 cm, then the length of BD (in cm) is

- (1) 10 (2) 6
 (3) 5 (4) 3

(SSC CPO (SI, ASI & Intelligence Officer) Exam. 28.08.2011 (Paper-I))

- 2.** In $\triangle ABC$, $\angle BAC = 90^\circ$ and $AB = \frac{1}{2} BC$. Then the measure of $\angle ACB$ is :

- (1) 60° (2) 30°
 (3) 45° (4) 15°

FCI Assistant Grade-III Exam. 05.02.2012 (Paper-I)
 East Zone (IInd Sitting)

- 3.** If the length of the three sides of a triangle are 6 cm, 8 cm and 10 cm, then the length of the median to its greatest side is

- (1) 8 cm (2) 6 cm
 (3) 5 cm (4) 4.8 cm

(SSC Data Entry Operator Exam. 31.08.2008)

- 4.** The length of the three sides of a right angled triangle are $(x-2)$ cm, x cm and $(x+2)$ cm respectively. Then the value of x is

- (1) 10 (2) 8
 (3) 4 (4) 0

(SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (IInd Sitting))

- 5.** Suppose $\triangle ABC$ be a right-angled triangle where $\angle A = 90^\circ$ and $AD \perp BC$. If $\Delta ABC = 40 \text{ cm}^2$, $\Delta ACD = 10 \text{ cm}^2$ and $\overline{AC} = 9 \text{ cm}$, then the length of BC is

- (1) 12 cm (2) 18 cm
 (3) 4 cm (4) 6 cm

(SSC Graduate Level Tier-II Exam. 16.09.2012)

- 6.** In a triangle ABC, $\angle BAC = 90^\circ$ and AD is perpendicular to BC. If AD = 6 cm and BD = 4 cm, then the length of BC is

- (1) 8 cm (2) 10 cm
 (3) 9 cm (4) 13 cm

(SSC CHSL DEO & LDC Exam. 04.11.2012 (IInd Sitting))

- 7.** In a right angled $\triangle ABC$, $\angle ABC = 90^\circ$; BN is perpendicular to AC, AB = 6 cm, AC = 10 cm. Then AN : NC is

- (1) 3 : 4 (2) 9 : 16
 (3) 3 : 16 (4) 1 : 4

(SSC Graduate Level Tier-I Exam. 11.11.2012 (Ist Sitting))

- 8.** For a triangle, base is $6\sqrt{3}$ cm and two base angles are 30° and 60° . Then height of the triangle is

- (1) $3\sqrt{3}$ cm (2) 4.5 cm
 (3) $4\sqrt{3}$ cm (4) $2\sqrt{3}$ cm

(SSC CHSL DEO & LDC Exam. 28.10.2012, Ist Sitting)

- 9.** ABC is a right angled triangle, right angled at C and p is the length of the perpendicular from C on AB. If a, b and c are the length of the sides BC, CA and AB respectively, then

$$(1) \frac{1}{p^2} = \frac{1}{b^2} - \frac{1}{a^2}$$

$$(2) \frac{1}{p^2} = \frac{1}{a^2} + \frac{1}{b^2}$$

$$(3) \frac{1}{p^2} + \frac{1}{a^2} = -\frac{1}{b^2}$$

$$(4) \frac{1}{p^2} = \frac{1}{a^2} - \frac{1}{b^2}$$

(SSC CHSL DEO & LDC Exam. 04.11.2012, Ist Sitting)

- 10.** In $\triangle ABC$, $\angle A = 90^\circ$ and $AD \perp BC$ where D lies on BC. If BC = 8 cm, AC = 6 cm, then $\Delta ABC : \Delta ACD = ?$

- (1) 4 : 3 (2) 25 : 16
 (3) 16 : 9 (4) 25 : 9

(SSC FCI Assistant Grade-III Main Exam. 07.04.2013)

- 11.** If the median drawn on the base of a triangle is half its base, the triangle will be:

- (1) right-angled
 (2) acute-angled
 (3) obtuse-angled
 (4) equilateral

(SSC Graduate Level Tier-I Exam. 21.04.2013)

- 12.** In a right-angled triangle ABC, $\angle ABC = 90^\circ$, AB = 5 cm and BC = 12 cm. The radius of the circumcircle of the triangle ABC is

- (1) 7.5 cm (2) 6 cm
 (3) 6.5 cm (4) 7 cm

(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

- 13.** In a right-angled triangle, the product of two sides is equal to half of the square of the third side i.e., hypotenuse. One of the acute angle must be

- (1) 60° (2) 30°
 (3) 45° (4) 15°

(SSC Graduate Level Tier-II Exam. 29.09.2013)

- 14.** A point D is taken from the side BC of a right-angled triangle ABC, where AB is hypotenuse. Then

- (1) $AB^2 + CD^2 = BC^2 + AD^2$
 (2) $CD^2 + BD^2 = 2 AD^2$
 (3) $AB^2 + AC^2 = 2 AD^2$
 (4) $AB^2 = AD^2 + BD^2$

(SSC Graduate Level Tier-II Exam. 29.09.2013)

- 15.** D and E are two points on the sides AC and BC respectively of $\triangle ABC$ such that $DE = 18 \text{ cm}$, $CE = 5 \text{ cm}$ and $\angle DEC = 90^\circ$. If tan $\angle ABC = 3.6$, then $AC : CD =$

- (1) $BC : 2 CE$ (2) $2 CE : BC$
 (3) $2 BC : CE$ (4) $CE : 2 BC$

(SSC Graduate Level Tier-II Exam. 29.09.2013)

- 16.** BL and CM are medians of $\triangle ABC$ right-angled at A and $BC =$

5 cm . If $BL = \frac{3\sqrt{5}}{2} \text{ cm}$, then the length of CM is

- (1) $2\sqrt{5}$ cm (2) $5\sqrt{2}$ cm
 (3) $10\sqrt{2}$ cm (4) $4\sqrt{5}$ cm

(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

GEOMETRY

- 17.** The ortho centre of a right angled triangle lies
 (1) outside the triangle
 (2) at the right angular vertex
 (3) on its hypotenuse
 (4) within the triangle

FCI Assistant Grade-III
 Exam. 25.02.2012 (Paper-I)
 North Zone (Ist Sitting)

- 18.** If the measures of the sides of triangle are $(x^2 - 1)$, $(x^2 + 1)$ and $2x$ cm, then the triangle would be
 (1) equilateral
 (2) acute-angled
 (3) isosceles
 (4) right-angled

(SSC CGL Tier-I
 Exam. 19.10.2014 (Ist Sitting))

- 19.** If each angle of a triangle is less than the sum of the other two, then the triangle is
 (1) obtuse angled
 (2) right angled
 (3) acute angled
 (4) equilateral

(SSC CGL Tier-I
 Exam. 19.10.2014 (Ist Sitting))

- 20.** ABC is a right-angled triangle with $AB = 6$ cm and $BC = 8$ cm. A circle with centre O has been inscribed inside $\triangle ABC$. The radius of the circle is
 (1) 1 cm (2) 2 cm
 (3) 3 cm (4) 4 cm

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

- 21.** If the sides of a right angled triangle are three consecutive integers, then the length of the smallest side is
 (1) 3 units (2) 2 units
 (3) 4 units (4) 5 units

(SSC CHSL DEO & LDC Exam. 9.11.2014)

- 22.** The angle in a semi-circle is
 (1) a reflex angle
 (2) an obtuse angle
 (3) an acute angle
 (4) a right angle

(SSC CGL Tier-I
 Re-Exam. (2013) 27.04.2014)

- 23.** In $\triangle ABC$, $\angle BAC = 90^\circ$ and D is the mid-point of BC. Then which of the following relations is true?
 (1) $AD = BD = CD$
 (2) $AD = BD = 2CD$
 (3) $AD = 2BD = CD$
 (4) $2AD = BD = CD$

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, Ist Sitting TF No. 333 LO 2)

- 24.** If the sides of a triangle are in the ratio $3 : 1\frac{1}{4} : 3\frac{1}{4}$, then the triangle is

- (1) Right triangle
 (2) Obtuse triangle
 (3) Equiangular triangle
 (4) Acute triangle

(SSC CGL Tier-II Exam. 12.04.2015
 TF No. 567 TL 9)

- 25.** A ship after sailing 12 km towards south from a particular place covered 5 km more towards east. Then the straightway distance of the ship from that place is

- (1) 11 km (2) 18 km
 (3) 15 km (4) 13 km

(SSC CGL Tier-I Exam. 09.08.2015
 (Ist Sitting) TF No. 1443088)

- 26.** If the measure of three angles of a triangle are in the ratio $2 : 3 : 5$, then the triangle is :
 (1) right angled
 (2) isosceles
 (3) obtuse angled
 (4) equilateral

(SSC CGL Tier-I Exam. 16.08.2015
 (Ist Sitting) TF No. 3196279)

- 27.** $\triangle ABC$ is a right angled triangle with $AB = 6$ cm, $AC = 8$ cm, $\angle BAC = 90^\circ$. Then the radius of the in-circle is

- (1) 4 cm. (2) 2 cm.
 (3) 6 cm. (4) 3 cm.

(SSC CGL Tier-I
 Re-Exam, 30.08.2015)

- 28.** In $\triangle ABC$, $AD \perp BC$ and $AD^2 = BD \cdot DC$. The measure of $\angle BAC$ is:
 (1) 60° (2) 75°
 (3) 90° (4) 45°

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 15.11.2015
 (IInd Sitting) TF No. 7203752)

- 29.** $\angle A$ of $\triangle ABC$ is a right angle. AD is perpendicular on BC. If $BC = 14$ cm and $BD = 5$ cm, then measure of AD is :

- (1) $2\sqrt{5}$ cm. (2) $\sqrt{5}$ cm.
 (3) $3\sqrt{5}$ cm. (4) $3.5\sqrt{5}$ cm.

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 15.11.2015
 (IInd Sitting) TF No. 7203752)

- 30.** In $\triangle ABC$, $\angle B = 90^\circ$, $AB = 8$ cm and $BC = 15$ cm, then $\sin C = ?$

- (1) $\frac{15}{17}$ (2) $\frac{8}{17}$

- (3) $\frac{15}{8}$ (4) $\frac{8}{15}$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 15.11.2015
 (IInd Sitting) TF No. 7203752)

- 31.** In $\triangle ABC$, $AB = BC = k$, $AC = \sqrt{2}k$, then $\triangle ABC$ is a :

- (1) Isosceles triangle
 (2) Right-angled triangle
 (3) Equilateral triangle
 (4) Right isosceles triangle

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 06.12.2015
 (IInd Sitting) TF No. 3441135)

- 32.** The sides of a right triangle ABC are a , b and c , where c is the hypotenuse. What will be the radius of the in circle of this triangle?

- (1) $\frac{(a+b+c)}{2}$ (2) $\frac{(a+b-c)}{2}$

- (3) $\frac{(b+c-a)}{2}$ (4) $\frac{(a+c-b)}{2}$

(SSC CPO SI, ASI Online Exam. 05.06.2016) (IInd Sitting)

- 33.** In $\triangle ABC$, $\angle B$ is right angle, D is the mid-point of the side AC. If $AB = 6$ cm, $BC = 8$ cm, then the length of BD is

- (1) 4 cm. (2) 5 cm.
 (3) 8 cm. (4) 12 cm.

(SSC CGL Tier-I (CBE) Exam. 09.09.2016) (Ist Sitting)

- 34.** In a right angled triangle if hypotenuse is 20 cm and ratio of other two sides is $4 : 3$, the lengths of the sides are

- (1) 4 cm. and 3 cm.
 (2) 8 cm. and 6 cm.
 (3) 12 cm. and 9 cm.
 (4) 16 cm. and 12 cm.

(SSC CGL Tier-I (CBE) Exam. 07.09.2016 (IIIrd Sitting))

- 35.** XYZ is a right angled triangle and $\angle Y = 90^\circ$. If XY = 2.5 cm and YZ = 6 cm then the circumradius of $\triangle XYZ$ is :

- (1) 6.5 cm (2) 3.25 cm
 (3) 3 cm (4) 2.5 cm

(SSC CGL Tier-I (CBE) Exam. 08.09.2016 (IInd Sitting))

- 36.** In a right angled triangle $\triangle DEF$, if the length of the hypotenuse EF is 12 cm, then the length of the median DX is

- (1) 3 cm. (2) 4 cm.
 (3) 6 cm. (4) 12 cm.

(SSC CGL Tier-II (CBE) Exam. 12.01.2017)

GEOMETRY

TYPE-V

- 1.** In $\triangle ABC$ and $\triangle DEF$, $AB = DE$ and $BC = EF$. Then one can infer that

$\triangle ABC \cong \triangle DEF$, when

- (1) $\angle BAC = \angle EDF$
- (2) $\angle ACB = \angle EDF$
- (3) $\angle ACB = \angle DFE$
- (4) $\angle ABC = \angle DEF$

(SSC Graduate Level Tier-I

Exam. 21.04.2013 IInd Sitting)

- 2.** In $\triangle PQR$, S and T are points on sides PR and PQ respectively such that $\angle PQR = \angle PST$. If $PT = 5$ cm, $PS = 3$ cm and $TQ = 3$ cm, then length of SR is

- (1) 5 cm (2) 6 cm
- (3) $\frac{31}{3}$ cm (4) $\frac{41}{3}$ cm

(SSC CGL Tier-I Exam. 19.10.2014)

- 3.** The perimeters of two similar triangles $\triangle ABC$ and $\triangle PQR$ are 36 cm and 24 cm respectively. If $PQ = 10$ cm, then AB is

- (1) 15 cm (2) 12 cm
- (3) 14 cm (4) 26 cm

(SSC CHSL DEO & LDC
Exam. 9.11.2014)

- 4.** In $\triangle ABC$, two points D and E are taken on the lines AB and BC respectively in such a way that AC is parallel to DE. Then $\triangle ABC$ and $\triangle DBE$ are

- (1) similar only if D lies outside the line segment AB
- (2) congruent only if D lies outside the line segment AB
- (3) always similar
- (4) always congruent

(SSC CHSL DEO Exam. 02.11.2014
(Ist Sitting))

- 5.** Inside a triangle ABC, a straight line parallel to BC intersects AB and AC at the point P and Q respectively. If $AB = 3 PB$, then $PQ : BC$ is

- (1) 1 : 3 (2) 3 : 4
- (3) 1 : 2 (4) 2 : 3

(SSC FCI Assistant Grade-III Main
Exam. 07.04.2013)

- 6.** In $\triangle ABC$, D and E are points on AB and AC respectively such that $DE \parallel BC$ and DE divides the $\triangle ABC$ into two parts of equal areas. Then ratio of AD and BD is

- (1) 1 : 1 (2) $1 : \sqrt{2} - 1$
- (3) $1 : \sqrt{2}$ (4) $1 : \sqrt{2} + 1$

(SSC Graduate Level Tier-II
Exam. 16.09.2012)

- 7.** In $\triangle ABC$, $DE \parallel AC$. D and E are two points on AB and CB respectively. If $AB = 10$ cm and $AD = 4$ cm, then $BE : CE$ is

- (1) 2 : 3 (2) 2 : 5
- (3) 5 : 2 (4) 3 : 2

(SSC Graduate Level Tier-I
Exam. 19.05.2013)

- 8.** For a triangle ABC, D and E are two points on AB and AC such

that $AD = \frac{1}{4} AB$, $AE = \frac{1}{4} AC$. If

$BC = 12$ cm, then DE is

- (1) 5 cm (2) 4 cm
- (3) 3 cm (4) 6 cm

(SSC CGL Tier-I
Re-Exam. (2013) 27.04.2014)

- 9.** In triangle ABC a straight line parallel to BC intersects AB and AC at D and E respectively. If $AB = 2AD$ then $DE : BC$ is

- (1) 2 : 3 (2) 2 : 1
- (3) 1 : 2 (4) 1 : 3

(SSC CGL Tier-II Exam. 21.09.2014)

- 10.** In a $\triangle ABC$, D and E are two points on AB and AC respectively such that $DE \parallel BC$, DE bisects the $\triangle ABC$ in two equal areas. Then the ratio $DB : AB$ is

- (1) $1 : \sqrt{2}$ (2) $1 : 2$
- (3) $(\sqrt{2} - 1) : \sqrt{2}$ (4) $\sqrt{2} : 1$

(SSC CAPFs SI, CISF ASI & Delhi
Police SI Exam. 22.06.2014)

- 11.** In $\triangle ABC$, E and D are points on sides AB and AC respectively such that $\angle ABC = \angle ADE$. If $AE = 3$ cm, $AD = 2$ cm and $EB = 2$ cm, then length of DC is

- (1) 4 cm (2) 4.5 cm
- (3) 5.0 cm (4) 5.5 cm

(SSC CGL Tier-I Exam. 19.10.2014
TF No. 022 MH 3)

- 12.** $\triangle ABC$ and $\triangle DEF$ are similar. Also $\angle A = \angle D$ and $\angle B = \angle E$. If $4AB = DE$ and $BC = 12$ cm, then EF is equal to

- (1) 3 cm (2) 24 cm
- (3) 16 cm (4) 48 cm

(SSC CHSL (10+2) DEO & LDC
Exam. 16.11.2014, IInd Sitting
TF No. 545 QP 6)

- 13.** In $\triangle ABC$ the straight line parallel to the side BC meets AB and AC at the points P and Q respectively. If $AP = QC$, the length of AB is 12 units and the length of AQ is 2 units, then the length (in units) of CQ is

- (1) 4 (2) 6
- (3) 8 (4) 10

(SSC CHSL (10+2) DEO & LDC
Exam. 16.11.2014, IInd Sitting
TF No. 545 QP 6)

- 14.** ABC is a triangle in which $DE \parallel BC$ and $AD : DB = 5 : 4$. Then $DE : BC$ is

- (1) 4 : 5 (2) 4 : 9
- (3) 9 : 5 (4) 5 : 9

(SSC CGL Tier-II Exam. 12.04.2015
TF No. 567 TL 9)

- 15.** If in a triangle ABC, BE and CF are two medians perpendicular to each other and if $AB = 19$ cm and $AC = 22$ cm then the length of BC is

- (1) 19.5 cm (2) 26 cm
- (3) 20.5 cm (4) 13 cm

(SSC CAPFs SI, CISF ASI & Delhi
Police SI Exam. 21.06.2015
(Ist Sitting) TF No. 8037731)

- 16.** The medians CD and BE of a triangle ABC intersect each other at O. The ratio $\triangle ODE : \triangle ABC$ is equal to

- (1) 12 : 1 (2) 4 : 3
- (3) 3 : 4 (4) 1 : 12

(SSC CHSL (10+2) LDC, DEO
& PA/SA Exam. 20.12.2015
(Ist Sitting) TF No. 9692918)

- 17.** $\triangle ABC$ and $\triangle DEF$ are two similar triangles and the perimeters of $\triangle ABC$ and $\triangle DEF$ are 30 cm and 18 cm respectively. If the length of DE = 36 cm, then length of AB is

- (1) 60 cm. (2) 40 cm.
- (3) 45 cm. (4) 50 cm.

(SSC CGL Tier-I (CBE)
Exam. 09.09.2016) (Ist Sitting)

- 18.** If $\triangle PQR$ and $\triangle LMN$ are similar and $3PQ = LM$ and $MN = 9$ cm, then QR is equal to :

- (1) 12 cm (2) 6 cm
- (3) 9 cm (4) 3 cm

(SSC CGL Tier-I (CBE)
Exam. 30.08.2016) (Ist Sitting)

GEOMETRY

- 19.** The perimeter of two similar triangles ABC and PQR are 36 cms and 24 cms respectively. If PQ = 10 cm then the length of AB is
 (1) 18 cm (2) 12 cm
 (3) 15 cm (4) 30 cm
 (SSC CGL Tier-I (CBE)

Exam. 01.09.2016 (Ist Sitting)

- 20.** Which of the following is a true statement?
 (1) Two similar triangles are always congruent.
 (2) Two similar triangles have equal areas
 (3) Two triangles are similar if their corresponding sides are proportional.
 (4) Two polygons are similar if their corresponding sides are proportional.
 (SSC CGL Tier-I (CBE)

Exam. 30.08.2016 (IIIrd Sitting)

- 21.** The perimeter of two similar triangles ΔABC and ΔPQR are 60 cm and 36 cm respectively. If PQ = 18 cm, then AB is :
 (1) 20 cm (2) 24 cm
 (3) 36 cm (4) 30 cm
 (SSC CGL Tier-I (CBE)

Exam. 27.10.2016 (Ist Sitting)

TYPE-VI

- 1.** Q is a point in the interior of a rectangle ABCD. If QA = 3 cm, QB = 4 cm and QC = 5 cm, then the length of QD (in cm) is
 (1) $3\sqrt{2}$ (2) $5\sqrt{2}$
 (3) $\sqrt{34}$ (4) $\sqrt{41}$

(SSC Multi-Tasking Staff Exam. 17.03.2013, Kolkata Region)

- 2.** ABCD is a rectangle where the ratio of the length of AB and BC is 3 : 2. If P is the mid-point of AB, then the value of $\sin \angle CPB$ is
 (1) $\frac{3}{5}$ (2) $\frac{2}{5}$
 (3) $\frac{3}{4}$ (4) $\frac{4}{5}$

(SSC Graduate Level Tier-II Exam. 29.09.2013)

- 3.** If the opposite sides of a quadrilateral and also its diagonals are equal, then each of the angles of the quadrilateral is
 (1) 90° (2) 120°
 (3) 100° (4) 60°

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

- 4.** The length of the two adjacent sides of a rectangle inscribed in a circle are 5 cm and 12 cm respectively. Then the radius of the circle will be
 (1) 6 cm (2) 6.5 cm
 (3) 8 cm (4) 8.5 cm

(SSC CGL Tier-I (CBE)

Exam. 28.08.2016 (IIInd Sitting)

- 5.** PQRA is a rectangle, AP = 22 cm, PQ = 8 cm. ΔABC is a triangle whose vertices lie on the sides of PQRA such that BQ = 2 cm and QC = 16 cm. Then the length of the line joining the mid points of the sides AB and BC is
 (1) $4\sqrt{2}$ cm. (2) 5 cm.
 (3) 6 cm. (4) 10 cm.

(SSC CGL Tier-II (CBE)

Exam. 12.01.2017)

TYPE-VII

- 1.** Inside a square ABCD, ΔBEC is an equilateral triangle. If CE and BD intersect at O, then $\angle BOC$ is equal to
 (1) 60° (2) 75°
 (3) 90° (4) 120°

(SSC Graduate Level Tier-II

Exam. 29.09.2013)

- 2.** A square is inscribed in a quarter-circle in such a manner that two of its adjacent vertices lie on the two radii at an equal distance from the centre, while the other two vertices lie on the circular arc. If the square has sides of length x , then the radius of the circle is

- (1) $\sqrt{2}x$ (2) $\frac{16x}{\pi + 4}$
 (3) $\frac{2x}{\sqrt{\pi}}$ (4) $\frac{\sqrt{5}x}{\sqrt{2}}$

(SSC CGL Tier-I Exam. 09.08.2015

(Ist Sitting) TF No. 1443088)

TYPE-VIII

- 1.** Each interior angle of a regular polygon is three times its exterior angle, then the number of sides of the regular polygon is :
 (1) 9 (2) 8
 (3) 10 (4) 7

FCI Assistant Grade-III

Exam. 05.02.2012 (Paper-I)

East Zone (IIInd Sitting)

- 2.** In a regular polygon, the exterior and interior angles are in the ratio 1 : 4. The number of sides of the polygon is
 (1) 10 (2) 12
 (3) 15 (4) 16

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006

(Second Sitting)

- 3.** The difference between the exterior and interior angles at a vertex of a regular polygon is 150° . The number of sides of the polygon is
 (1) 10 (2) 15
 (3) 24 (4) 30

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (North Zone)

- 4.** Each interior angle of a regular polygon is 144° . The number of sides of the polygon is
 (1) 8 (2) 9
 (3) 10 (4) 11

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting (North Zone)

- 5.** If the sum of the interior angles of a regular polygon be 1080° , the number of sides of the polygon is
 (1) 6 (2) 8
 (3) 10 (4) 12

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting (East Zone)

- 6.** The number of sides in two regular polygons are in the ratio 5 : 4 and the difference between each interior angle of the polygons is 6° . Then the number of sides are
 (1) 15, 12 (2) 5, 4
 (3) 10, 8 (4) 20, 16

(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (Delhi Zone)

- 7.** Each internal angle of regular polygon is two times its external angle. Then the number of sides of the polygon is :
 (1) 8 (2) 6
 (3) 5 (4) 7

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting (Delhi Zone) & (SSC CHSL DEO & LDC Exam. 27.10.2013)

- 8.** Ratio of the number of sides of two regular polygons is 5 : 6 and the ratio of their each interior angle is 24 : 25. Then the number of sides of these two polygons are
 (1) 20, 24 (2) 15, 18
 (3) 10, 12 (4) 5, 6

(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (East Zone)

GEOMETRY

- 9.** Measure of each interior angle of a regular polygon can never be :
 (1) 150° (2) 105°
 (3) 108° (4) 144°
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (East Zone))
- 10.** The sum of all interior angles of a regular polygon is twice the sum of all its exterior angles. The number of sides of the polygon is
 (1) 10 (2) 8
 (3) 12 (4) 6
 (SSC Graduate Level Tier-II Exam. 16.09.2012)
- 11.** The ratio between the number of sides of two regular polygons is $1 : 2$ and the ratio between their interior angles is $2 : 3$. The number of sides of these polygons is respectively
 (1) 6, 12 (2) 5, 10
 (3) 4, 8 (4) 7, 14
 (SSC Graduate Level Tier-II Exam. 16.09.2012)
- 12.** There are two regular polygons with number of sides equal to $(n - 1)$ and $(n + 2)$. Their exterior angles differ by 6° . The value of n is
 (1) 14 (2) 12
 (3) 13 (4) 11
 (SSC Multi-Tasking Staff Exam. 10.03.2013, 1st Sitting : Patna)
- 13.** If each interior angle of a regular polygon is 150° , the number of sides of the polygon is
 (1) 8 (2) 10
 (3) 15 (4) None of these
 (SSC CHSL DEO & LDC Exam. 10.11.2013, 1st Sitting)
- 14.** The sum of interior angles of a regular polygon is 1440° . The number of sides of the polygon is
 (1) 10 (2) 12
 (3) 6 (4) 8
 (SSC CHSL DEO & LDC Exam. 10.11.2013, IInd Sitting and SSC CHSL DEO & LDC Exam. 9.11.2014)
- 15.** Among the angles 30° , 36° , 45° , 50° one angle cannot be an exterior angle of a regular polygon. The angle is
 (1) 30° (2) 36°
 (3) 45° (4) 50°
 (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)
- 16.** If the sum of interior angles of a regular polygon is equal to two times the sum of exterior angles of that polygon, then the number of sides of that polygon is
 (1) 5 (2) 6
 (3) 7 (4) 8
 (SSC CGL Tier-I Exam. 19.10.2014)
- 17.** An interior angle of a regular polygon is 5 times its exterior angle. Then the number of sides of the polygon is
 (1) 14 (2) 16
 (3) 12 (4) 18
 (SSC CGL Tier-II Exam. 21.09.2014)
- 18.** The interior angle of a regular polygon is 140° . The number of sides of that polygon is
 (1) 9 (2) 8
 (3) 7 (4) 6
 (SSC CGL Tier-I Exam. 19.10.2014 TF No. 022 MH 3)
- 19.** In a regular polygon if one of its internal angle is greater than the external angle by 132° , then the number of sides of the polygon is
 (1) 14 (2) 12
 (3) 15 (4) 16
 (SSC CHSL DEO Exam. 02.11.2014 (1st Sitting))
- 20.** If the ratio of an external angle and an internal angle of a regular polygon is $1 : 17$, then the number of sides of the regular polygon is
 (1) 20 (2) 18
 (3) 36 (4) 12
 (SSC CHSL DEO Exam. 16.11.2014 (1st Sitting))
- 21.** The sum of all internal angles of a regular polygon whose one external angle is 20° is
 (1) 6400° (2) 3200°
 (3) 2880° (4) 1440°
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, 1st Sitting TF No. 333 LO 2)
- 22.** The sum of the internal angles of a regular polygon is 1440° . The number of sides is
 (1) 8 (2) 10
 (3) 12 (4) 6
 (SSC CGL Tier-II Exam. 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)
- 23.** The ratio of each interior angle to each exterior angle of a regular polygon is $3 : 1$. The number of sides of the polygon is
 (1) 9 (2) 7
 (3) 6 (4) 8
 (SSC CGL Tier-I Exam. 09.08.2015 (IInd Sitting) TF No. 4239378)
- 24.** PQRST is a cyclic pentagon and PT is a diameter, then $\angle PQR + \angle RST$ is equal to
 (1) 180° (2) 270°
 (3) 216° (4) 144°
 (SSC CGL Tier-I Re-Exam, 30.08.2015)
- 25.** The interior angle of a regular polygon exceeds its exterior angle by 108° . The number of the sides of the polygon is
 (1) 12 (2) 16
 (3) 14 (4) 10
 (SSC CGL Tier-II Exam. 25.10.2015, TF No. 1099685)
- 26.** Measure of each interior angle of a regular hexagon is :
 (1) 100° (2) 60°
 (3) 45° (4) 120°
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IInd Sitting) TF No. 7203752)
- 27.** If the sum of all interior angles of a regular polygon is 14 right angles, then its number of sides is
 (1) 8 (2) 9
 (3) 7 (4) 6
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015 (Ist Sitting) TF No. 9692918)
- 28.** The measure of each interior angle of a regular polygon with 8 sides is
 (1) 135° (2) 120°
 (3) 100° (4) 45°
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015 (Ist Sitting) TF No. 9692918)
- 29.** A polygon has 54 diagonals. The number of sides in the polygon is
 (1) 7 (2) 9
 (3) 12 (4) 15
 (SSC CPO Exam. 06.06.2016 (Ist Sitting))
- 30.** Two regular polygons are such that the ratio between their number of sides is $1 : 2$ and the ratio of measures of their interior angles is $3 : 4$. Then the number of sides of each polygon is
 (1) 10 and 20 (2) 4 and 8
 (3) 3 and 6 (4) 5 and 10
 (SSC CGL Tier-II (CBE) Exam. 30.11.2016)
- 31.** If an interior of a regular polygon is 170° , then the number of sides of the polygon is
 (1) 36 (2) 20
 (3) 18 (4) 27
 (SSC CGL Tier-I (CBE) Exam. 04.09.2016 (IInd Sitting))

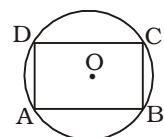
GEOMETRY

TYPE-IX

- 1.** The length of the diagonal BD of the parallelogram ABCD is 18 cm. If P and Q are the centroid of the $\triangle ABC$ and $\triangle ADC$ respectively then the length of the line segment PQ is
 (1) 4 cm (2) 6 cm
 (3) 9 cm (4) 12 cm
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (East Zone))
- 2.** The side AB of a parallelogram ABCD is produced to E in such way that $BE = AB$. DE intersects BC at Q. The point Q divides BC in the ratio
 (1) 1 : 2 (2) 1 : 1
 (3) 2 : 3 (4) 2 : 1
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone))
- 3.** In a parallelogram PQRS, angle P is four times of angle Q, then the measure of $\angle R$ is
 (1) 144° (2) 36°
 (3) 72° (4) 130°
 (SSC CGL Tier-I Exam, 09.08.2015 (Ist Sitting) TF No. 1443088)

TYPE-X

- 1.** ABCD is a cyclic parallelogram. The angle $\angle B$ is equal to :
 (1) 30° (2) 60°
 (3) 45° (4) 90°
 FCI Assistant Grade-III Exam. 05.02.2012 (Paper-I) East Zone (IIInd Sitting)
- 2.** ABCD is a cyclic trapezium such that $AD \parallel BC$, if $\angle ABC = 70^\circ$, then the value of $\angle BCD$ is:
 (1) 60° (2) 70°
 (3) 40° (4) 80°
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting (Delhi Zone))
- 3.** ABCD is a cyclic trapezium whose sides AD and BC are parallel to each other. If $\angle ABC = 72^\circ$, then the measure of the $\angle BCD$ is
 (1) 162° (2) 18°
 (3) 108° (4) 72°
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (East Zone))
- 4.** If an exterior angle of a cyclic quadrilateral be 50° , then the interior opposite angle is :
 (1) 130° (2) 40°
 (3) 50° (4) 90°
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting (East Zone))

- 5.** ABCD is a cyclic quadrilateral and O is the centre of the circle. If $\angle COD = 140^\circ$ and $\angle BAC = 40^\circ$, then the value of $\angle BCD$ is equal to
 (1) 70° (2) 90°
 (3) 60° (4) 80°
 (SSC CHSL DEO & LDC Exam. 04.11.2012, IIInd Sitting)
- 6.** ABCD is a cyclic trapezium with $AB \parallel DC$ and AB = diameter of the circle. If $\angle CAB = 30^\circ$, then $\angle ADC$ is
 (1) 60° (2) 120°
 (3) 150° (4) 30°
 (SSC Graduate Level Tier-I Exam. 21.04.2013)
- 7.** ABCD is a cyclic quadrilateral. AB and DC are produced to meet at P. If $\angle ADC = 70^\circ$ and $\angle DAB = 60^\circ$, then the $\angle PBC + \angle PCB$ is
 (1) 130° (2) 150°
 (3) 155° (4) 180°
 (SSC Graduate Level Tier-I Exam. 21.04.2013)
- 8.** A cyclic quadrilateral ABCD is such that $AB = BC$, $AD = DC$, $AC \perp BD$, $\angle CAD = \theta$. Then the angle $\angle ABC =$
 (1) θ (2) $\frac{\theta}{2}$
 (3) 2θ (4) 3θ
 (SSC Graduate Level Tier-I Exam. 19.05.2013)
- 9.** The diagonals AC and BD of a cyclic quadrilateral ABCD intersect each other at the point P. Then, it is always true that
 (1) $BP \cdot AB = CD \cdot CP$
 (2) $AP \cdot CP = BP \cdot DP$
 (3) $AP \cdot BP = CP \cdot DP$
 (4) $AP \cdot CD = AB \cdot CP$
 (SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)
- 10.** A quadrilateral ABCD circumscribes a circle and $AB = 6$ cm, $CD = 5$ cm and $AD = 7$ cm. The length of side BC is
 (1) 4 cm (2) 5 cm
 (3) 3 cm (4) 6 cm
 (SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)
- 11.** In a cyclic quadrilateral ABCD $m\angle A + m\angle B + m\angle C + m\angle D = ?$
 (1) 90° (2) 360°
 (3) 180° (4) 120°
 (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))
- 12.** ABCD is a cyclic quadrilateral. The side AB is extended to E in such a way that $BE = BC$. If $\angle ADC = 70^\circ$, $\angle BAD = 95^\circ$, then $\angle DCE$ is equal to
 (1) 140° (2) 120°
 (3) 165° (4) 110°
 (SSC CGL Tier-I Exam. 19.10.2014)
- 13.** In a cyclic quadrilateral $\angle A + \angle C = \angle B + \angle D = ?$
- 
- (1) 270° (2) 360°
 (3) 90° (4) 180°
 (SSC CGL Tier-I Exam. 26.10.2014)
- 14.** If ABCD be a cyclic quadrilateral in which $\angle A = 4x^\circ$, $\angle B = 7x^\circ$, $\angle C = 5y^\circ$, $\angle D = y^\circ$, then $x : y$ is
 (1) 3 : 4 (2) 4 : 3
 (3) 5 : 4 (4) 4 : 5
 (SSC CGL Tier-II Exam. 21.09.2014)
- 15.** ABCD is a cyclic quadrilateral and AD is a diameter. If $\angle DAC = 55^\circ$ then value of $\angle ABC$ is
 (1) 55° (2) 35°
 (3) 145° (4) 125°
 (SSC CGL Tier-II Exam. 21.09.2014)
- 16.** The point of intersection of the diagonals AC and BD of the cyclic quadrilateral ABCD is P. If $\angle APB = 64^\circ$ and $\angle CBD = 28^\circ$, the measure of $\angle ADB$ is
 (1) 32° (2) 36°
 (3) 56° (4) 28°
 (SSC CGL Tier-II Exam. 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)
- 17.** ABCD is a cyclic quadrilateral. Diagonals AC and BD meets at P. If $\angle APB = 110^\circ$ and $\angle CBD = 30^\circ$, then $\angle ADB$ measures
 (1) 55° (2) 30°
 (3) 70° (4) 80°
 (SSC CGL Tier-I Exam. 16.08.2015 (IIInd Sitting) TF No. 2176783)
- 18.** ABCD is a cyclic quadrilateral. AB and DC when produced meet at P, if $PA = 8$ cm, $PB = 6$ cm, $PC = 4$ cm, then the length (in cm) of PD is
 (1) 8 cm (2) 6 cm
 (3) 10 cm (4) 12 cm
 (SSC CGL Tier-II Exam. 25.10.2015, TF No. 1099685)

GEOMETRY

- 19.** The three successive angles of a cyclic quadrilateral are in the ratio $1 : 3 : 4$, find the measure of the fourth angle?
 (1) 72° (2) 108°
 (3) 36° (4) 30°
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)
- 20.** If ABCD is a cyclic quadrilateral with $\angle A = 50^\circ$, $\angle B = 80^\circ$, then $\angle C$ and $\angle D$ are
 (1) $100^\circ, 130^\circ$ (2) $115^\circ, 115^\circ$
 (3) $110^\circ, 120^\circ$ (4) $130^\circ, 100^\circ$
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015 (Ist Sitting) TF No. 9692918)
- 21.** The measures of three angles of a quadrilateral are in the ratio $1 : 2 : 3$. If the sum of these three measures is equal to the measure of the fourth angle, find the smallest angle.
 (1) 30° (2) 40°
 (3) 60° (4) 50°
 (SSC CPO SI & ASI, Online Exam. 06.06.2016) (IIInd Sitting)
- 22.** In a cyclic quadrilateral ABCD, $\angle BCD = 120^\circ$ and passes through the centre of the circle. Then $\angle ABD = ?$
 (1) 30° (2) 40°
 (3) 50° (4) 60°
 (SSC CGL Tier-I (CBE) Exam. 29.08.2016 (Ist Sitting))
- 23.** ABCD is a quadrilateral in which BD and AC are diagonals then
 (1) $AB + BC + CD + AD < AC + BD$
 (2) $AB + BC + CD + DA > AC + BD$
 (3) $AB + BC + CD + DA = AC + BD$
 (4) $AB + BC + CD + DA > 2(AC + BD)$
 (SSC CGL Tier-I (CBE) Exam. 03.09.2016 (IIInd Sitting))
- 24.** Three consecutive angles of a cyclic quadrilateral are in the ratio of $1 : 4 : 5$. The measure of fourth angle is :
 (1) 120° (2) 60°
 (3) 30° (4) 80°
 (SSC CGL Tier-I (CBE) Exam. 03.09.2016 (IIInd Sitting))
- 25.** In a cyclic quadrilateral ABCD, the side AB is extended to a point X. If $\angle XBC = 82^\circ$ and $\angle ADB = 47^\circ$, then the value of $\angle BDC$ is :
 (1) 40° (2) 35°
 (3) 30° (4) 25°
 (SSC CGL Tier-I (CBE) Exam. 06.09.2016 (IIInd Sitting))
- 26.** ABCD is a cyclic quadrilateral of which AB is the diameter. Diagonals AC and BD intersect at E. If $\angle DBC = 35^\circ$, then $\angle AED$ measures
 (1) 35° (2) 45°
 (3) 55° (4) 90°
 (SSC CGL Tier-II (CBE) Exam. 12.01.2017)
- TYPE-XI**
- 1.** ABCD is a rhombus. A straight line through C cuts AD produced at P and AB produced at Q. If $DP = \frac{1}{2} AB$, then the ratio of the length of BQ and AB is
 (1) $2 : 1$ (2) $1 : 2$
 (3) $1 : 1$ (4) $3 : 1$
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting) (East Zone))
- 2.** In a quadrilateral ABCD, with unequal sides if the diagonals AC and BD intersect at right angles, then
 (1) $AB^2 + BC^2 = CD^2 + DA^2$
 (2) $AB^2 + CD^2 = BC^2 + DA^2$
 (3) $AB^2 + AD^2 = BC^2 + CD^2$
 (4) $AB^2 + BC^2 = 2(CD^2 + DA^2)$
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting) (Delhi Zone))
- 3.** The ratio of the angles $\angle A$ and $\angle B$ of a non-square rhombus ABCD is $4 : 5$, then the value of $\angle C$ is :
 (1) 50° (2) 45°
 (3) 80° (4) 95°
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting) (Delhi Zone))
- 4.** ABCD is a rhombus whose side $AB = 4$ cm and $\angle ABC = 120^\circ$, then the length of diagonal BD is equal to :
 (1) 1 cm (2) 2 cm
 (3) 3 cm (4) 4 cm
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting) (East Zone))
- 5.** ABCD is a rhombus. AB is produced to F and BA is produced to E such that $AB = AE = BF$. Then :
 (1) $ED > CF$
 (2) $ED \perp CF$
 (3) $ED^2 + CF^2 = EF^2$
 (4) $ED \parallel CF$
 (SSC Graduate Level Tier-I Exam. 21.04.2013)
- 6.** ABCD is a trapezium whose side \overline{AD} is parallel to \overline{BC} . Diagonals \overline{AC} and \overline{BD} intersect at O. If $\overline{AO} = 3$, $\overline{CO} = x - 3$, $\overline{BO} = 3x - 19$ and $\overline{DO} = x - 5$, the value(s) of x will be :
 (1) 7, 6 (2) 12, 6
 (3) 7, 10 (4) 8, 9
 (SSC CHSL DEO & LDC Exam. 21.10.2012 (IIInd Sitting))
- 7.** In a quadrilateral ABCD, the bisectors of $\angle A$ and $\angle B$ meet at O. If $\angle C = 70^\circ$ and $\angle D = 130^\circ$, then measure of $\angle AOB$ is
 (1) 40° (2) 60°
 (3) 80° (4) 100°
 (SSC CGL Tier-I Exam. 19.10.2014 TF No. 022 MH 3)
- 8.** ABCD is a trapezium where $AD \parallel BC$. The diagonal AC and BD intersect each other at the point O. If $AO = 3$, $CO = x - 3$, $BO = 3x - 19$ and $DO = x - 5$, the value of x is
 (1) $-8, 9$ (2) $8, -9$
 (3) $-8, -9$ (4) $8, 9$
 (SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)
- 9.** If PQRS is a rhombus and $\angle SPQ = 50^\circ$, then $\angle RSQ$ is
 (1) 55° (2) 65°
 (3) 75° (4) 45°
 (SSC CGL Tier-I Exam, 09.08.2015 (IIInd Sitting) TF No. 4239378)
- 10.** ABCD is a cyclic trapezium whose sides AD and BC are parallel to each other. If $\angle ABC = 75^\circ$ then the measure of $\angle BCD$ is :
 (1) 75° (2) 95°
 (3) 45° (4) 105°
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (Ist Sitting) TF No. 6636838)
- 11.** If ABCD be a rhombus, AC is its smallest diagonal and $\angle ABC = 60^\circ$, find length of a side of the rhombus when $AC = 6$ cm.
 (1) 6 cm. (2) 3 cm.
 (3) $6\sqrt{2}$ cm. (4) $3\sqrt{3}$ cm.
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IIInd Sitting) TF No. 7203752)

GEOMETRY

- 12.** AB is a diameter of a circle having centre at O. PQ is a chord which does not intersect AB. Join AP and BQ. If $\angle BAP = \angle ABQ$, then ABQP is a :

- cyclic square
- cyclic trapezium
- cyclic rhombus
- cyclic rectangle

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)

- 13.** ABCD is a cyclic trapezium in which AD || BC. If $\angle ABC = 70^\circ$, then $\angle BCD$ is

- 110°
- 80°
- 70°
- 90°

(SSC CGL Tier-I (CBE) Exam. 11.09.2016) (Ist Sitting)

- 14.** ABCD is a cyclic trapezium with AD || BC. If $\angle A = 105^\circ$, then other three angles are

- $\angle B = 75^\circ$, $\angle C = 75^\circ$, $\angle D = 105^\circ$
- $\angle B = 105^\circ$, $\angle C = 75^\circ$, $\angle D = 75^\circ$
- $\angle B = 75^\circ$, $\angle C = 105^\circ$, $\angle D = 75^\circ$
- $\angle B = 105^\circ$, $\angle C = 105^\circ$, $\angle D = 75^\circ$

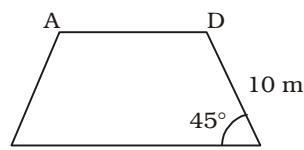
(SSC CGL Tier-I (CBE) Exam. 30.08.2016) (IIInd Sitting)

- 15.** If the parallel sides of a trapezium are 8 cm. and 4 cm., M and N are the mid-points of the diagonals of the trapezium, then length of MN is

- 12 cm.
- 6 cm.
- 1 cm.
- 2 cm.

(SSC CGL Tier-II (CBE) Exam. 30.11.2016)

- 16.** ABCD is a trapezium in which AD || BC and AB = DC = 10 m. then the distance of AD from BC is :



- $10\sqrt{2}$ m
- $4\sqrt{2}$ m
- $5\sqrt{2}$ m
- $6\sqrt{2}$ m

(SSC CGL Tier-I (CBE) Exam. 06.09.2016 (IIIrd Sitting))

- 17.** At least two pairs of consecutive angles are congruent in a _____.
 (1) Parallelogram
 (2) Isosceles trapezium
 (3) Rhombus
 (4) Kite

(SSC CHSL (10+2) Tier-I (CBE) Exam. 16.01.2017) (IIInd Sitting)

TYPE-XII

- 1.** Two equal circles of radius 4 cm intersect each other such that each passes through the centre of the other. The length of the common chord is :

- $2\sqrt{3}$ cm
- $4\sqrt{3}$ cm
- $2\sqrt{2}$ cm
- 8 cm

FCI Assistant Grade-III Exam. 05.02.2012 (Paper-I)
East Zone (IIInd Sitting)

- 2.** One chord of a circle is known to be 10.1 cm. The radius of this circle must be:

- 5 cm
- greater than 5 cm
- greater than or equal to 5 cm
- less than 5 cm

FCI Assistant Grade-III Exam. 05.02.2012 (Paper-I)
East Zone (IIInd Sitting)

- 3.** The length of the chord of a circle is 8 cm and perpendicular distance between centre and the chord is 3 cm. Then the radius of the circle is equal to :

- 4 cm
- 5 cm
- 6 cm
- 8 cm

(FCI Assistant Grade-III Exam. 05.02.2012 (Paper-I) East Zone (IIInd Sitting) & (SSC CHSL DEO & LDC Exam. 28.10.2012) (Ist Sitting))

- 4.** The length of a chord of a circle is equal to the radius of the circle. The angle which this chord subtends in the major segment of the circle is equal to

- 30°
- 45°
- 60°
- 90°

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting) (North Zone) & (SSC GL Exam. 11.11.2012 (Ist Sitting))

- 5.** AB = 8 cm and CD = 6 cm are two parallel chords on the same side of the centre of a circle. The distance between them is 1 cm. The radius of the circle is

- 5 cm
- 4 cm
- 3 cm
- 2 cm

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting) (North Zone))

- 6.** The length of two chords AB and AC of a circle are 8 cm and 6 cm and $\angle BAC = 90^\circ$, then the radius of circle is
 (1) 25 cm (2) 20 cm
 (3) 4 cm (4) 5 cm

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting) (East Zone))

- 7.** The distance between two parallel chords of length 8 cm each in a circle of diameter 10 cm is
 (1) 6 cm (2) 7 cm
 (3) 8 cm (4) 5.5 cm

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting) (East Zone))

- 8.** The length of the common chord of two intersecting circles is 24 cm. If the diameter of the circles are 30 cm and 26 cm, then the distance between the centre (in cm) is
 (1) 13 (2) 14
 (3) 15 (4) 16

(SSC Graduate Level Tier-II Exam. 16.09.2012)

- 9.** In a circle of radius 21 cm, an arc subtends an angle of 72° at the centre. The length of the arc is
 (1) 21.6 cm (2) 26.4 cm
 (3) 13.2 cm (4) 19.8 cm

(SSC CHSL DEO & LDC Exam. 21.10.2012 (Ist Sitting))

- 10.** A unique circle can always be drawn through x number of given non-collinear points, then x must be :
 (1) 2 (2) 3
 (3) 4 (4) 1

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IIInd Sitting))

- 11.** Two parallel chords are drawn in a circle of diameter 30 cm. The length of one chord is 24 cm and the distance between the two chords is 21 cm. The length of the other chord is
 (1) 10 cm (2) 18 cm
 (3) 12 cm (4) 16 cm

(SSC Graduate Level Tier-I Exam. 11.11.2012 (Ist Sitting))

- 12.** If two equal circles whose centres are O and O', intersect each other at the point A and B, $OO' = 12$ cm and $AB = 16$ cm, then the radius of the circle is
 (1) 10 cm (2) 8 cm
 (3) 12 cm (4) 14 cm

(SSC Assistant Grade-III Exam. 11.11.2012 (IIInd Sitting))

GEOMETRY

- 13.** Chords AB and CD of a circle intersect externally at P. If AB = 6 cm, CD = 3 cm and PD = 5 cm, then the length of PB is
 (1) 5 cm (2) 7.35 cm
 (3) 6 cm (4) 4 cm
 (SSC Delhi Police S.I. (SI) Exam. 19.08.2012)
- 14.** A circle (with centre at O) is touching two intersecting lines AX and BY. The two points of contact A and B subtend an angle of 65° at any point C on the circumference of the circle. If P is the point of intersection of the two lines, then the measure of $\angle APO$ is
 (1) 25° (2) 65°
 (3) 90° (4) 40°
 (SSC CHSL DEO & LDC Exam. 28.10.2012, 1st Sitting)
- 15.** AB and CD are two parallel chords on the opposite sides of the centre of the circle. If $\overline{AB} = 10$ cm, $\overline{CD} = 24$ cm and the radius of the circle is 13 cm, the distance between the chords is
 (1) 17 cm (2) 15 cm
 (3) 16 cm (4) 18 cm
 (SSC Graduate Level Tier-I Exam. 11.11.2012, 1st Sitting)
- 16.** AB and CD are two parallel chords of a circle such that AB = 10 cm and CD = 24 cm. If the chords are on the opposite sides of the centre and distance between them is 17 cm, then the radius of the circle is :
 (1) 11 cm (2) 12 cm
 (3) 13 cm (4) 10 cm
 (SSC Graduate Level Tier-I Exam. 21.04.2013, 1st Sitting)
- 17.** A chord AB of a circle C_1 of radius $(\sqrt{3} + 1)$ cm touches a circle C_2 which is concentric to C_1 . If the radius of C_2 is $(\sqrt{3} - 1)$ cm., the length of AB is :
 (1) $2\sqrt[4]{3}$ cm (2) $8\sqrt{3}$ cm
 (3) $4\sqrt[4]{3}$ cm (4) $4\sqrt{3}$ cm
 (SSC Graduate Level Tier-I Exam. 21.04.2013, 1st Sitting)
- 18.** The length of the common chord of two circles of radii 30 cm and 40 cm whose centres are 50 cm apart, is (in cm)
 (1) 12 (2) 24
 (3) 36 (4) 48
 (SSC Graduate Level Tier-I Exam. 21.04.2013 IIInd Sitting)
- 19.** Chords AB and CD of a circle intersect at E and are perpendicular to each other. Segments AE, EB and ED are of lengths 2 cm, 6 cm and 3 cm respectively. Then the length of the diameter of the circle (in cm) is
 (1) $\sqrt{65}$ (2) $\frac{1}{2}\sqrt{65}$
 (3) 65 (4) $\frac{65}{2}$
 (SSC Graduate Level Tier-I Exam. 21.04.2013 IIInd Sitting)
- 20.** Two circles with centre P and Q intersect at B and C. A, D are points on the circle such that A, C, D are collinear. If $\angle APB = 130^\circ$, and $\angle BQD = x^\circ$, then the value of x is
 (1) 65 (2) 130
 (3) 195 (4) 135
 (SSC Graduate Level Tier-I Exam. 21.04.2013 IIInd Sitting)
- 21.** Two circles of same radius 5 cm, intersect each other at A and B. If AB = 8 cm, then the distance between the centre is :
 (1) 6 cm (2) 8 cm
 (3) 10 cm (4) 4 cm
 (SSC Graduate Level Tier-I Exam. 21.04.2013)
- 22.** AB is the chord of a circle with centre O and DOC is a line segment originating from a point D on the circle and intersecting AB produced at C such that BC = OD. If $\angle BCD = 20^\circ$, then $\angle AOD = ?$
 (1) 20° (2) 30°
 (3) 40° (4) 60°
 (SSC Graduate Level Tier-I Exam. 21.04.2013)
- 23.** In a circle of radius 17 cm, two parallel chords of length 30 cm and 16 cm are drawn. If both the chords are on the same side of the centre, then the distance between the chords is
 (1) 9 cm (2) 7 cm
 (3) 23 cm (4) 11 cm
 (SSC Graduate Level Tier-I Exam. 21.04.2013)
- 24.** A square ABCD is inscribed in a circle of unit radius. Semicircles are described on each side as a diameter. The area of the region bounded by the four semicircles and the circle is
 (1) 1 sq. unit (2) 2 sq. unit
 (3) 1.5 sq. unit (4) 2.5 sq. unit
 (SSC Graduate Level Tier-I Exam. 21.04.2013)
- 25.** Two circles touch each other internally. Their radii are 2 cm and 3 cm. The biggest chord of the greater circle which is outside the inner circle is of length
 (1) $2\sqrt{2}$ cm (2) $3\sqrt{2}$ cm
 (3) $2\sqrt{3}$ cm (4) $4\sqrt{2}$ cm
 (SSC Graduate Level Tier-I Exam. 21.04.2013)
- 26.** Two circles touch each other externally. The distance between their centre is 7 cm. If the radius of one circle is 4 cm, then the radius of the other circle is
 (1) 3.5 cm (2) 3 cm
 (3) 4 cm (4) 2 cm
 (SSC Graduate Level Tier-I Exam. 19.05.2013 1st Sitting)
- 27.** A, B and C are the three points on a circle such that the angles subtended by the chords AB and AC at the centre O are 90° and 110° respectively. $\angle BAC$ is equal to
 (1) 70° (2) 80°
 (3) 90° (4) 100°
 (SSC Graduate Level Tier-I Exam. 19.05.2013)
- 28.** N is the foot of the perpendicular from a point P of a circle with radius 7 cm, on a diameter AB of the circle. If the length of the chord PB is 12 cm, the distance of the point N from the point B is
 (1) $6\frac{5}{7}$ cm (2) $12\frac{2}{7}$ cm
 (3) $3\frac{5}{7}$ cm (4) $10\frac{2}{7}$ cm
 (SSC Graduate Level Tier-I Exam. 19.05.2013 1st Sitting)
- 29.** A, B, C, D are four points on a circle. AC and BD intersect at a point E such that $\angle BEC = 130^\circ$ and $\angle ECD = 20^\circ$. $\angle BAC$ is
 (1) 120° (2) 90°
 (3) 100° (4) 110°
 (SSC Graduate Level Tier-I Exam. 19.05.2013 1st Sitting)

GEOMETRY

- 30.** If two concentric circles are of radii 5 cm and 3 cm, then the length of the chord of the larger circle which touches the smaller circle is
 (1) 6 cm (2) 7 cm
 (3) 10 cm (4) 8 cm

(SSC Graduate Level Tier-II Exam. 29.09.2013)

- 31.** A chord 12 cm long is drawn in a circle of diameter 20 cm. The distance of the chord from the centre is

- (1) 8 cm (2) 6 cm
 (3) 10 cm (4) 16 cm

(SSC CHSL DEO & LDC Exam. 20.10.2013)

- 32.** If the chord of a circle is equal to the radius of the circle, then the angle subtended by the chord at a point on the minor arc is

- (1) 150° (2) 60°
 (3) 120° (4) 30°

(SSC CHSL DEO & LDC Exam. 10.11.2013 (IInd Sitting))

- 33.** The angle subtended by a chord at its centre is 60° , then the ratio between chord and radius is

- (1) 1 : 2 (2) 1 : 1
 (3) $\sqrt{2} : 1$ (4) 2 : 1

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

- 34.** Each of the circles of equal radii with centres A and B pass through the centre of one another circle they cut at C and D then $\angle DBC$ is equal to

- (1) 60° (2) 100°
 (3) 120° (4) 140°

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

- 35.** For a triangle circumcentre lies on one of its sides. The triangle is
 (1) right angled
 (2) obtuse angled
 (3) isosceles
 (4) equilateral

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

- 36.** The three equal circles touch each other externally. If the centres of these circles be A, B, C then ABC is

- (1) a right angle triangle
 (2) an equilateral triangle
 (3) an isosceles triangle
 (4) a scalene triangle

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

- 37.** In a right angled triangle, the circumcentre of the triangle lies
 (1) inside the triangle
 (2) outside the triangle
 (3) on midpoint of the hypotenuse
 (4) on one vertex

(SSC CGL Tier-I Re-Exam. (2013))

20.07.2014 (Ist Sitting)

- 38.** 'O' is the centre of the circle, AB is a chord of the circle, $OM \perp AB$. If $AB = 20$ cm, $OM = 2\sqrt{11}$ cm, then radius of the circle is

- (1) 15 cm (2) 12 cm
 (3) 10 cm (4) 11 cm

(SSC CGL Tier-I Exam. 19.10.2014 (Ist Sitting))

- 39.** In $\triangle ABC$, $\angle ABC = 70^\circ$, $\angle BCA = 40^\circ$. O is the point of intersection of the perpendicular bisectors of the sides, then the angle $\angle BOC$ is

- (1) 100° (2) 120°
 (3) 130° (4) 140°

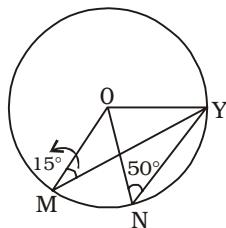
(SSC CGL Tier-I Exam. 19.10.2014 (Ist Sitting))

- 40.** A, B, C are three points on the circumference of a circle and if $\overline{AB} = \overline{AC} = 5\sqrt{2}$ cm and $\angle BAC = 90^\circ$, find the radius.

- (1) 10 cm (2) 5 cm
 (3) 20 cm (4) 15 cm

(SSC CGL Tier-I Exam. 19.10.2014 (Ist Sitting))

- 41.** In the given figure, $\angle ONY = 50^\circ$ and $\angle OMY = 15^\circ$. Then the value of the $\angle MON$ is



- (1) 30° (2) 40°
 (3) 20° (4) 70°

(SSC CGL Tier-I Exam. 26.10.2014)

- 42.** Two chords of lengths a metre and b metre subtend angles 60° and 90° at the centre of the circle respectively. Which of the following is true?

- (1) $b = \sqrt{2}a$ (2) $a = \sqrt{2}b$
 (3) $a = 2b$ (4) $b = 2a$

(SSC CGL Tier-II Exam. 21.09.2014)

- 43.** Two chords AB and CD of a circle with centre O, intersect each other at P. If $\angle AOD = 100^\circ$ and $\angle BOC = 70^\circ$, then the value of $\angle APC$ is

- (1) 80° (2) 75°
 (3) 85° (4) 95°

(SSC CGL Tier-II Exam. 21.09.2014)

- 44.** Chords AC and BD of a circle with centre O intersect at right angles at E. If $\angle OAB = 25^\circ$, then the value of $\angle EBC$ is

- (1) 30° (2) 25°
 (3) 20° (4) 15°

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

- 45.** Two circles touch externally at P. QR is a common tangent of the circles touching the circles at Q and R. Then measure of $\angle QPR$ is

- (1) 60° (2) 30°
 (3) 90° (4) 45°

(SSC CHSL DEO & LDC Exam. 02.11.2014 (IInd Sitting))

- 46.** Two circles intersect each other at the points A and B. A straight line parallel to AB intersects the circles at C, D, E and F. If $CD = 4.5$ cm, then the measure of EF is

- (1) 1.50 cm (2) 2.25 cm
 (3) 4.50 cm (4) 9.00 cm

(SSC CHSL DEO & LDC Exam. 9.11.2014)

- 47.** Two circles C_1 and C_2 touch each other internally at P. Two lines PCA and PDB meet the circles C_1 in C, D and C_2 in A, B respectively. If $\angle BDC = 120^\circ$, then the value of $\angle ABP$ is equal to

- (1) 60° (2) 80°
 (3) 100° (4) 120°

(SSC CHSL DEO & LDC Exam. 16.11.2014)

- 48.** Two circles having radii r units intersect each other in such a way that each of them passes through the centre of the other. Then the length of their common chord is

- (1) $\sqrt{2}r$ units (2) $\sqrt{3}r$ units
 (3) $\sqrt{5}r$ units (4) r units

(SSC CHSL DEO Exam. 16.11.2014)

(Ist Sitting)

GEOMETRY

- 49.** Two circles with centres A and B of radii 5 cm and 3 cm respectively touch each other internally. If the perpendicular bisector of AB meets the bigger circle in P and Q, then the value of PQ is

- (1) $\sqrt{6}$ cm (2) $2\sqrt{6}$ cm
 (3) $3\sqrt{6}$ cm (4) $4\sqrt{6}$ cm
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

- 50.** Two parallel chords of a circle of diameter 20 cm are 12 cm and 16 cm long. If the chords are in the same side of the centre, then the distance between them is

- (1) 28 cm (2) 2 cm
 (3) 4 cm (4) 8 cm
 (SSC CGL Tier-I Exam. 19.10.2014)
 TF No. 022 MH 3)

- 51.** Chords AB and CD of a circle intersect at E. If AE = 9 cm, BE = 12 cm and CE = 3DE, then the length of DE (in cm) is

- (1) $\frac{9}{4}$ (2) 4
 (3) 6 (4) 7
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, 1st Sitting)
 TF No. 333 LO 2)

- 52.** Let O be the centre of a circle. A, B, C and D are four points on the circumference of the circle in the given order, such that $\angle AOC = 130^\circ$. Then the measure of $\angle ABC$ and $\angle ADC$ are respectively.

- (1) $65^\circ, 115^\circ$ (2) $65^\circ, 65^\circ$
 (3) $115^\circ, 65^\circ$ (4) $115^\circ, 115^\circ$
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, 1st Sitting)
 TF No. 333 LO 2)

- 53.** Chords PQ and RS of a circle, when produced, meet at a point O. If $PQ = 6$ cm, $OQ = 8$ cm and $OS = 7$ cm, then length (in cm) of the chord RS is

- (1) 10 (2) 12
 (3) 16 (4) 9
 (SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region))
 TF No. 789 TH 7)

- 54.** Three circles of radius 6 cm each touches each other externally. Then the distance of the centre of one circle from the line joining the centres of other two circles is equal to

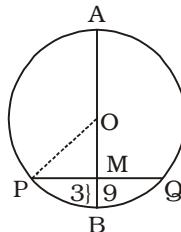
- (1) $6\sqrt{5}$ cm (2) $6\sqrt{3}$ cm
 (3) $6\sqrt{2}$ cm (4) $6\sqrt{7}$ cm

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region))
 TF No. 789 TH 7)

- 55.** Two circles of radii 10 cm and 8 cm intersect and the length of the common chord is 12 cm. Then the distance between their centres is

- (1) 10 cm (2) 8 cm
 (3) 13.3 cm (4) 15 cm
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015)
 (1st Sitting) TF No. 8037731)

- 56.** In a given circle, the chord PQ is of length 18 cm. AB is the perpendicular bisector of PQ at M. If MB = 3 cm, then the length of AB is



- (1) 27 cm. (2) 30 cm.
 (3) 28 cm. (4) 25 cm.
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015)
 (IInd Sitting)

- 57.** Two chords of length a unit and b unit of a circle make angles 60° and 90° at the centre of a circle respectively, then the correct relation is

- (1) $b = \frac{3}{2}a$ (2) $b = \sqrt{2}a$
 (3) $b = 2a$ (4) $b = \sqrt{3}a$

(SSC CGL Tier-I Exam, 09.08.2015)
 (Ist Sitting) TF No. 1443088)

- 58.** AB and CD are two parallel chords of a circle lying on the opposite side of the centre and the distance between them is 17 cm. The length of AB and CD are 10 cm and 24 cm respectively. The radius (in cm) of the circle is :

- (1) 13 (2) 9
 (3) 18 (4) 15
 (SSC CGL Tier-I Exam, 16.08.2015)
 (IInd Sitting) TF No. 2176783)

- 59.** The distance between the centres of the two circles of radii r_1 and r_2 is d . They will touch each other internally if

- (1) $d = r_1$ or r_2 (2) $d = r_1 + r_2$
 (3) $d = r_1 - r_2$ (4) $d = \sqrt{r_1 r_2}$

(SSC CGL Tier-I Re-Exam, 30.08.2015)

- 60.** In a circle with centre O, AB and CD are two diameters perpendicular to each other. The length of chord AC is

- (1) 2 AB (2) $\sqrt{2}$ AB
 (3) $\frac{1}{2}$ AB (4) $\frac{1}{\sqrt{2}}$ AB

(SSC CGL Tier-I Re-Exam, 30.08.2015)

- 61.** AB is the diameter of a circle with centre O. P be a point on it. If $\angle POA = 120^\circ$. Then, $\angle PBO = ?$

- (1) 60° (2) 120°
 (3) 45° (4) 50°

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IInd Sitting)

- 62.** In a circle with centre at O (0, 0) and radius 5 cm, AB is a chord of length 8 cm. If OM is perpendicular to AB, then the length of OM is:

- (1) 2.5 cm. (2) 3 cm.
 (3) 4 cm. (4) 1 cm.

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015)
 (IInd Sitting) TF No. 7203752)

- 63.** AB is the diameter of a circle with centre O and P is a point on its circumference. If $\angle POA = 120^\circ$, then the value of $\angle PBO$ is :

- (1) 30° (2) 60°
 (3) 50° (4) 40°

(SSC CGL Tier-I (CBE) Exam. 10.09.2016)

- 64.** An arc of 30° in one circle is double an arc in a second circle, the radius of which is three times the radius of the first. Then the angles subtended by the arc of the second circle at its centre is

- (1) 3° (2) 4°
 (3) 5° (4) 6°

(SSC CGL Tier-I (CBE) Exam. 10.09.2016)

GEOMETRY

- 65.** In a circle, a chord, $5\sqrt{2}$ cm long, makes a right angle at the centre. Then the length of the radius of the circle will be
 (1) 2.5 cm (2) 5 cm
 (3) 7.5 cm (4) 10 cm

(SSC CGL Tier-II Online Exam. 01.12.2016)

- 66.** The perpendicular from the centre of a circle to a chord is 16 cm. If the diameter of the circle is 40 cm, what is the length of the chord ?

- (1) 12 cm (2) 16 cm
 (3) 24 cm (4) 30 cm

(SSC CPO Exam. 06.06.2016)
 (Ist Sitting)

- 67.** Two parallel chords of lengths 40 cm and 48 cm are drawn in a circle of radius 25 cm. What will be the distance between the two chords ?

- (1) 8 cm (2) 15 cm
 (3) 22 cm (4) Either 8 cm or 22 cm

(SSC CPO Exam. 06.06.2016)
 (Ist Sitting)

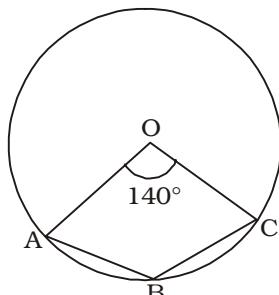
- 68.** If the length of a chord of a circle is equal to that of the radius of the circle, then the angle subtended, in radians, at the centre of the circle by the chord is

- (1) 1 (2) $\frac{\pi}{2}$
 (3) $\frac{\pi}{3}$ (4) $\frac{\pi}{4}$

(SSC CGL Tier-I (CBE))

Exam. 09.09.2016) (Ist Sitting)

- 69.** In the adjoining figure $\angle AOC = 140^\circ$ where O is the centre of the circle then $\angle ABC$ is equal to :



- (1) 110° (2) 100°
 (3) 90° (4) 40°

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 20.03.2016)
 (IIInd Sitting)

- 70.** Chord PQ is the perpendicular bisector of radius OA of circle with centre O (A is a point on the edge of the circle). If the length

of Arc PAQ = $\frac{2\pi}{3}$. What is the length of chord PQ ?

- (1) 2 (2) $\sqrt{3}$
 (3) $2\sqrt{3}$ (4) 1

(SSC CPO SI & ASI, Online Exam. 06.06.2016) (IIInd Sitting)

- 71.** A chord of length 16 cm is drawn in a circle of radius 10 cm. The distance of the chord from the centre of the circle is

- (1) 8 cm (2) 6 cm
 (3) 4 cm (4) 12 cm

(SSC CGL Tier-I (CBE))

Exam. 29.08.2016) (IIInd Sitting)

- 72.** An angle in a semicircle is

- (1) 45° (2) 60°
 (3) 90° (4) 120°

(SSC CGL Tier-I (CBE))

Exam. 29.08.2016) (IIInd Sitting)

- 73.** AB is a chord of a circle with O as centre. C is a point on the circle such that $OC \perp AB$ and OC intersects AB at P. If PC = 2 cm and AB = 6 cm then the diameter of the circle is

- (1) 6 cm (2) 6.5 cm
 (3) 13 cm (4) 12 cm

(SSC CGL Tier-I (CBE))

Exam. 30.08.2016) (Ist Sitting)

- 74.** Two circles touch each other internally. The greater circle has its radius as 6 cm and the distance between the centres of the circles is 2 cm. The radius of the other circle is

- (1) 3 cm. (2) 4 cm.
 (3) 2 cm. (4) 5 cm.

(SSC CGL Tier-I (CBE))

Exam. 03.09.2016) (IIInd Sitting)

- 75.** If the length of a chord of a circle is 16 cm and is at a distance of 15 cm from the centre of the circle, then the radius of the circle (in cm) is :

- (1) 15 (2) 16
 (3) 17 (4) 34

(SSC CGL Tier-I (CBE))

Exam. 03.09.2016) (IIInd Sitting)

- 76.** AB is a diameter of the circle with centre O, CD is chord of the circle. If $\angle BOC = 120^\circ$, then the value of $\angle ADC$ is

- (1) 42° (2) 30°
 (3) 60° (4) 35°

(SSC CGL Tier-I (CBE))

Exam. 30.08.2016) (IIInd Sitting)

- 77.** Two chords AB and PQ of a circle intersect at D inside a circle. If AD = 4 cm., DB = 6 cm., QD = 3 cm., the length of PQ is equal to
 (1) 11 cm. (2) 8 cm.
 (3) 9 cm. (4) 10 cm.

(SSC CGL Tier-I (CBE))

Exam. 01.09.2016) (IIInd Sitting)

- 78.** Two circles touch each other internally. The radius of the larger circle is 6 cm and the distance between the centre is 2 cm, then the radius (in cms) of the other circle is
 (1) 8 (2) 2
 (3) 4 (4) 3

(SSC CGL Tier-I (CBE))

Exam. 02.09.2016) (IIInd Sitting)

- 79.** In a circle, a diameter AB and a chord PQ (which is not a diameter) intersect each other at X perpendicularly. If $AX : BX = 3 : 2$ and the radius of the circle is 5 cm, then the length of chord PQ is
 (1) $2\sqrt{13}$ cm. (2) $5\sqrt{3}$ cm.
 (3) $4\sqrt{6}$ cm. (4) $6\sqrt{5}$ cm.

(SSC CGL Tier-II (CBE))

Exam. 30.11.2016)

- 80.** In a circle with centre O, AB is a diameter and CD is a chord which is equal to the radius OC. AC and BD are extended in such a way that they intersect each other at a point P, exterior to the circle. The measure of $\angle APB$ is
 (1) 30° (2) 45°
 (3) 60° (4) 90°

(SSC CGL Tier-II (CBE))

Exam. 30.11.2016)

- 81.** Two chords AB and CD of a circle with centre O intersect at P. If $\angle APC = 40^\circ$. Then the value of $\angle AOC + \angle BOD$ is

- (1) 50° (2) 60°
 (3) 80° (4) 120°

(SSC CGL Tier-II (CBE))

Exam. 30.11.2016)

- 82.** The length of a chord which is at a distance of 5 cm from the centre of a circle of radius 13 cm is :
 (1) 18 cm. (2) 24 cm.
 (3) 25 cm. (4) 30 cm.

(SSC CGL Tier-I (CBE))

Exam. 31.08.2016) (IIIrd Sitting)

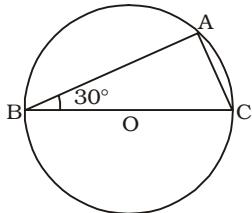
GEOMETRY

- 83.** Two circles of radii 17 cm and 8 cm are concentric. The length of a chord of greater circle which touches the smaller circle is
 (1) 15 cm (2) 16 cm
 (3) 30 cm (4) 34 cm

(SSC CGL Tier-I (CBE))

Exam. 01.09.2016 (IIIrd Sitting)

- 84.** In the figure $\triangle ABC$ is inscribed in a circle with centre O. If $\angle ABC = 30^\circ$ then $\angle ACB$ is equal to



- (1) 30° (2) 60°
 (3) 50° (4) 90°

(SSC CGL Tier-I (CBE))

Exam. 03.09.2016 (IIInd Sitting)

- 85.** In a circle, two arcs of unequal length subtend angles in the ratio $5 : 3$. If the smaller angle is 45° then the measure of other angle in degrees is :
 (1) 75° (2) 72°
 (3) 60° (4) 78°

(SSC CGL Tier-I (CBE))

Exam. 03.09.2016 (IIIrd Sitting)

- 86.** A 8 cm long perpendicular is drawn from the centre of a circle to a 12 cm long chord. The diameter of the circle is :
 (1) 10 cm. (2) 12 cm.
 (3) 16 cm. (4) 20 cm.

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (IIInd Sitting)

- 87.** The length of the radius of a circle with centre O is 5 cm and the length of the chord AB is 8 cm. The distance of the chord AB from the point O is
 (1) 2 cm. (2) 3 cm.
 (3) 4 cm. (4) 15 cm.

(SSC CGL Tier-I (CBE))

Exam. 09.09.2016 (IIInd Sitting)

- 88.** Two circles touch each other externally. The distance between their centres is 7 cm. If the radius of one circle is 4 cm, then the radius of the other circle will be
 (1) 3 cm. (2) 4 cm.
 (3) 5.5 cm. (4) 3.5 cm.

(SSC CGL Tier-I (CBE))

Exam. 10.09.2016 (IIInd Sitting)

- 89.** Points P, Q and R are on a circle such that $\angle PQR = 40^\circ$ and $\angle QRP = 60^\circ$. Then the subtended angle by arc QR at the centre is :
 (1) 80° (2) 120°
 (3) 140° (4) 160°

(SSC CGL Tier-I (CBE))

Exam. 10.09.2016 (IIIrd Sitting)

- 90.** The length of a chord which is at a distance of 12 cm from the centre of a circle of radius 13 cm is
 (1) 10 cm. (2) 5 cm.
 (3) 6 cm. (4) 12 cm.

(SSC CGL Tier-I (CBE))

Exam. 10.09.2016 (IIIrd Sitting)

- 91.** Number of circles that can be drawn through three non-collinear points is :
 (1) exactly one
 (2) two
 (3) three
 (4) more than three

(SSC CGL Tier-I (CBE))

Exam. 11.09.2016 (IIIrd Sitting)

- 92.** Two circles touch each other internally. The radius of the smaller circle is 6 cm and the distance between the centre of two circles is 3 cm. The radius of the larger circle is :
 (1) 7.5 cm (2) 9 cm
 (3) 8 cm (4) 10 cm

(SSC CGL Tier-I (CBE))

Exam. 11.09.2016 (IIIrd Sitting)

- 93.** Length of a chord PQ of a circle with centre O is 4 cm. If the distance of PQ from the point O is 2 cm, then the length of the diameter is:

- (1) $2\sqrt{2}$ cm. (2) $3\sqrt{2}$ cm.
 (3) $5\sqrt{2}$ cm. (4) $4\sqrt{2}$ cm.

(SSC CGL Tier-I (CBE))

Exam. 27.10.2016 (Ist Sitting)

- 94.** A chord of length 39 cm is at a distance of 10.4 cm from the centre of a circle. Find the radius of the circle.
 (1) 19.5 cm. (appr.)
 (2) 22.1 cm. (appr.)
 (3) 28.6 cm. (appr.)
 (4) 2.21 cm. (appr.)

(SSC CGL Tier-I (CBE))

Exam. 27.10.2016 (Ist Sitting)

- 95.** A chord of length 10 cm subtends an angle 120° at the centre of a circle. Distance of the chord from the centre is

- (1) $5\sqrt{3}$ cm. (2) $\frac{5\sqrt{3}}{2}$ cm.
 (3) $\frac{5}{\sqrt{3}}$ cm. (4) 5 cm.

(SSC CGL Tier-I (CBE))

Exam. 27.10.2016 (Ist Sitting)

TYPE-XIII

- 1.** The radius of two concentric circles are 9 cm and 15 cm. If the chord of the greater circle be a tangent to the smaller circle, then the length of that chord is
 (1) 24 cm (2) 12 cm
 (3) 30 cm (4) 18 cm

(SSC CHSL DEO & LDC Exam.)

04.12.2011 (Ist Sitting (North Zone))

- 2.** If a chord of a circle of radius 5 cm is a tangent to another circle of radius 3 cm, both the circles being concentric, then the length of the chord is
 (1) 10 cm (2) 12.5 cm
 (3) 8 cm (4) 7 cm

(SSC CHSL DEO & LDC Exam.)

04.12.2011 (Ist Sitting (East Zone))

- 3.** The tangents are drawn at the extremities of diameter AB of a circle with centre P. If a tangent to the circle at the point C intersects the other two tangents at Q and R, then the measure of the $\angle QPR$ is
 (1) 45° (2) 60°
 (3) 90° (4) 180°

(SSC CHSL DEO & LDC Exam.)

11.12.2011 (Ist Sitting (Delhi Zone))

- 4.** AB is a chord to a circle and PAT is the tangent to the circle at A. If $\angle BAT = 75^\circ$ and $\angle BAC = 45^\circ$, C being a point on the circle, then $\angle ABC$ is equal to
 (1) 40° (2) 45°
 (3) 60° (4) 70°

(SSC CHSL DEO & LDC Exam.)

11.12.2011 (Ist Sitting (Delhi Zone))

- 5.** The tangents at two points A and B on the circle with centre O intersect at P; If in quadrilateral PAOB, $\angle AOB : \angle APB = 5 : 1$, then measure of $\angle APB$ is :
 (1) 30° (2) 60°
 (3) 45° (4) 15°

(SSC CHSL DEO & LDC Exam.)

11.12.2011 (IIInd Sitting (Delhi Zone))

- 6.** Two circles touch each other externally at point A and PQ is a direct common tangent which touches the circles at P and Q respectively. Then $\angle PAQ =$
 (1) 45° (2) 90°
 (3) 80° (4) 100°

(SSC CHSL DEO & LDC Exam.)

11.12.2011 (Ist Sitting (East Zone))

GEOMETRY

- 7.** PR is tangent to a circle, with centre O and radius 4 cm, at point Q. If $\angle POR = 90^\circ$, OR = 5 cm and

$OP = \frac{20}{3}$ cm, then (in cm) the length of PR is :

- (1) 3 (2) $\frac{16}{3}$
 (3) $\frac{23}{3}$ (4) $\frac{25}{3}$

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (East Zone)

- 8.** Two circles touch each other externally at P. AB is a direct common tangent to the two circles, A and B are point of contact and $\angle PAB = 35^\circ$. Then $\angle ABP$ is

- (1) 35° (2) 55°
 (3) 65° (4) 75°

(SSC Graduate Level Tier-II Exam. 16.09.2012)

- 9.** If the radii of two circles be 6 cm and 3 cm and the length of the transverse common tangent be 8 cm, then the distance between the two centres is

- (1) $\sqrt{145}$ cm (2) $\sqrt{140}$ cm
 (3) $\sqrt{150}$ cm (4) $\sqrt{135}$ cm

(SSC Graduate Level Tier-II Exam. 16.09.2012)

- 10.** The distance between the centre of two equal circles, each of radius 3 cm, is 10 cm. The length of a transverse common tangent is

- (1) 8 cm (2) 10 cm
 (3) 4 cm (4) 6 cm

(SSC CHSL DEO & LDC Exam. 21.10.2012 (Ist Sitting)

- 11.** The radii of two circles are 5cm and 3cm, the distance between their centre is 24 cm. Then the length of the transverse common tangent is

- (1) 16 cm (2) $15\sqrt{2}$ cm
 (3) $16\sqrt{2}$ cm (4) 15 cm

(SSC Delhi Police S.I. (SI) Exam. 19.08.2012)

- 12.** P and Q are two points on a circle with centre at O. R is a point on the minor arc of the circle, between the points P and Q. The tangents to the circle at

- the points P and Q meet each other at the point S. If $\angle PSQ = 20^\circ$, then $\angle PRQ = ?$

- (1) 80° (2) 200°
 (3) 160° (4) 100°

(SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting)

- 13.** Two circles intersect at A and B. P is a point on produced BA. PT and PQ are tangents to the circles. The relation of PT and PQ is

- (1) PT = 2PQ (2) PT < PQ
 (3) PT > PQ (4) PT = PQ

(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

- 14.** The length of the tangent drawn to a circle of radius 4 cm from a point 5 cm away from the centre of the circle is

- (1) 3 cm (2) $4\sqrt{2}$ cm
 (3) $5\sqrt{2}$ cm (4) $3\sqrt{2}$ cm

(SSC Graduate Level Tier-I Exam. 19.05.2013)

- 15.** From a point P, two tangents PA and PB are drawn to a circle with centre O. If OP is equal to diameter of the circle, then $\angle APB$ is

- (1) 45° (2) 90°
 (3) 30° (4) 60°

(SSC CHSL DEO & LDC Exam. 20.10.2013)

- 16.** The radii of two concentric circles are 13 cm and 8 cm. AB is a diameter of the bigger circle and BD is a tangent to the smaller circle touching it at D and the bigger circle at E. Point A is joined to D. The length of AD is

- (1) 20 cm (2) 19 cm
 (3) 18 cm (4) 17 cm

(SSC CHSL DEO & LDC Exam. 27.10.2013 IInd Sitting)

- 17.** PQ is a chord of length 8 cm, of a circle with centre O and of radius 5 cm. The tangents at P and Q intersect at a point T. The length of TP is

- (1) $\frac{20}{3}$ cm (2) $\frac{21}{4}$ cm
 (3) $\frac{10}{3}$ cm (4) $\frac{15}{4}$ cm

(SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting)

- 18.** The minimum number of common tangents drawn to two circles when both the circles touch each other externally is

- (1) 1 (2) 2
 (3) 3 (4) 0

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

- 19.** The length of a tangent from an external point to a circle is

$5\sqrt{3}$ unit. If radius of the circle is 5 units, then the distance of the point from the circle is

- (1) 5 units (2) 15 units
 (3) -5 units (4) -15 units

(SSC CGL Tier-I Exam. 19.10.2014)

- 20.** Two circles are of radii 7 cm and 2 cm their centres being 13cm apart. Then the length of direct common tangent to the circles between the points of contact is

- (1) 12 cm (2) 15 cm

- (3) 10 cm (4) 5 cm

(SSC CGL Tier-I Exam. 19.10.2014)

- 21.** The radius of a circle is 6 cm. The distance of a point lying outside the circle from the centre is 10 cm. The length of the tangent drawn from the outside point to the circle is

- (1) 5 cm (2) 6 cm
 (3) 7 cm (4) 8 cm

(SSC CGL Tier-II Exam. 21.09.2014)

- 22.** DE is a tangent to the circumcircle of $\triangle ABC$ at the vertex A such that $DE \parallel BC$. If $AB = 17$ cm, then the length of AC is equal to

- (1) 16.0 cm (2) 16.8 cm
 (3) 17.3 cm (4) 17 cm

(SSC CHSL DEO & LDC Exam. 16.11.2014)

- 23.** The distance between the centres of two circles with radii 9 cm and 16 cm is 25 cm. The length of the segment of the tangent between them is

- (1) 24 cm (2) 25 cm

- (3) $\frac{50}{3}$ cm (4) 12 cm

(SSC CHSL DEO & LDC Exam. 16.11.2014)

- 24.** ST is a tangent to the circle at P and QR is a diameter of the circle. If $\angle RPT = 50^\circ$, then the value of $\angle SPQ$ is

- (1) 40° (2) 60°
 (3) 80° (4) 100°

(SSC CHSL DEO Exam. 02.11.2014 (Ist Sitting)

GEOMETRY

- 25.** If PA and PB are two tangents to a circle with centre O such that $\angle AOB = 110^\circ$, then $\angle APB$ is
 (1) 90° (2) 70°
 (3) 60° (4) 55°
 (SSC CHSL DEO Exam. 02.11.2014
 (Ist Sitting)

- 26.** Two circles with radii 25 cm and 9 cm touch each other externally. The length of the direct common tangent is
 (1) 34 cm (2) 30 cm
 (3) 36 cm (4) 32 cm
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014
 TF No. 999 KPO)

- 27.** In a circle with centre O, AB is a chord, and AP is a tangent to the circle. If $\angle AOB = 140^\circ$, then the measure of $\angle PAB$ is
 (1) 35° (2) 55°
 (3) 70° (4) 75°
 (SSC CGL Tier-I Exam. 19.10.2014
 TF No. 022 MH 3)

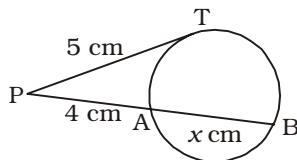
- 28.** If two circles of radii 9 cm and 4 cm touch externally, then the length of a common tangent is
 (1) 5 cm (2) 7 cm
 (3) 8 cm (4) 12 cm
 (SSC CGL Tier-I Exam. 19.10.2014
 TF No. 022 MH 3)

- 29.** AB is a diameter of a circle with centre O. The tangents at C meets AB produced at Q. If $\angle CAB = 34^\circ$, then measure of $\angle CBA$ is
 (1) 56° (2) 34°
 (3) 68° (4) 124°
 (SSC CGL Tier-II Exam. 12.04.2015
 TF No. 567 TL 9)

- 30.** Let P and Q be two points on a circle with centre O. If two tangents of the circle through P and Q meet at A with $\angle PAQ = 48^\circ$, then $\angle APQ$ is
 (1) 96° (2) 48°
 (3) 66° (4) 60°
 (SSC CGL Tier-II Exam. 12.04.2015
 TF No. 567 TL 9)

- 31.** The distance between the centres of two circles having radii 8 cm and 3 cm, is 13 cm. The length (in cm) of the direct common tangent of the two circles is
 (1) 15 (2) 16
 (3) 18 (4) 12
 (SSC CGL Tier-II Exam.
 2014 12.04.2015 (Kolkata Region)
 TF No. 789 TH 7)

- 32.** In the given figure, PAB is a secant and PT is a tangent to the circle from P. If PT = 5 cm, PA = 4 cm and AB = x cm, then x is



- (1) $\frac{4}{9}$ cm (2) $\frac{9}{4}$ cm
 (3) 5 cm (4) $\frac{2}{3}$ cm

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 21.06.2015
 IIInd Sitting)

- 33.** Two circles of diameters 10 cm and 6 cm have the same centre. A chord of the larger circle is a tangent of the smaller one. The length of the chord is
 (1) 4 cm. (2) 8 cm.
 (3) 6 cm. (4) 10 cm.

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 21.06.2015
 IIInd Sitting)

- 34.** Two circles with their centres at O and P and radii 8 cm and 4 cm respectively touch each other externally. The length of their common tangent is

- (1) 8.5 cm. (2) $\frac{8}{\sqrt{2}}$ cm.
 (3) $8\sqrt{2}$ cm. (4) 8 cm.

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 21.06.2015
 IIInd Sitting)

- 35.** A tangent is drawn to a circle of radius 6 cm from a point situated at a distance of 10 cm from the centre of the circle. The length of the tangent will be

- (1) 7 cm (2) 4 cm
 (3) 5 cm (4) 8 cm
 (SSC CGL Tier-I Exam. 09.08.2015
 (Ist Sitting) TF No. 1443088)

- 36.** XY and XZ are tangents to a circle, ST is another tangent to the circle at the point R on the circle, which intersects XY and XZ at S and T respectively. If XY = 15 cm and TX = 9 cm, then RT is

- (1) 4.5 cm (2) 7.5 cm
 (3) 6 cm (4) 3 cm
 (SSC CGL Tier-I Exam, 09.08.2015
 (IIInd Sitting) TF No. 4239378)

- 37.** AC is transverse common tangent to two circles with centres P and Q and radii 6 cm and 3 cm at the point A and C respectively. If AC cuts PQ at the point B and AB = 8 cm then the length of PQ is :

- (1) 13 cm (2) 12 cm
 (3) 10 cm (4) 15 cm
 (SSC CGL Tier-I Exam, 16.08.2015
 (IIInd Sitting) TF No. 2176783)

- 38.** A point Q is 13 cm from the centre of a circle. The length of the tangent drawn from Q to a circle is 12 cm. The distance of Q from the nearest point of the circle is
 (1) 7 cm (2) 8 cm
 (3) 5 cm (4) 12 cm
 (SSC CGL Tier-I Re-Exam, 30.08.2015)

- 39.** A and B are centres of two circles of radii 11 cm and 6 cm, respectively. PQ is a direct common tangent to the circles. If $\overline{AB} = 13$ cm, then length of \overline{PQ} will be
 (1) 8.5 cm (2) 13 cm
 (3) 12 cm (4) 17 cm
 (SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

- 40.** AB and AC are tangents to a circle with centre O. A is the external point of the circle. The line AO intersect the chord BC at D. The measure of the $\angle BDO$ is
 (1) 60° (2) 90°
 (3) 45° (4) 75°

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IInd Sitting)

- 41.** The distance between the centres of two circles of radii 6 cm and 3 cm is 15 cm. The length of the transverse common tangent to the circles is :
 (1) 12 cm (2) $6\sqrt{6}$ cm
 (3) $7\sqrt{6}$ cm (4) 18 cm

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015
 (Ist Sitting) TF No. 6636838)

GEOMETRY

42. Two circles of radii 5 cm and 3 cm touch externally, then the ratio in which the direct common tangent to the circles divides externally the line joining the centers of the circles is:

- (1) 5 : 3 (2) 3 : 5

- (3) 2.5 : 1.5 (4) 1.5 : 2.5

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IInd Sitting) TF No. 3441135)

43. The distance between centres of two circles of radii 3 cm and 8 cm is 13 cm. If the points of contact of a direct common tangent to the circles are P and Q, then the length of the line segment PQ is :

- (1) 11.9 cm (2) 12 cm

- (3) 11.58 cm (4) 11.5 cm

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IInd Sitting) TF No. 3441135)

44. If PA and PB are two tangents to a circle with centre O such that $\angle APB = 80^\circ$, then, $\angle AOP = ?$

- (1) 40° (2) 50°

- (3) 60° (4) 70°

(SSC CGL Tier-I (CBE) Exam. 10.09.2016)

45. A and B are the centres of two circles with radii 11 cm and 6 cm respectively. A common tangent touches these circles at P and Q respectively. If AB = 13 cm., then the length of PQ is

- (1) 13 cm. (2) 17 cm.

- (3) 8.5 cm. (4) 12 cm.

(SSC CGL Tier-II Online Exam. 01.12.2016)

46. 2 equal tangents PA and PB are drawn from an external point P on a circle with centre O. What is the length of each tangent, if P is 12 cm from the centre and the angle between the tangents is 120° ?

- (1) 24 cm. (2) 6 cm.

- (3) 8 cm.

- (4) Cannot be determined

(SSC CPO SI, ASI Online Exam. 05.06.2016) (IInd Sitting)

47. O is the centre of a circle and AB is the tangent to it touching at B. If OB = 3 cm. and OA = 5 cm, then the measure of AB in cm is

- (1) $\sqrt{34}$ (2) 2

- (3) 8 (4) 4

(SSC CHSL (10+2) Tier-I (CBE) Exam. 08.09.2016) (Ist Sitting)

48. Two concentric circles are drawn with radii 12 cm and 13 cm. What will be the length of any chord of the larger circle that is tangent to the smaller circle?

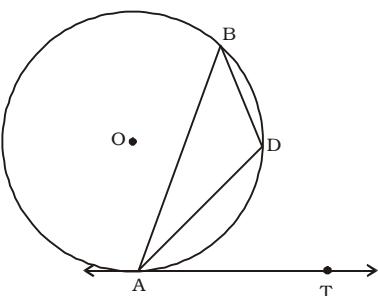
- (1) 5 cm (2) 8 cm

- (3) 10 cm (4) 25 cm

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016)

(Ist Sitting)

49. In the figure below, AB is a chord of a circle with centre O. A tangent AT is drawn at point A so that $\angle BAT = 50^\circ$. Then $\angle ADB = ?$



- (1) 120° (2) 130°

- (3) 140° (4) 150°

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016)

(Ist Sitting)

50. A chord of a circle is equal to its radius. A tangent is drawn to the circle at an extremity of the chord. The angle between the tangent and the chord is

- (1) 30° (2) 45°

- (3) 60° (4) 75°

(SSC CGL Tier-I (CBE))

Exam. 27.08.2016) (Ist Sitting)

51. How many common tangents can be drawn on two circles touching each other externally?

- (1) Infinity (2) 0

- (3) 2 (4) 3

(SSC CGL Tier-I (CBE))

Exam. 27.08.2016) (IIInd Sitting)

52. The maximum number of common tangents that can be drawn to two disjoint circles is

- (1) 1 (2) 2

- (3) 4 (4) Infinitely many

(SSC CGL Tier-I (CBE))

Exam. 02.09.2016) (Ist Sitting)

53. There are two equal circles of radius 3 cm each and distance between their centres is 10 cm. The length of one of their transverse common tangents is

- (1) 7 cm (2) 9 cm

- (3) 10 cm (4) 8 cm

(SSC CGL Tier-I (CBE))

Exam. 04.09.2016) (Ist Sitting)

54. $\triangle ABC$ is inscribed in a circle so that BC is diameter. The tangent at a point C intersects BA when produced at a point D. If $\angle ABC = 36^\circ$ then the value of $\angle ADC$ is

- (1) 36° (2) 44°

- (3) 48° (4) 54°

(SSC CGL Tier-I (CBE))

Exam. 02.09.2016) (IInd Sitting)

55. PQ is a tangent to the circle at T. If TR = TS where R and S are points on the circle and $\angle RST = 65^\circ$, the $\angle PTS = ?$

- (1) 65° (2) 130°

- (3) 115° (4) 55°

(SSC CGL Tier-II (CBE))

Exam. 30.11.2016)

56. From an external point two tangents to a circle are drawn. The chord passing through the points of contact subtends an angle 72° at the centre. The angle between the tangents is

- (1) 36° (2) 72°

- (3) 108° (4) 144°

(SSC CGL Tier-I (CBE))

Exam. 01.09.2016 (IIIrd Sitting)

57. AB is a diameter of a circle. C is a point on the tangent drawn at A. If AB = 8 cm and AC = 6 cm, then the length of BC is :

- (1) 10 cm. (2) 14 cm.

- (3) 5 cm. (4) 7 cm.

(SSC CGL Tier-I (CBE))

Exam. 03.09.2016 (IInd Sitting)

58. A, B and C are three points on a circle with centre O. The tangent at C meets BA produced to T. If $\angle ATC = 30^\circ$ and $\angle ACT = 48^\circ$, then what is the value of $\angle AOB$?

- (1) 78° (2) 96°

- (3) 102° (4) 108°

(SSC CGL Tier-I (CBE))

Exam. 03.09.2016 (IIIrd Sitting)

59. If PA and PB are tangents to the circle with centre O such that $\angle APB = 50^\circ$, then $\angle OAB$ is equal to

- (1) 25° (2) 30°

- (3) 40° (4) 50°

(SSC CGL Tier-I (CBE))

Exam. 04.09.2016 (IInd Sitting)

GEOMETRY

- 60.** T is a point on the common tangents at P of two circles and if TA and TB are respectively the other tangents at A and B to the two circles drawn from the point T then

(1) TA = 2 TB (2) TA = TB

$$(3) TA = \frac{1}{2} TB \quad (4) 3TA = TB$$

(SSC CGL Tier-I (CBE)

Exam. 04.09.2016 (IIInd Sitting)

- 61.** If PQ and PR be the two tangents to a circle with centre O such that $\angle QPR = 120^\circ$, then $\angle POQ$ is :

(1) 90° (2) 45°
(3) 30° (4) 60°

(SSC CGL Tier-I (CBE)

Exam. 06.09.2016 (IIInd Sitting)

- 62.** O is the centre of a circle. P is an external point of it at a distance of 13 cm from O. The radius of the circle is 5 cm. Then the length of a tangent to the circle from P upto the point of contact is :

(1) $\sqrt{194}$ cm. (2) 10 cm.
(3) 12 cm. (4) 8 cm.

(SSC CGL Tier-I (CBE)

Exam. 08.09.2016 (IIInd Sitting)

- 63.** The chord AB of a circle of centre O subtends an angle θ with the tangent at A to the circle. Then measure of $\angle ABO$ is :

(1) θ (2) $90^\circ - \theta$
(3) $90^\circ + \theta$ (4) $2(180^\circ - \theta)$

(SSC CGL Tier-I (CBE)

Exam. 08.09.2016 (IIInd Sitting)

- 64.** PT is a tangent to a circle with centre O and radius 6 cm. If PT is 8 cm then length of OP is

(1) 10 cm. (2) 12 cm.
(3) 16 cm. (4) 9 cm.

(SSC CGL Tier-I (CBE)

Exam. 11.09.2016 (IIInd Sitting)

- 65.** A circle has its centre at O. A tangent drawn from a point P, which is situated outside the circle, touches the circle at A.

If PA = 4 cm and PO = 5 cm, then the length of the radius of the circle is

(1) 1 cm. (2) 2 cm.
(3) 3 cm. (4) 4 cm.

(SSC CGL Tier-I (CBE)

Exam. 11.09.2016 (IIInd Sitting)

TYPE-XIV

- 1.** AC is the diameter of a circumcircle of $\triangle ABC$. Chord ED is parallel to the diameter AC. If $\angle CBE = 50^\circ$, then the measure of $\angle DEC$ is

(1) 50° (2) 90°
(3) 60° (4) 40°

(SSC CHSL DEO & LDC Exam. 28.10.2012, Ist Sitting)

- 2.** The length of the two sides forming the right angle of a right-angled triangle are 6 cm and 8 cm. The length of its circum-radius is :

(1) 5 cm (2) 7 cm
(3) 6 cm (4) 10 cm

(SSC CHSL DEO & LDC Exam. 04.11.2012, Ist Sitting)

- 3.** The length of radius of a circumcircle of a triangle having sides 3cm, 4cm and 5cm is :

(1) 2 cm (2) 2.5 cm
(3) 3 cm (4) 1.5 cm

(SSC CHSL DEO & LDC Exam. 04.11.2012, Ist Sitting)

- 4.** I and O are respectively the in-centre and circumcentre of a triangle ABC. The line AI produced intersects the circumcircle of $\triangle ABC$ at the point D. If $\angle ABC = x^\circ$, $\angle BID = y^\circ$ and $\angle BOD$

$$= z^\circ, \text{ then } \frac{z+x}{y} =$$

(1) 3 (2) 1
(3) 2 (4) 4

(SSC Graduate Level Tier-I

Exam. 21.04.2013 IIInd Sitting)

- 5.** The radius of the circumcircle of a right angled triangle is 15 cm and the radius of its inscribed circle is 6 cm. Find the sides of the triangle.

(1) 30, 40, 41 (2) 18, 24, 30
(3) 30, 24, 25 (4) 24, 36, 20

(SSC Graduate Level Tier-I

Exam. 21.04.2013)

- 6.** If the $\triangle ABC$ is right angled at B, find its circumradius if the sides AB and BC are 15 cm and 20 cm respectively.

(1) 25 cm (2) 20 cm
(3) 15 cm (4) 12.5 cm

(SSC Constable (GD)

Exam. 12.05.2013)

- 7.** If the circumradius of an equilateral triangle ABC be 8 cm, then the height of the triangle is

(1) 16 cm (2) 6 cm
(3) 8 cm (4) 12 cm

(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

- 8.** Triangle PQR circumscribes a circle with centre O and radius r cm such that $\angle PQR = 90^\circ$. If $PQ = 3$ cm, $QR = 4$ cm, then the value of r is :

(1) 2 (2) 1.5
(3) 2.5 (4) 1

(SSC CAPFs SI & CISF ASI Exam. 23.06.2013)

- 9.** The radius of two concentric circles are 17 cm and 10 cm. A straight line ABCD intersects the larger circle at the point A and D and intersects the smaller circle at the points B and C. If BC = 12 cm, then the length of AD (in cm) is :

(1) 20 (2) 24
(3) 30 (4) 34

(SSC CHSL DEO & LDC Exam. 27.10.2013 IIInd Sitting)

- 10.** P and Q are centre of two circles with radii 9 cm and 2 cm respectively, where $PQ = 17$ cm. R is the centre of another circle of radius x cm, which touches each of the above two circles externally. If $\angle PRQ = 90^\circ$, then the value of x is

(1) 4 cm (2) 6 cm
(3) 7 cm (4) 8 cm

(SSC GL Tier-II Exam. 16.09.2012 & (SSC Assistant Grade-III

Exam. 11.11.2012 (IIInd Sitting) & (SSC CHSL DEO & LDC

Exam. 10.11.2013 (Ist Sitting))

- 11.** O is the circumcentre of $\triangle ABC$, given $\angle BAC = 85^\circ$ and $\angle BCA = 55^\circ$, find $\angle OAC$.

(1) 40° (2) 50°
(3) 60° (4) 80°

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))

- 12.** In a $\triangle PQR$, $\angle RPQ = 90^\circ$, $\overline{PR} = 6$ cm and $\overline{PQ} = 8$ cm, then the radius of the circumcircle of $\triangle PQR$ is

(1) 5 cm (2) 3 cm
(3) 4 cm (4) 4.5 cm

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IIInd Sitting))

GEOMETRY

- 13.** ABC is an equilateral triangle and O is its circumcentre, then the $\angle AOC$ is
 (1) 100° (2) 110°
 (3) 120° (4) 130°
 (SSC CGL Tier-I Exam. 19.10.2014)

- 14.** The circumcentre of a triangle ABC is O. If $\angle BAC = 85^\circ$ and $\angle BCA = 75^\circ$, then the value of $\angle OAC$ is
 (1) 40° (2) 60°
 (3) 70° (4) 90°
 (SSC CHSL DEO & LDC Exam. 04.12.2011
 (IIInd Sitting) (North Zone)

- 15.** If AB = 5 cm, AC = 12 cm and $AB \perp AC$, then the radius of the circumcircle of $\triangle ABC$ is
 (1) 6.5 cm (2) 6 cm
 (3) 5 cm (4) 7 cm
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014
 TF No. 999 KPO)

- 16.** In a circle if PQ is the diameter of the circle and R is on the circumference of the circle such that $\angle PQR = 30^\circ$, then $\angle RPQ = ?$
 (1) 90° (2) 60°
 (3) 30° (4) 45°
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting
 TF No. 545 QP 6)

- 17.** The radii of two concentric circles are 17 cm and 25 cm. A straight line PQRS intersects the larger circle at the points P and S and intersects the smaller circle at the points Q and R. If QR = 16 cm, then the length (in cm.) of PS is
 (1) 41 (2) 32
 (3) 33 (4) 40
 (SSC CGL Tier-II Exam. 12.04.2015
 TF No. 567 TL 9)

- 18.** In $\triangle ABC$, the bisector of $\angle BAC$ intersects BC at D and the circumcircle of $\triangle ABC$ at E. If AB : AD = 3 : 5, then AE : AC is
 (1) 5 : 3 (2) 3 : 2
 (3) 2 : 3 (4) 3 : 5
 (SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region)
 TF No. 789 TH 7)

- 19.** 'O' is the circumcentre of triangle ABC. If $\angle BAC = 50^\circ$ then $\angle OBC$ is
 (1) 50° (2) 100°
 (3) 130° (4) 40°
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
 (Ist Sitting) TF No. 8037731)

- 20.** The chord of a circle is equal to its radius. The angle subtended by this chord at the minor arc of the circle is
 (1) 75° (2) 60°
 (3) 150° (4) 120°

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
 (IIInd Sitting))

- 21.** ABC is a cyclic triangle and the bisectors of $\angle BAC$, $\angle ABC$ and $\angle BCA$ meet the circle at P, Q, and R respectively. Then the angle $\angle RQP$ is

- (1) $90^\circ - \frac{B}{2}$ (2) $90^\circ + \frac{B}{2}$
 (3) $90^\circ + \frac{C}{2}$ (4) $90^\circ - \frac{A}{2}$

(SSC CGL Tier-I Exam, 09.08.2015
 (IIInd Sitting) TF No. 4239378)

- 22.** O is the circumcentre of $\triangle ABC$. If $\angle BAC = 85^\circ$, $\angle BCA = 75^\circ$, then $\angle OAC$ is equal to :

- (1) 60° (2) 70°
 (3) 50° (4) 40°
 (SSC CGL Tier-I Exam, 16.08.2015
 (IIInd Sitting) TF No. 2176783)

- 23.** O is the circumcentre of the triangle ABC and $\angle BAC = 85^\circ$, $\angle BCA = 75^\circ$, then the value of $\angle OAC$ is

- (1) 55° (2) 150°
 (3) 20° (4) 70°
 (SSC CGL Tier-I
 Re-Exam, 30.08.2015)

- 26.** Let two chords AB and AC of the larger circle touch the smaller circle having same centre at X and Y. Then XY = ?

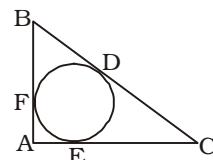
- (1) BC (2) $\frac{1}{2}BC$
 (3) $\frac{1}{3}BC$ (4) $\frac{1}{4}BC$

(SSC CGL Tier-II Online Exam.01.12.2016)

- 27.** O is the circumcentre of the isosceles $\triangle ABC$. Given that AB = AC = 17 cm. and BC = 6 cm. The radius of the circle is

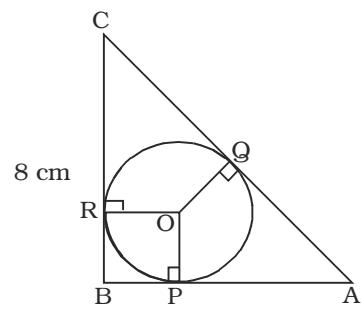
- (1) 3.015 cm. (2) 3.205 cm.
 (3) 3.025 cm. (4) 3.125 cm.
 (SSC CGL Tier-II Online Exam.01.12.2016)

- 28.** In the given diagram, an incircle DEF is circumscribed by the right angled triangle in which AF = 6 cm and EC = 15 cm. Then find the difference between CD and BD.



- (1) 1 cm. (2) 3 cm.
 (3) 4 cm. (4) 5 cm.
 (SSC CPO Exam. 06.06.2016
 (Ist Sitting))

- 29.** $\triangle ABC$ is a right angled triangle with AB = 6 cm, BC = 8 cm. O is the in-centre of the triangle. The radius of the in-circle is :



- (1) 3 cm (2) 4 cm
 (3) 2 cm (4) 5 cm
 (SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 20.03.2016
 (IIInd Sitting))

GEOMETRY

- 30.** The ratio of inradius and circumradius of an equilateral triangle is :

(1) 1 : 2 (2) 2 : 1

(3) 1 : $\sqrt{2}$ (4) $\sqrt{2} : 1$

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 20.03.2016)
(IIInd Sitting)

- 31.** $\triangle ABC$ a right angled triangle has $\angle B = 90^\circ$ and AC is hypotenuse. D is its circumcentre and AB = 3 cm, BC = 4 cm. The value of BD is

(1) 3 cm. (2) 4 cm.
(3) 2.5 cm. (4) 5.5 cm.

(SSC CGL Tier-I (CBE)
Exam. 07.09.2016) (Ist Sitting)

- 32.** The circum-centre of a triangle ABC is O. If $\angle BAC = 85^\circ$, $\angle BCA = 75^\circ$, then $\angle OAC$ is of

(1) 70° (2) 72°
(3) 75° (4) 74°

(SSC CGL Tier-I (CBE)
Exam. 28.08.2016 (Ist Sitting)

- 33.** O is the circumcentre of a triangle $\triangle ABC$. The point A and the chord BC are on the opposite side of O. If $\angle BOC = 150^\circ$. Then the angle $\angle BAC$ is :

(1) 65° (2) 60°
(3) 70° (4) 75°

(SSC CGL Tier-I (CBE)
Exam. 04.09.2016 (IIInd Sitting)

- 34.** From the circumcentre I of the triangle ABC, perpendicular ID is drawn on BC. If $\angle BAC = 60^\circ$, then the value of $\angle BID$ is :

(1) 60° (2) 80°
(3) 75° (4) 45°

(SSC CGL Tier-I (CBE)
Exam. 04.09.2016 (IIIrd Sitting)

- 35.** Point 'O' is the incentre of the $\triangle PQR$. If $\angle POR = 115^\circ$, then value of $\angle PQR$ is :

(1) 40° (2) 65°
(3) 50° (4) 25°

(SSC CGL Tier-I (CBE)
Exam. 06.09.2016 (IIIrd Sitting)

TYPE-XV

- 1.** Ashok has drawn an angle of measure $45^\circ 27'$ when he was asked to draw an angle of 45° . The percentage error in his drawing is

(1) 0.5% (2) 1.0%
(3) 1.5% (4) 2.0%

(SSC CPO S.I. Exam. 05.09.2004)

- 2.** Two line segments PQ and RS intersect at X in such a way that $XP = XR$. If $\angle PSX = \angle RQX$, then one must have

(1) PR = QS
(2) PS = RQ
(3) $\angle XSQ = \angle XRP$
(4) $\text{ar}(\Delta PXR) = \text{ar}(\Delta QXS)$

FCI Assistant Grade-III
Exam. 25.02.2012 (Paper-I)

North Zone (Ist Sitting)

- 3.** Two chords AB and CD of circle whose centre is O, meet at the point P and $\angle AOC = 50^\circ$, $\angle BOD = 40^\circ$. Then the value of $\angle BPD$ is

(1) 60° (2) 40°
(3) 45° (4) 75°

(SSC CHSL DEO & LDC Exam.
04.12.2011 (IIInd Sitting (North Zone))

- 4.** A straight line parallel to BC of $\triangle ABC$ intersects AB and AC at points P and Q respectively. AP = QC, PB = 4 units and AQ = 9 units, then the length of AP is :

(1) 25 units (2) 3 units
(3) 6 units (4) 6.5 units

(SSC CHSL DEO & LDC Exam.
11.12.2011 (IIInd Sitting (Delhi Zone))

- 5.** In a $\triangle ABC$, $\overline{AB}^2 + \overline{AC}^2 = \overline{BC}^2$ and $\overline{BC} = \sqrt{2} \overline{AB}$, then $\angle ABC$ is :

(1) 30° (2) 45°
(3) 60° (4) 90°

(SSC CHSL DEO & LDC Exam.
21.10.2012 (IIInd Sitting))

- 6.** Two chords AB and CD of a circle with centre O intersect each other at the point P. If $\angle AOD = 20^\circ$ and $\angle BOC = 30^\circ$, then $\angle BPC$ is equal to:

(1) 50° (2) 20°
(3) 25° (4) 30°

(SSC CHSL DEO & LDC Exam.
21.10.2012 (IIInd Sitting))

- 7.** ABCD is a quadrilateral inscribed in a circle with centre O. If $\angle COD = 120^\circ$ and $\angle BAC = 30^\circ$, then $\angle BCD$ is :

(1) 75° (2) 90°
(3) 120° (4) 60°

(SSC CHSL DEO & LDC Exam.
21.10.2012 (IIInd Sitting))

- 8.** If $\triangle ABC$ is similar to $\triangle DEF$, such that $\angle A = 47^\circ$ and $\angle E = 63^\circ$ then $\angle C$ is equal to :

(1) 40° (2) 70°
(3) 65° (4) 37°

(SSC CHSL DEO & LDC Exam.
21.10.2012 (IIInd Sitting))

- 9.** The internal bisectors of $\angle ABC$ and $\angle ACB$ of $\triangle ABC$ meet each other at O. If $\angle BOC = 110^\circ$, then $\angle BAC$ is equal to

(1) 40° (2) 55°
(3) 90° (4) 110°

(SSC CHSL DEO & LDC Exam.
28.10.2012 (Ist Sitting))

- 10.** In $\triangle ABC$, $\angle B = 60^\circ$ and $\angle C = 40^\circ$. If AD and AE be respectively the internal bisector of $\angle A$ and perpendicular on BC, then the measure of $\angle DAE$ is

(1) 5° (2) 10°
(3) 40° (4) 60°

(SSC CHSL DEO & LDC Exam.
28.10.2012 (Ist Sitting))

- 11.** A circle (with centre at O) is touching two intersecting lines AX and BY. The two points of contact A and B subtend an angle of 65° at any point C on the circumference of the circle. If P is the point of intersection of the two lines, then the measure of $\angle APO$ is

(1) 25° (2) 65°
(3) 90° (4) 40°

(SSC CHSL DEO & LDC Exam.
28.10.2012 (Ist Sitting))

- 12.** Internal bisectors of $\angle B$ and $\angle C$ of $\triangle ABC$ intersect at O. If $\angle BOC = 102^\circ$, then the value of $\angle BAC$ is

(1) 12° (2) 24°
(3) 48° (4) 60°

(SSC CHSL DEO & LDC Exam.
28.10.2012 (Ist Sitting))

- 13.** The angle between the external bisectors of two angles of a triangle is 60° . Then the third angle of the triangle is

(1) 40° (2) 50°
(3) 60° (4) 80°

(SSC Graduate Level Tier-I Exam.
11.11.2012 (Ist Sitting))

- 14.** I is the incentre of $\triangle ABC$. If $\angle BAC = 60^\circ$, $\angle BCA = 80^\circ$, then the $\angle BIC$ is

(1) 90° (2) 100°
(3) 110° (4) 120°

(SSC Assistant Grade-III Exam.
11.11.2012 (IInd Sitting))

- 15.** In $\triangle ABC$, draw BE \perp AC and CF \perp AB and the perpendicular BE and CF intersect at the point O. If $\angle BAC = 70^\circ$, then the value of $\angle BOC$ is

(1) 125° (2) 55°
(3) 150° (4) 110°

(SSC Assistant Grade-III Exam.
11.11.2012 (IInd Sitting))

GEOMETRY

- 16.** O is the centre and arc ABC subtends an angle of 130° at O. AB is extended to P. Then $\angle PBC$ is
 (1) 75° (2) 70°
 (3) 65° (4) 80°

(SSC Delhi Police Sub-Inspector (SI) Exam. 19.08.2012)

- 17.** Internal bisectors of angles $\angle B$ and $\angle C$ of a triangle ABC meet at O. If $\angle BAC = 80^\circ$, then the value of $\angle BOC$ is
 (1) 120° (2) 140°
 (3) 110° (4) 130°

(SSC Delhi Police S.I. (SI) Exam. 19.08.2012) & (SSC FCI Assistant Grade-III Main Exam. 07.04.2013)

- 18.** In triangle PQR, points A, B and C are taken on PQ, PR and QR respectively such that $QC = AC$ and $CR = CB$. If $\angle QPR = 40^\circ$, then $\angle ACB$ is equal to :
 (1) 140° (2) 40°
 (3) 70° (4) 100°

(SSC CHSL DEO & LDC Exam. 21.10.2012, IInd Sitting)

- 19.** Two chords AB, CD of a circle with centre O intersect each other at P. $\angle ADP = 23^\circ$ and $\angle APC = 70^\circ$, then the $\angle BCD$ is
 (1) 45° (2) 47°
 (3) 57° (4) 67°

(SSC Graduate Level Tier-I Exam. 21.04.2013 IInd Sitting)

- 20.** In a $\triangle ABC$ $\angle A : \angle B : \angle C = 2 : 3 : 4$. A line CD drawn \parallel to AB, then the $\angle ACD$ is :
 (1) 40° (2) 60°
 (3) 80° (4) 20°

(SSC Graduate Level Tier-I Exam. 21.04.2013)

- 21.** In triangle ABC, $\angle BAC = 75^\circ$, $\angle ABC = 45^\circ$. \overline{BC} is produced to D. If $\angle ACD = x^\circ$, then $\frac{x}{3}\%$ of 60° is
 (1) 30° (2) 48°
 (3) 15° (4) 24°

(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

- 22.** In a $\triangle ABC$, AB = AC and BA is produced to D such that AC = AD. Then the $\angle BCD$ is
 (1) 100° (2) 60°
 (3) 80° (4) 90°

(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

- 23.** In $\triangle ABC$, $\angle A + \angle B = 65^\circ$, $\angle B + \angle C = 140^\circ$, then find $\angle B$.
 (1) 40° (2) 25°
 (3) 35° (4) 20°

(SSC Graduate Level Tier-I Exam. 19.05.2013)

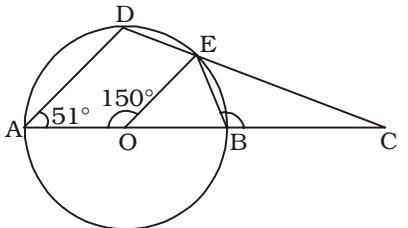
- 24.** In a triangle ABC, $\angle A = 90^\circ$, $\angle C = 55^\circ$, $\overline{AD} \perp \overline{BC}$. What is the value of $\angle BAD$?
 (1) 35° (2) 60°
 (3) 45° (4) 55°

(SSC Graduate Level Tier-I Exam. 19.05.2013 1st Sitting)

- 25.** If O be the circumcentre of a triangle PQR and $\angle QOR = 110^\circ$, $\angle OPR = 25^\circ$, then the measure of $\angle PRQ$ is
 (1) 65° (2) 50°
 (3) 55° (4) 60°

(SSC Graduate Level Tier-I Exam. 19.05.2013 1st Sitting)

- 26.** In the following figure, AB be diameter of a circle whose centre is O. If $\angle AOE = 150^\circ$, $\angle DAO = 51^\circ$ then the measure of $\angle CBE$ is :
 (1) 30° (2) 45°
 (3) 60° (4) 15°



- (1) 115° (2) 110°
 (3) 105° (4) 120°

(SSC CAPFs SI & CISF ASI Exam. 23.06.2013)

- 27.** In a triangle ABC, BC is produced to D so that $CD = AC$. If $\angle BAD = 111^\circ$ and $\angle ACB = 80^\circ$, then the measure of $\angle ABC$ is :
 (1) 31° (2) 33°
 (3) 35° (4) 29°

(SSC CAPFs SI & CISF ASI Exam. 23.06.2013)

- 28.** In $\triangle ABC$, $\angle A + \angle B = 145^\circ$ and $\angle C + 2\angle B = 180^\circ$. State which one of the following relations is true ?
 (1) $CA = AB$ (2) $CA < AB$
 (3) $BC > AB$ (4) $CA > AB$

(SSC CAPFs SI & CISF ASI Exam. 23.06.2013)

- 29.** $\angle A$, $\angle B$, $\angle C$ are three angles of a triangle. If $\angle A - \angle B = 15^\circ$, $\angle B - \angle C = 30^\circ$, then $\angle A$, $\angle B$ and $\angle C$ are
 (1) $80^\circ, 60^\circ, 40^\circ$ (2) $70^\circ, 50^\circ, 60^\circ$
 (3) $80^\circ, 65^\circ, 35^\circ$ (4) $80^\circ, 55^\circ, 45^\circ$

(SSC Graduate Level Tier-II Exam. 29.09.2013)

- 30.** All sides of a quadrilateral ABCD touch a circle. If $AB = 6$ cm, $BC = 7.5$ cm, $CD = 3$ cm, then DA is
 (1) 3.5 cm (2) 4.5 cm
 (3) 2.5 cm (4) 1.5 cm

(SSC Graduate Level Tier-II Exam. 29.09.2013)

- 31.** D is a point on the side BC of a triangle ABC such that $AD \perp BC$. E is a point on AD for which $AE : ED = 5 : 1$. If $\angle BAD = 30^\circ$ and $\tan(\angle ACB) = 6 \tan(\angle DBE)$, then $\angle ACB =$
 (1) 30° (2) 45°
 (3) 60° (4) 15°

(SSC Graduate Level Tier-II Exam. 29.09.2013)

- 32.** In $\triangle ABC$ $\angle A = \angle B = 60^\circ$, $AC = \sqrt{13}$ cm. The lines AD and BD intersect at D with $\angle D = 90^\circ$. If $DB = 2$ cm, then the length of AD is
 (1) 3 cm (2) 3.5 cm
 (3) 4 cm (4) 4.7 cm

(SSC CHSL DEO Exam. 16.11.2014
(Ist Sitting))

- 33.** Two supplementary angles are in the ratio $2 : 3$. The angles are
 (1) $33^\circ, 57^\circ$ (2) $66^\circ, 114^\circ$
 (3) $72^\circ, 108^\circ$ (4) $36^\circ, 54^\circ$

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IInd Sitting))

- 34.** If the angles of a triangle ABC are in the ratio $2 : 3 : 1$, then the angles $\angle A$, $\angle B$ and $\angle C$ are
 (1) $\angle A = 60^\circ$, $\angle B = 90^\circ$, $\angle C = 30^\circ$
 (2) $\angle A = 40^\circ$, $\angle B = 120^\circ$, $\angle C = 20^\circ$
 (3) $\angle A = 20^\circ$, $\angle B = 60^\circ$, $\angle C = 60^\circ$
 (4) $\angle A = 45^\circ$, $\angle B = 90^\circ$, $\angle C = 45^\circ$

(SSC CGL Tier-I Exam. 19.10.2014 (Ist Sitting))

- 35.** A tree of height 'h' metres is broken by a storm in such a way that its top touches the ground at a distance of 'x' metres from its root. Find the height at which the tree is broken. (Here $h > x$)
 (1) $\frac{h^2 + x^2}{2h}$ metre
 (2) $\frac{h^2 - x^2}{2h}$ metre

$$(3) \frac{h^2 + x^2}{4h} \text{ metre}$$

$$(4) \frac{h^2 - x^2}{4h} \text{ metre}$$

(SSC CHSL DEO Exam. 16.11.2014
(Ist Sitting))

GEOMETRY

36. Two poles of height 7 metre and 12 metre stand on a plane ground. If the distance between their feet is 12 metre, the distance between their top will be

- (1) 15 metre (2) 13 metre

- (3) 19 metre (4) 17 metre

(SSC CGL Tier-I Exam, 09.08.2015
(1st Sitting) TF No. 1443088)

37. The measure of an angle whose supplement is three times as large as its complement, is

- (1) 75° (2) 30°

- (3) 45° (4) 60°

(SSC CGL Tier-I Exam, 09.08.2015
(1st Sitting) TF No. 1443088)

38. If two supplementary angles differ by 44° , then one of the angles is

- (1) 68° (2) 65°

- (3) 102° (4) 72°

(SSC CGL Tier-I Exam, 09.08.2015
(1st Sitting) TF No. 4239378)

39. If D, E and F are the mid points of BC, CA and AB respectively of the $\triangle ABC$ then the ratio of area of the parallelogram DEFB and area of the trapezium CAFD is :

- (1) 2 : 3 (2) 3 : 4

- (3) 1 : 2 (4) 1 : 3

(SSC CGL Tier-I Exam, 16.08.2015
(1st Sitting) TF No. 3196279)

40. The three angles of a triangle are in the ratio 3 : 4 : 5. Then the angles respectively are :

- (1) $45^\circ, 60^\circ, 75^\circ$ (2) $60^\circ, 45^\circ, 75^\circ$

- (3) $60^\circ, 75^\circ, 45^\circ$ (4) $75^\circ, 60^\circ, 45^\circ$

(SSC Constable (GD)

Exam, 04.10.2015, IInd Sitting)

41. If the complement of an angle is one-fourth of its supplementary angle, then the angle is

- (1) 60° (2) 30°

- (3) 90° (4) 120°

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015
(1st Sitting) TF No. 9692918)

42. If the ratio of the angles of a quadrilateral is 2 : 7 : 2 : 7, then it is a

- (1) trapezium (2) parallelogram

- (3) square (4) rhombus

(SSC CGL Tier-II Exam, 12.04.2015
(TF No. 567 TL 9)

43. If angles of measure $(5y + 62^\circ)$ and $(22^\circ + y)$ are supplementary, then value of y is :

- (1) 16° (2) 32°

- (3) 8° (4) 1°

(SSC CGL Tier-I (CBE)

Exam. 04.09.2016 (IIInd Sitting)

44. PQRSTU is a cyclic hexagon. Then $\angle P + \angle R + \angle T$ is equal to

- (1) 720° (2) 360°

- (3) 540° (4) 180°

(SSC CGL Tier-I (CBE)

Exam. 08.09.2016 (IIInd Sitting)

45. P, Q and R are the points so that $PR = 3$ cm, $QR = 5$ cm and $PQ = 8$ cm. The number of circles passing through the points P, Q and R is :

- (1) 3 (2) 2

- (3) 1 (4) 0

(SSC CGL Tier-I (CBE)

Exam. 27.10.2016 (1st Sitting)

TYPE-III

1. (3)	2. (2)	3. (1)	4. (4)
5. (2)	6. (1)	7. (1)	8. (1)
9. (2)	10. (2)	11. (2)	12. (3)
13. (2)	14. (2)	15. (4)	16. (3)
17. (3)	18. (1)	19. (2)	20. (2)
21. (2)	22. (3)	23. (2)	24. (3)
25. (4)	26. (3)	27. (4)	28. (2)
29. (2)	30. (2)	31. (3)	32. (2)
33. (3)	34. (3)	35. (1)	36. (4)
37. (4)	38. (3)	39. (4)	40. (2)
41. (2)	42. (2)	43. (1)	44. (1)
45. (3)	46. (4)	47. (3)	48. (4)
49. (1)	50. (3)	51. (2)	52. (*)
53. (3)	54. (2)	55. (3)	56. (3)
57. (2)	58. (2)	59. (3)	60. (1)
61. (4)	62. (3)	63. (2)	64. (4)
65. (4)	66. (1)	67. (3)	68. (4)
69. (2)	70. (1)	71. (2)	72. (3)
73. (1)	74. (2)	75. (2)	76. (3)
77. (2)	78. (2)	79. (3)	80. (2)
81. (3)	82. (1)	83. (3)	84. (3)
85. (4)	86. (3)	87. (3)	88. (2)
89. (1)	90. (*)	91. (3)	92. (2)
93. (1)	94. (1)	95. (1)	96. (1)
97. (3)	98. (4)	99. (2)	100. (2)
101. (4)	102. (1)	103. (2)	104. (4)
105. (1)	106. (1)	107. (2)	108. (1)
109. (1)	110. (2)	111. (1)	112. (2)
113. (4)	114. (3)	115. (2)	116. (4)
117. (2)	118. (2)	119. (1)	120. (1)
121. (4)	122. (1)	123. (4)	124. (2)
125. (4)	126. (3)	127. (3)	128. (4)
129. (2)	130. (3)	131. (3)	132. (3)
133. (2)	134. (1)	135. (3)	136. (2)
137. (3)	138. (2)	139. (3)	140. (2)
141. (2)	142. (3)	143. (3)	144. (3)
145. (1)	146. (1)	147. (2)	148. (3)
149. (1)	150. (2)	151. (3)	

TYPE-I

1. (4)	2. (3)	3. (4)	4. (2)
5. (3)	6. (1)	7. (1)	8. (2)
9. (3)	10. (1)	11. (1)	12. (4)
13. (2)	14. (2)	15. (1)	16. (2)
17. (2)	18. (1)	19. (3)	20. (4)
21. (3)	22. (2)	23. (2)	24. (2)
25. (4)	26. (1)	27. (2)	28. (1)
29. (3)	30. (3)	31. (1)	32. (2)
33. (2)			

TYPE-II

1. (3)	2. (4)	3. (4)	4. (3)
5. (2)	6. (3)	7. (2)	8. (3)
9. (1)	10. (4)	11. (2)	12. (2)
13. (1)	14. (2)	15. (2)	16. (1)
17. (4)	18. (2)	19. (1)	20. (3)
21. (2)	22. (3)	23. (3)	24. (3)

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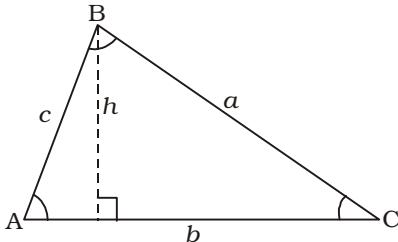


MENSURATION

PERIMETER & AREA (2-DIMENSIONAL PLANE FIGURE)

The area of any figure is the planar space occupied by it or the amount of surface (space) enclosed within its boundary lines. It is measured by the number of square metres or square centimetres or square inches (or some other units of square measure) that it contains. Hence, its units are accordingly square metre, square centimetre, square inch, square foot, etc.

Perimeter : Perimeter of a geometrical figure is the total length of the sides enclosing the figure or the total length of its boundary.



Triangle : A triangle is a plane figure bounded by three sides.

It includes three angles. It is denoted by the symbol Δ .

General Convention : (i) Nomenclature of vertices or sides are usually done in clock-wise manner.

(ii) The side opposite to the vertex A is ' a ', the side opposite to the vertex B is ' b ' and so on.

(iii) Angle A (or angle BAC) is denoted by $\angle A$ (or $\angle ABC$) and is the angle at vertex A enclosed by sides b and c . It is opposite to side a . Similarly, we can write $\angle B$ and $\angle C$. The sum of the three interior angles of a triangle is equal to 180° . Thus, $\angle A + \angle B + \angle C = 180^\circ$

Important Formula based on triangles

Rule 1 : Area of a triangle = $\frac{1}{2}$ base \times height

$$(a) A = \frac{1}{2} bh.$$

$$(b) b = \frac{2A}{h} = \sqrt{2A\left(\frac{b}{h}\right)}$$

$$(c) h = \frac{2A}{b} = \sqrt{\left(\frac{2A}{b}\right)}$$

$$\text{Rule 2 : } A = \sqrt{S(S-a)(S-b)(S-c)}$$

Rule 3 : $P = a + b + c = 2S$

Rule 4 : Right angled triangle : A

$$= \frac{1}{2} \text{ base} \times \text{perpendicular}$$

$$\text{Rule 5 : Isosceles triangle : } A = \frac{1}{4} b \sqrt{(4a^2 - b^2)}$$

where a = equal side

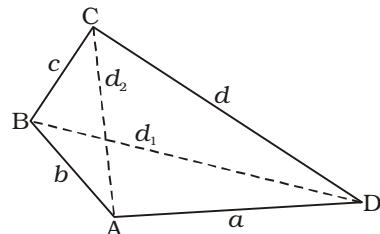
Rule 6 : Equilateral triangle : h

$$= \frac{\sqrt{3}}{2} a ; A = \frac{\sqrt{3}}{4} a^2 = 0.433 a^2$$

Rule 7 : Right isosceles triangle A

$$= \frac{1}{2} b^2 = \frac{1}{4} (\text{hypotenuse})^2$$

Quadrilateral : It is a plane figure bounded by four sides. It has four angles included in it. The sum of these four angles is 360° .



$$\text{So, } \angle A + \angle B + \angle C + \angle D = 360^\circ$$

Important Formulae based on various quadrilaterals

Rule 8 :

Quadrilateral :

$$(a) P = a + b + c + d$$

$$S = \frac{P}{2} = \frac{a+b+c+d}{2}$$

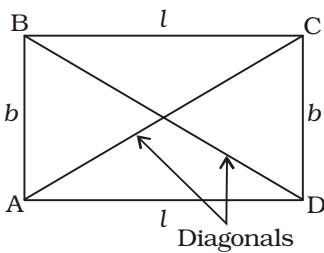
$$(b) A = \sqrt{S(S-a)(S-b)(S-c)(S-d)}$$

$$(c) A = \sqrt{4(d_1 d_2)^2 - (b^2 + d^2 - a^2 - c^2)} \text{ where } d_1 \text{ and } d_2 \text{ are diagonals.}$$

Rule 9 :

Rectangle : A geometrical figure having opposite sides are equal and parallel. Also the angle between adjacent sides is 90° .

MENSURATION



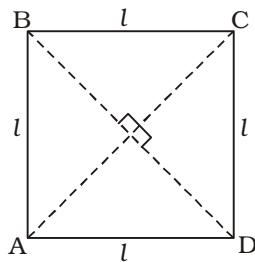
(a) $A = lb$, $l = \frac{A}{b}$, $b = \frac{A}{l}$

(b) $P = 2(l + b) = 2b\left(\frac{l}{b} + 1\right) = 2l\left(1 + \frac{b}{l}\right)$

(c) If $\frac{l}{b} = n$, then $A = nb^2$: $b = \sqrt{\frac{A}{n}}$ and $l = \sqrt{nA}$

Rule 10 :

Square : A geometrical figure having all sides equal and the angle between adjacent sides is 90° .



(a) $A = a^2 = \frac{(\text{diagonal})^2}{2}$

(b) $P = 4a$

(c) $P = 4\sqrt{A}$

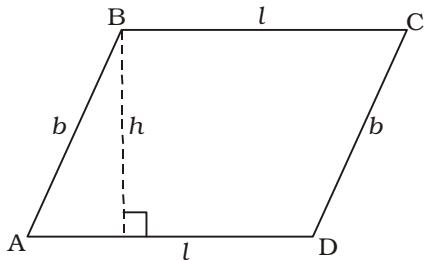
(d) $A = \frac{P^2}{16}$

Rule 11 :

Parallelogram : A geometrical figure having opposite sides are equal and parallel.

$A = lh$

$P = 2(l + b)$



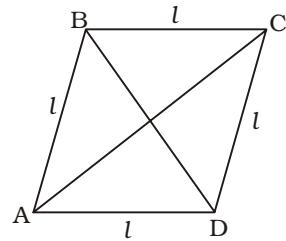
Rule 12 :

Rhombus : A geometrical figure having all sides equal.

$$A = \frac{1}{2}(d_1 \times d_2)$$

$$P = 4l$$

$$\text{Side, } l = \frac{1}{2} \sqrt{d_1^2 + d_2^2}$$

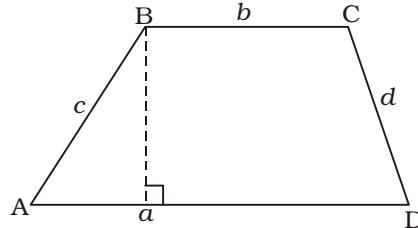


Rule 13 :

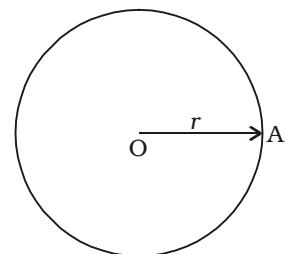
Trapezium : A geometrical figure having any pair of sides are parallel and unequal

$$A = \frac{1}{2}(a + b)h$$

$$P = a + b + c + d$$



Circle : A circle is the locus of points such that their distance from a fixed point is always equal. The fixed point (O) is called the centre of the circle and the distance ($r = OA$) between the fixed point (O) and the moving point (A) is called the radius of the circle.



Rule 14:

Circle :

$$D = 2r$$

$$A = \pi r^2 = \frac{\pi D^2}{4}$$

$$r = \sqrt{\frac{A}{\pi}}$$

$$P = 2\pi r = \pi D$$

$$A = \frac{p^2}{4\pi}$$

$$P = \sqrt{4\pi A}$$

Semi Circle :

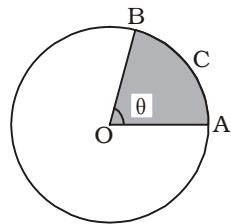
$$A = \frac{\pi r^2}{2}$$

$$P = \pi r + 2r = \frac{36}{7} r$$

Rule 15 :

Length of arc

$$= \left(\frac{\theta^\circ}{360^\circ} \right) \times 2\pi r = \theta \text{ (in radian)} \times r$$



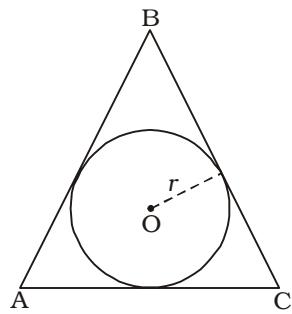
Rule 16 :

$$\theta \text{ (in degree)} = \left(\frac{\theta^\circ}{180^\circ} \right) \pi \text{ radian}$$

Rule 17:

$$\text{Area of sector} = \left(\frac{\theta^\circ}{360^\circ} \right) \pi r^2 = \frac{r}{2} \text{ (Length of arc)}$$

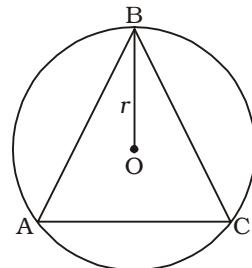
Incircle or Inscribed Circle: It is the circle in side the polygon whose all the sides are tangent to the circle.



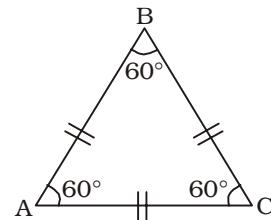
For an equilateral triangle of side 'a'. radius of the

$$\text{inscribed circle} = \frac{a}{2\sqrt{3}}. \text{ This is called in-radius.}$$

Circumcircle : It is the circle whose circumference touches all the vertices of the polygon.



Equilateral Triangle: It is a triangle whose all the three sides are equal. It can be proved that its all three angles are also equal, each being 60° .



Rule 18:

For an equilateral triangle :

$$(a) \text{ In-radius} = \frac{a}{2\sqrt{3}}; \text{ Area of incircle} = \frac{\pi}{12} a^2$$

$$(b) \text{ Circum radius} = \frac{a}{\sqrt{3}};$$

$$\text{Area of circum circle} = \frac{\pi}{3} a^2$$

Rule 19:

For a rectangular room (or box)

Area of the floor = lb

Area of 4 walls (or faces) = $2h(l+b)$

Area of 4 walls and floor = $2h(l+b) + lb$

Area of 4 walls, floor and roof = $2[h(l+b) + lb]$

Rule 20:

Area of a regular polygon

$$= \frac{1}{2} \times (\text{number of sides}) \times (\text{radius of inscribed circle})$$

Rule 21:

$$\text{Area of a regular hexagon} = \frac{3\sqrt{3}}{2} (\text{side})^2$$

$$= 2.598 (\text{side})^2$$

Rule 22:

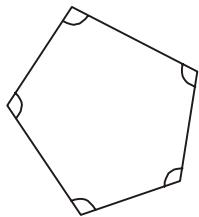
$$\text{Area of a regular octagon} = 2(\sqrt{2} + 1)(\text{side})^2$$

$$= 4.828 (\text{side})^2$$

MENSURATION

Regular Polygon	No. of sides	Area ($S = \text{side of the polygon}$)
Triangle (Equilateral)	3	0.433 S^2
Square	4	1.000 S^2
Pentagon	5	1.720 S^2
Hexagon	6	2.598 S^2
Septagon	7	3.634 S^2
Octagon	8	4.828 S^2
Nonagon	9	6.182 S^2
Decagon	10	7.694 S^2

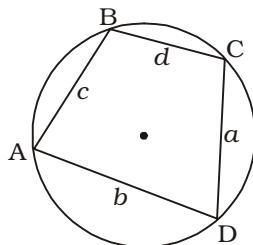
For a regular polygon of n equal sides, its vertex angle θ is given by



$$\theta = \frac{(n-2) \times 180}{n}$$

Rule 23:

Cyclic Quadrilateral: It is a quadrilateral whose vertices lie on the circumference of the circle.



$$A = \sqrt{S(S-a)(S-b)(S-c)(S-d)}$$

$$\text{where, } S = \frac{a+b+c+d}{2}$$

and $\angle A + \angle B + \angle C + \angle D = 2 \times 180^\circ$

or, $\angle A + \angle B + \angle C + \angle D = 360^\circ$

Important rules

Rule 1:

Cost of carpeting the floor

$$= \text{Rate of carpet per metre} \times \frac{\text{Area of the floor}}{\text{Width of carpet}}$$

Rule 2:

Least number of equal square tiles required for flooring

$$= \frac{\text{Length} \times \text{Breadth of the room}}{\text{HCF of length and breadth of the room}}$$

Rule 3:

(a) When a path of width ' w ' is constructed around a rectangular garden of length ' L ' and breadth ' B '.

$$\text{Area of the path} = 2w [L + B \pm 2w]$$

Sign convention: (+) when path surrounds the garden/park on its outside

Rule 4:

When the paths, each of width ' w ' are constructed on the outside as well as inside the garden.

$$\text{Area of the path} = 4w[L + B]$$

Rule 5:

When cross paths each of width ' w ' is constructed across the field,

$$\text{Total area of the path} = w(L + B - w)$$

$$\text{Uncovered area of the field} = (L - w)(B - w)$$

Rule 6:

Area of the path of width w around square of side ' S ' on its outside = $4w(S + w)$... (A)

Area of the path of width w around square of side ' S ' on its inside = $4w(S - w)$... (B)

Total area of the path of width w around square of side ' S ' both on its outside and inside = $8Sw$... (C)

Total area of paths each of width w crossing each other at right angle inside square of side ' S ' = $w(2S - w)$... (D)

Area of remaining portion of square of side ' S ' in which two paths each of width w cross at right angle inside it = $(S - w)^2$... (E)

Rule 7:

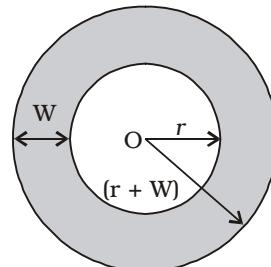
Distance covered by a moving wheel of radius ' r ' (or diameter D)

$$= 2\pi r \times \text{No. of revolutions} = \pi D \times \text{No. of revolutions}$$

Rule 8:

A circular garden of radius ' r ' has a path of width ' w ' around it. Then Area of the path = $\pi w(2r \pm w)$

Sign convention: (+) when path is outside the garden (-) when path is inside the garden.



Rule 9:

A circular garden of radius r has paths around it, outside as well as inside, each of width ' w '. Then

$$\text{Total area of the path} = 4\pi wr$$

Rule 10:

When Length and breadth of a rectangle are changed by $x\%$ and $y\%$ respectively, the net% change in its area

$$= \left[x + y + \frac{xy}{100} \right] \% = \left(\frac{-x^2}{100} \right) \% \text{ when } x = -y$$

Sign convention: + for increase, - for decrease

Note: Put '0' for no change.

Rule 11:

If there is no change in area, then

$$y = \left(\frac{-100x}{100+x} \right) \% \text{ and } x = \left(\frac{-100y}{100+y} \right) \%$$

Rule 12:

When each of the sides of a triangle or any polygon including square, rectangle etc. or radius of a circle is increased by $x\%$, then

$$\% \text{ change in area} = x \left(2 + \frac{x}{100} \right) \%$$

% change in perimeter = $x\%$

In case of quadrilateral,

% change in diagonal = $x\%$

Sign convention : + for increase, - for decrease.

SURFACE AREAS AND VOLUMES (3-DIMENSOINAL FIGURE)

Every real object occupies some space. It is usually specified by its three dimensions—length, breadth and depth (or height or thickness). The object may be solid or hollow. In case of circular, cylindrical and spherical object, the specifying dimensions change to radius, angle etc. The amount of space occupied by the object is called its **volume**. In case of hollow objects such as tank, bucket, bottle etc, the amount of liquid required to fill it is called its **capacity** or volume of the object. Its unit of measurement is m^3 , cm^3 , (inches) 3 etc. The area of the surfaces (plane/curved) of the object is called its surface area. It can be outer/external surface area or inner/internal surface area. If it is not clearly specified, surface area means outer surface area.

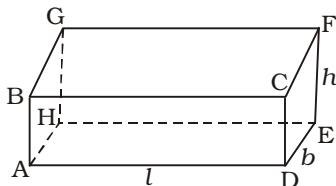
A 2-dimensional figure is a special case or a limiting case of a 3-dimensional object in which its third dimension i.e., depth (or thickness) is negligible in comparison to its other two dimensions i.e., length and breadth.

We illustrate below some important 3-dimensional objects and also write formulae associated with them.

In general we will use l = length, b = breadth, h = height, w = width, r = radius, D = diameter, P = perimeter, A = area, V = volume.

Cuboid

It is made up of 6 rectangular faces. All sides/edges/faces meet at right angle. Pair of opposite faces are equal.



Rule 1:

(a) Volume : $V = l b h$ cubic units

(b) Total Surface Area : $A = 2(lb + bh + lh)$ square units

(c) Face diagonals : $AC = BD = GE = FH = \sqrt{l^2 + h^2}$

(d) $DF = CE = AG = BH = \sqrt{b^2 + h^2}$

(e) $AE = DH = BF = CG = \sqrt{l^2 + b^2}$

(f) Body diagonal or diagonal of the cuboid :

$$AF = BE = DG = CH = \sqrt{l^2 + b^2 + h^2}$$

Rule 2:

(a) Volume = a^3 cubic units

(b) Total Surface Area = $6a^2$ sq. units

$$(c) \text{Volume} = \left(\sqrt{\frac{\text{Surface Area}}{6}} \right)^3 \text{ or, } \left[\sqrt{\frac{S}{6}} \right]^3$$

(d) Face diagonal = $\sqrt{2} a$

(c) Body diagonal or Diagonal of the cube = $\sqrt{3} a$

Rule 3:

(a) Volume = $\pi r^2 h$ cubic units

(b) Area of the curved surface = $2\pi rh$ sq. units

(c) Area of the base = Area of the top = πr^2 sq. units

(d) Total surface area = $(2\pi rh + 2\pi r^2)$ sq. units
= $2\pi r(h + r)$ sq. units

Rule 4:

(a) Volume = $\frac{4}{3} \pi r^3$ cu. units

(b) Surface area = $4\pi r^2$ sq. units

(c) $\frac{A^3}{V^2} = 36\pi$

Rule 5:

(a) Volume = $\frac{2}{3} \pi r^3$ cu. units

(b) Area of the curved surface = $2\pi r^2$ sq. units

(c) Total surface Area = $3\pi r^2$ sq. units

Rule 6:

l = slant height, h = height, r = radius

(a) $l = \sqrt{r^2 + h^2}$

MENSURATION

- (b) $V = \frac{1}{3} \pi r^2 h$ cu. units
 (c) Area of the curved surface = $\pi r l$
 $= \pi r \sqrt{r^2 + h^2}$ sp. units
 (d) Area of the base = πr^2 sq. units
 (e) Total surface area of the cone = $(\pi r l + \pi r^2) = \pi r(l + r)$ sq. units

Rule 7:

- (a) $s = \sqrt{h^2 + (R - r)^2}$
 (b) $V = \frac{\pi h}{3} (R^2 + r^2 + Rr)$ cu. units.
 (c) Area of the curved or slant surface = $\pi(R + r)s$ sq. units
 (d) Total surface area of the frustum = $\pi[(R^2 + r^2) + s(R + r)]$ sq. units

Rule 8:

Volume of material of a cylindrical tube,

- (a) $V = \pi L(r_o^2 - r_i^2)$
 (b) $V = \pi L(r_o + r_i)(r_o - r_i)$
 (c) $V = \pi L(r_o + r_i)t$
 (d) $V = \pi L(2r_i + t)t$
 (e) $V = \pi L(2r_o - t)t$

Rule 1:

- (a) When rectangular sheet is rolled along its length (L) to form a cylinder of height/length W, then the

volume of the cylinder so formed is given by, $V = \frac{WL^2}{4\pi}$

- (b) When it is rolled along its width (W). $V = \frac{LW^2}{4\pi}$

Rule 2:

A well of radius r_i is dug to a depth 'h'. The earth dug out is spread uniformly around the well to form an embankment of width 'w'. Then the height of the embankment so formed is given by, $H = \frac{r_i^2 h}{(2r_i + t)t}$

Rule 3:

- (a) If the length, breadth and height of a cuboid (or cube) are changed by $x\%$, $y\%$ and $z\%$ respectively, then the % change in its volume

$$= \left[x + y + z + \frac{xy + yz + zx}{100} + \frac{xyz}{(100)^2} \right] \%$$

Sign convention : (+ve) for increase, (-ve) for decrease

- (b) When $x = y = z$ i.e; % change is equal in all the sides, then the % change

$$= \left[3x + \frac{3x^2}{(100)} + \frac{x^3}{(100)^2} \right] \% = \left[\left(1 + \frac{x}{100} \right)^3 - 1 \right] \times 100\%$$

Note: This is applicable for sphere, hemisphere, cube, cylinder and cone too.

Rule 4:
Cylinder In case of Cylinder

- (a) If x : % change in radius
 y : % change in height/length
 Then, % change in volume

$$= \left[2x + y + \frac{x^2 + 2xy}{100} + \frac{x^2 y}{(100)^3} \right] \%$$

Note: This can also be obtained from formula (12) by putting $x = z$

$$(b) \text{When } y = 0, \text{ % change in volume} = \left[2x + \frac{x^2}{100} \right] \%$$

$$(c) \text{When } x = 0, \text{ % change in volume} = y\%$$

Note: These are also applicable to cones.

Rule 5:
(Ratio based)

Sphere, Hemisphere, Cube (side : r)

- (i) (a) $V \propto r^3$ (b) $A \propto r^2$ (c) $V^2 \propto A^3$
 or, $V \propto (A)^{3/2}$
 or, $A \propto (V)^{2/3}$

Cylinder $V \propto r^2 h$, $A \propto rh$

- (ii) When h : constant :

$$(a) V \propto r^2 \quad (b) A \propto r \quad (c) V \propto A^2$$

- (iii) When r : constant :

$$(a) V \propto h \quad (b) A \propto h \quad (c) V \propto A$$

- (iv) When V : constant :

$$(a) h \propto \frac{1}{r^2} \quad (b) A \propto (rh)$$

$$r \propto \frac{1}{\sqrt{h}} \quad A \propto \frac{1}{r}$$

$$A \propto \frac{1}{h}$$

- (v) When A : constant :

$$(a) r \propto \frac{1}{h} \quad (b) V \propto r, v \propto \frac{1}{h}$$

Cones

V , A , r , h ratios remain same as for cylinders.

Further,

- (vi) $A \propto$ slant height (l)

$$l \propto \frac{1}{r}, r \propto \frac{1}{l}$$

Rule 6:

- (a) If a sphere of radius R is melted to form smaller spheres of radius ' r '. No. of smaller spheres formed

$$= \left(\frac{R}{r} \right)^3$$

- (b) If n small spheres of radius ' r ' are melted to form a big sphere of radius ' R ', then $R = r \sqrt[n]{n}$

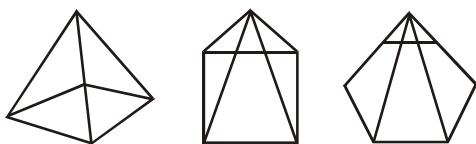
PRISM AND PYRAMID

Importance : Question based on Prism & Pyramid are seldom asked, however these questions are very easy to be solved.

Scope of questions : Questions are related to surface area, volume, length of cloth for wrapping/covering, or based on spherical shape.

Way to success : For these shapes formulae and methods for getting areas and volumes are very useful.

Pyramid :



Rule 1. Volume = $\frac{1}{3} \times (\text{base area}) \times \text{height}$

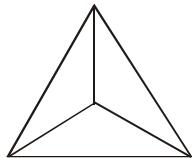
Rule 2. Lateral surface (Triangular) area

$$= \frac{1}{2} \times (\text{Perimeter of base}) \times (\text{lateral height}).$$

Rule 3. Lateral height = $\sqrt{\left(\frac{a}{2}\right)^2 + h^2}$

Where base of rectangle/square/triangle = a and h is the height.

Tetrahedron : A pyramid with regular triangular base is tetrahedron. It is bounded by four regular triangular faces.



Rule 4. ∴ Area of (all three) lateral faces

$$= \frac{3\sqrt{3}}{4} \times (\text{side})^2$$

Rule 5. Total surface area (of all four faces)

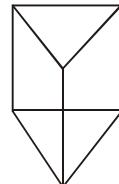
$$= \frac{4\sqrt{3}}{4} \times (\text{side})^2 = \sqrt{3} \times (\text{side})^2$$

Rule 6. Height = $\frac{\sqrt{2}}{\sqrt{3}} \times (\text{side})$

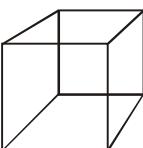
Rule 7. Volume = $\frac{\sqrt{2}}{12} \times (\text{side})^3$

Rule 8.

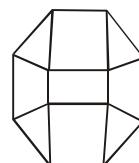
Prism



base triangle



base square rectangle or base hexagon

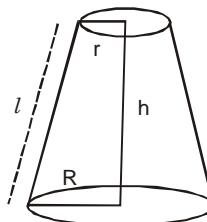


∴ Volume = (base area) × height

Lateral surface area = (perimeter of base) × slant height.

Total surface area = (Perimeter of base × height)
+ 2 × area of base

Frustum :



Rule 9.

$$\text{Volume} = \frac{1}{3} \pi h (R^2 + r^2 + Rr) \text{ or } \frac{1}{3} \pi h [(R+r)^2 - Rr]$$

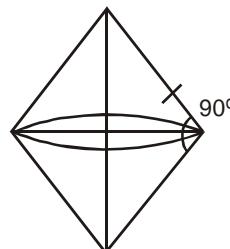
Rule 10. Lateral height (l) = $\sqrt{h^2 + (R-r)^2}$

Rule 11. Area of lateral surface = $\pi(R+r)l$

Rule 12. Area of total surface
 $= \pi[(R+r)l + R^2 + r^2]$

Rule 13. Total surface area of bucket
 $= \pi[(R+r)l + r^2]$

Rule 14. When a figure is made moving a right angle Δ with the hypotenuse around.



$$\text{Volume} = \frac{1}{3} \pi r^2 \times \text{hypotenuse}$$

where $r = \frac{\text{base} \times \text{perpendicular}}{\text{hypotenuse}}$

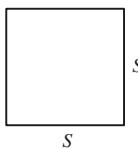
MENSURATION

2D GEOMETRY FORMULAE

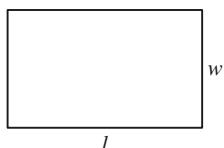
SQUARE

s = side Area: $A = s^2$

Perimeter: $P = 4s$



RECTANGLE



l = length, w = width

Area : $A = lw$

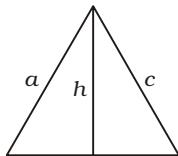
Perimeter : $P = 2l + 2w$

TRIANGLE

b = base, h = height

Area : $A = \frac{1}{2}bh$

Perimeter : $P = a + b + c$

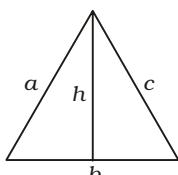


EQUILATERAL TRIANGLE

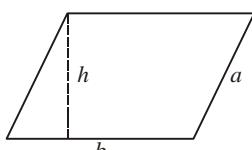
s = side

Height: $h = \frac{\sqrt{3}}{2}s$

Area : $A = \frac{\sqrt{3}}{4}s^2$



PARALLELOGRAM

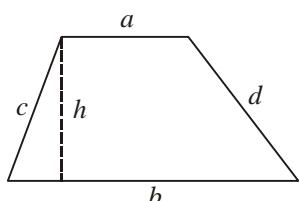


b = base, h = height, a = side

Area : $A = bh$

Perimeter : $P = 2a + 2b$

TRAPEZIUM

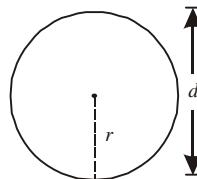


a, b = bases; h = height; c, d = sides

Area: $A = \frac{1}{2} (a + b) h$

Perimeter : $P = a + b + c + d$

CIRCLE



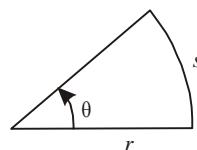
r = radius, d = diameter

Diameter : $d = 2r$

Area: $A = \pi r^2$

Circumference : $C = 2\pi r = \pi d$

SECTOR OF CIRCLE



r = radius, θ = angle in radians

Area : $A = \frac{1}{2} \pi r^2 \theta$

Arc Length : $s = \theta r$

ELLIPSE

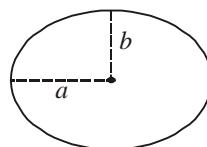
a = semimajor axis

b = semiminor axis

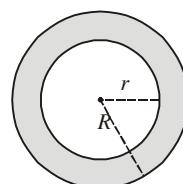
Area : $A = \pi ab$

Circumference :

$$C \approx \pi \left(3(a+b) - \sqrt{(a+3b)(b+3a)} \right)$$



ANNULUS



r = inner radius, R = outer radius

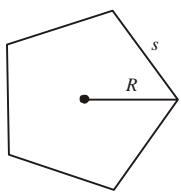
Average Radius : $\rho = \frac{1}{2}(r+R)$

Width : $w = R - r$

Area : $A = \pi(R^2 - r^2)$ or $A = 2 \pi \rho w$

MENSURATION

REGULAR POLYGON



s = side length, n = number of sides

$$\text{Circumradius: } R = \frac{1}{2} s \cos\left(\frac{\pi}{n}\right)$$

$$\text{Area : } A = \frac{1}{4} n s^2 \cot\left(\frac{\pi}{n}\right)$$

$$\text{or } A = \frac{1}{2} n R^2 \sin\left(\frac{2\pi}{n}\right)$$

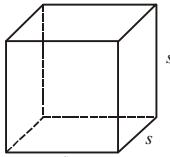
3D GEOMETRY FORMULAE

CUBE

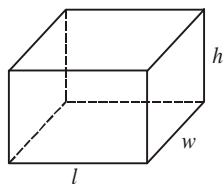
s = side

$$\text{Volume: } V = s^3$$

$$\text{Surface Area: } S = 6s^2$$



RECTANGULAR SOLID



l = length, w = width,

h = height

$$\text{Volume : } V = lwh$$

Surface Area :

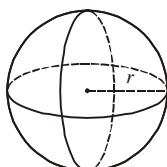
$$S = 2lw + 2lh + 2wh$$

SPHERE

r = radius

$$\text{Volume: } V = \frac{4}{3} \pi r^3$$

$$\text{Surface Area : } S = 4\pi r^2$$



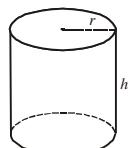
RIGHT CIRCULAR CYLINDER

r = radius, h = height

$$\text{Volume: } V = \pi r^2 h$$

Surface Area:

$$S = 2\pi rh + 2\pi r^2$$

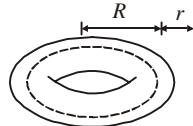


TORUS

r = tube radius,

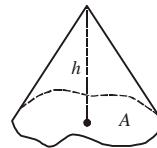
R = torus radius

$$\text{Volume: } V = 2\pi^2 r^2 R$$



$$\text{Surface Area : } S = 4\pi^2 r R$$

PYRAMID



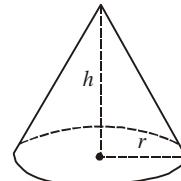
A = area of base, h = height

$$\text{Volume: } V = \frac{1}{3} Ah$$

RIGHT CIRCULAR CONE

r = radius, h = height

$$\text{Volume: } V = \frac{1}{3} \pi r^2 h$$



Surface Area :

$$S = \pi r \sqrt{r^2 + h^2} + \pi r^2$$

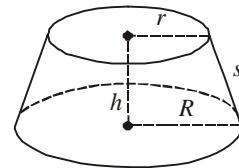
FRUSTUM OF A CONE

r = top radius,

R = base radius,

h = height,

s = slant height



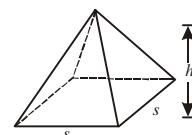
$$\text{Volume: } V = \frac{\pi}{3} (r^2 + rR + R^2)h$$

$$\text{Surface Area : } S = \pi s(R + r) + \pi r^2 + \pi R^2$$

SQUARE PYRAMID

s = side, h = height

$$\text{Volume : } V = \frac{1}{3} s^2 h$$

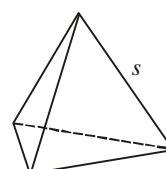


$$\text{Surface Area : } S = s(s + \sqrt{s^2 + 4h^2})$$

REGULAR TETRAHEDRON

s = side

$$\text{Volume : } V = \frac{1}{12} \sqrt{2s^3}$$



$$\text{Surface Area: } S = \sqrt{3}s^2$$

QUESTIONS ASKED IN PREVIOUS SSC EXAMS

TYPE -I

- 1.** If the length of the diagonal AC of a square ABCD is 5.2 cm, then the area of the square is :
 (1) 15.12 sq.cm
 (2) 13.52 sq.cm
 (3) 12.62 sq.cm
 (4) 10.00 sq.cm.

(SSC CGL Prelim Exam. 04.07.1999
 (First Sitting)

- 2.** The length of the diagonal of a square is 'a' cm. Which of the following represents the area of the square (in sq. cm.) ?

$$\begin{array}{ll} (1) 2a & (2) \frac{a}{\sqrt{2}} \\ (3) a^2/2 & (4) a^2/4 \end{array}$$

(SSC CGL Prelim Exam. 04.07.1999
 (Second Sitting)

- 3.** The diagonal of a square is $4\sqrt{2}$ cm. The diagonal of another square whose area is double that of the first square is :

$$\begin{array}{ll} (1) 8\sqrt{2} \text{ cm} & (2) 16 \text{ cm} \\ (3) \sqrt{32} \text{ cm} & (4) 8 \text{ cm} \end{array}$$

(SSC CGL Prelim Exam. 24.02.2002 &
 13.11.2005 (IIInd Sitting)

- 4.** The diagonal of a square A is $(a+b)$. The diagonal of a square whose area is twice the area of square A, is

$$\begin{array}{ll} (1) 2(a+b) & (2) 2(a+b)^2 \\ (3) \sqrt{2}(a+b) & (4) \sqrt{2}(a-b) \end{array}$$

(SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone)

- 5.** The difference of the areas of two squares drawn on two line segments of different lengths is 32 sq.cm. Find the length of the greater line segment if one is longer than the other by 2 cm.

$$\begin{array}{ll} (1) 7 \text{ cm} & (2) 9 \text{ cm} \\ (3) 11 \text{ cm} & (4) 16 \text{ cm} \end{array}$$

(SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting)

- 6.** If the diagonals of two squares are in the ratio of 2 : 5, their area will be in the ratio of

$$\begin{array}{ll} (1) \sqrt{2} : \sqrt{5} & (2) 2 : 5 \\ (3) 4 : 25 & (4) 4 : 5 \end{array}$$

(SSC Section Officer (Commercial Audit) Exam. 16.11.2003)

- 7.** The perimeter of five squares are 24 cm, 32 cm, 40 cm, 76 cm and 80 cm respectively. The perimeter of another square equal in area to sum of the areas of these squares is :
 (1) 31 cm (2) 62 cm
 (3) 124 cm (4) 961 cm

(SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting)

- 8.** The ratio of the area of a square to that of the square drawn on its diagonal is :

$$\begin{array}{ll} (1) 1 : 1 & (2) 1 : 2 \\ (3) 1 : 3 & (4) 1 : 4 \end{array}$$

(SSC CGL Prelim Exam. 13.11.2005
 (First Sitting)

- 9.** From four corners of a square sheet of side 4 cm, four pieces, each in the shape of arc of a circle with radius 2 cm, are cut out. The area of the remaining portion is :

$$\begin{array}{ll} (1) (8-\pi) \text{ sq.cm.} & (2) (16-4\pi) \text{ sq.cm.} \\ (3) (16-8\pi) \text{ sq.cm.} & (4) (4-2\pi) \text{ sq.cm.} \end{array}$$

FCI Assistant Grade-III
 Exam. 05.02.2012 (Paper-I)
 East Zone (IIInd Sitting)

- 10.** The length of diagonal of a square is $15\sqrt{2}$ cm. Its area is

$$\begin{array}{ll} (1) 112.5 \text{ cm}^2 & (2) 450 \text{ cm}^2 \\ (3) \frac{225\sqrt{2}}{2} \text{ cm}^2 & (4) 225 \text{ cm}^2 \end{array}$$

- 11.** A kite in the shape of a square with a diagonal 32 cm attached to an equilateral triangle of the base 8 cm. Approximately how much paper has been used to make it? (Use $\sqrt{3} = 1.732$)

$$\begin{array}{ll} (1) 539.712 \text{ cm}^2 & (2) 538.721 \text{ cm}^2 \\ (3) 540.712 \text{ cm}^2 & (4) 539.217 \text{ cm}^2 \end{array}$$

(SSC CHSL DEO & LDC
 Exam. 27.10.2013 IIInd Sitting)
 (SSC CHSL DEO & LDC
 Exam. 28.11.2010 (IIInd Sitting))

- 12.** The breadth of a rectangular hall is three-fourth of its length. If the area of the floor is 768 sq. m., then the difference between the length and breadth of the hall is:

- (1) 8 metres (2) 12 metres
 (3) 24 metres (4) 32 metres
 (SSC CGL Prelim Exam. 04.07.1999
 (First Sitting))

- 13.** The length of a plot is five times its breadth. A playground measuring 245 square metres occupies half of the total area of the plot. What is the length of the plot?

- (1) $35\sqrt{2}$ metres (2) $175\sqrt{2}$ metres
 (3) 490 metres (4) $5\sqrt{2}$ metres
 (SSC CGL Prelim Exam. 27.02.2000
 (First Sitting))

- 14.** The length of a rectangular garden is 12 metres and its breadth is 5 metres. Find the length of the diagonal of a square garden having the same area as that of the rectangular garden :

- (1) $2\sqrt{30}$ m (2) $\sqrt{13}$ m
 (3) 13 m (4) $8\sqrt{15}$ m
 (SSC CGL Prelim Exam. 24.02.2002
 (First Sitting))

- 15.** A circular wire of diameter 42 cm is folded in the shape of a rectangle whose sides are in the ratio 6 : 5 . Find the area enclosed

- by the rectangle. (Take $\pi = \frac{22}{7}$)
 (1) 540 cm² (2) 1080 cm²
 (3) 2160 cm² (4) 4320 cm²
 (SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone) & (SSC CGL Prelim
 Exam. 13.11.2005 (IIInd Sitting))

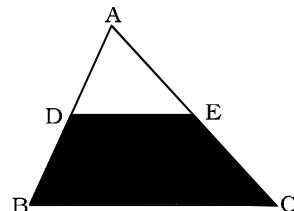
- 16.** A took 15 sec. to cross a rectangular field diagonally walking at the rate of 52 m/min. and B took the same time to cross the same field along its sides walking at the rate of 68 m/min. The area of the field is :

- (1) 30 m² (2) 40 m²
 (3) 50 m² (4) 60 m²
 (SSC CGL Prelim Exam. 11.05.2003
 (First Sitting))

- 17.** The difference between the length and breadth of a rectangle is 23 m. If its perimeter is 206 m, then its area is

- (1) 1520 m² (2) 2420 m²
 (3) 2480 m² (4) 2520 m²
 (SSC Section Officer (Commercial
 Audit) Exam. 16.11.2003)

MENSURATION

- 18.** There is a rectangular tank of length 180 m and breadth 120 m in a circular field. If the area of the land portion of the field is 40000 m², what is the radius of the field ? (Take $\pi = \frac{22}{7}$)
- (1) 130 m (2) 135 m
 (3) 140 m (4) 145 m
- (SSC CGL Prelim Exam. 08.02.2004
 (First Sitting)
- 19.** The length of a rectangular hall is 5m more than its breadth. The area of the hall is 750m². The length of the hall is :
- (1) 15 m (2) 22.5 m
 (3) 25 m (4) 30 m
- (SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting)
- 20.** If the length and breadth of a rectangle are in the ratio 3 : 2 and its perimeter is 20 cm, then the area of the rectangle (in cm²) is :
- (1) 24 (2) 48
 (3) 72 (4) 96
- (SSC CGL Prelim Exam. 13.11.2005
 (First Sitting)
- 21.** A path of uniform width runs round the inside of a rectangular field 38 m long and 32 m wide. If the path occupies 600m², then the width of the path is
- (1) 30 m (2) 5 m
 (3) 18.75 m (4) 10 m
- (SSC CGL Prelim Exam. 04.02.2007
 (First Sitting)
- 22.** The length and breadth of a rectangle are increased by 20% and 25% respectively. The increase in the area of the resulting rectangle will be :
- (1) 60% (2) 50%
 (3) 40% (4) 30%
- (SSC CHSL DEO & LDC Exam. 27.11.2010)
- 23.** The length of a room floor exceeds its breadth by 20 m. The area of the floor remains unaltered when the length is decreased by 10 m but the breadth is increased by 5 m. The area of the floor (in square metres) is :
- (1) 280 (2) 325
 (3) 300 (4) 420
- (SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (East Zone))
- 24.** A street of width 10 metres surrounds from outside a rectangular garden whose measurement is 200 m × 180 m. The area of the path (in square metres) is
- (1) 8000 (2) 7000
 (3) 7500 (4) 8200
- (SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (Ist Sitting))
- 25.** In measuring the sides of a rectangle, there is an excess of 5% on one side and 2% deficit on the other. Then the error percent in the area is
- (1) 3.3% (2) 3.0%
 (3) 2.9% (4) 2.7%
- (SSC Multi-Tasking (Non-Technical) Staff Exam. 22.02.2011)
- 26.** A lawn is in the form of a rectangle having its breadth and length in the ratio 3 : 4. The area of the lawn is $\frac{1}{12}$ hectare. The breadth of the lawn is
- (1) 25 metres (2) 50 metres
 (3) 75 metres (4) 100 metres
- (SSC Graduate Level Tier-II Exam. 29.09.2013)
- 27.** The area of a rectangle is thrice that of a square. The length of the rectangle is 20 cm and the breadth of the rectangle is $\frac{3}{2}$ times that of the side of the square. The side of the square, (in cm) is
- (1) 10 (2) 20
 (3) 30 (4) 60
- (SSC Graduate Level Tier-II Exam. 29.09.2013)
- 28.** The length and breadth of a rectangular field are in the ratio 7 : 4. A path 4 m wide running all around outside has an area of 416 m². The breadth (in m) of the field is
- (1) 28 (2) 14
 (3) 15 (4) 16
- (SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)
- 29.** ABC is a triangle with base AB. D is a point on AB such that AB = 5 and DB = 3. What is the ratio of the area of $\triangle ADC$ to the area of $\triangle ABC$?
- (1) 3/2 (2) 2/3
 (3) 3/5 (4) 2/5
- (SSC CGL Prelim Exam. 27.02.2000
 (First Sitting))
- 30.** If the area of a triangle is 1176 cm² and base : corresponding altitude is 3 : 4, then the altitude of the triangle is :
- (1) 42 cm (2) 52 cm
 (3) 54 cm (4) 56 cm
- (SSC CGL Prelim Exam. 27.02.2000
 (Second Sitting))
- 31.** The base of a triangle is 15 cm and height is 12 cm. The height of another triangle of double the area having the base 20 cm is :
- (1) 9 cm (2) 18 cm
 (3) 8 cm (4) 12.5 cm
- (SSC CGL Prelim Exam. 24.02.2002
 (First Sitting))
- 32.** The sides of a triangle are 3 cm, 4 cm and 5 cm. The area (in cm²) of the triangle formed by joining the mid points of this triangle is :
- (1) 6 (2) 3
 (3) $\frac{3}{2}$ (4) $\frac{3}{4}$
- (SSC CGL Prelim Exam. 11.05.2003
 (First Sitting))
- 33.** If D and E are the mid-points of the side AB and AC respectively of the $\triangle ABC$ in the figure given here, the shaded region of the triangle is what per cent of the whole triangular region?
- 
- (1) 50% (2) 25%
 (3) 75% (4) 60%
- (SSC CGL Prelim Exam. 08.02.2004
 (First Sitting))
- 34.** The ratio of base of two triangles is $x : y$ and that of their areas is $a : b$. Then the ratio of their corresponding altitudes will be:
- (1) $\frac{a}{x} : \frac{b}{y}$ (2) $ax : by$
 (3) $ay : bx$ (4) $\frac{x}{a} : \frac{b}{y}$
- (SSC CGL Prelim Exam. 08.02.2004
 (First Sitting))

MENSURATION

35. The diagonal of a right angle isosceles triangle is 5 cm. Its area will be

- (1) 5 sq.cm (2) 6.25 sq.cm
 (3) 6.50 sq.cm (4) 12.5 sq.cm

(SSC Section Officer (Commercial Audit) Exam. 25.09.2005)

36. In an isosceles triangle, the measure of each of equal sides is 10 cm and the angle between them is 45° . the area of the triangle is

- (1) 25 cm^2 (2) $\frac{25}{2}\sqrt{2} \text{ cm}^2$
 (3) $25\sqrt{2} \text{ cm}^2$ (4) $25\sqrt{3} \text{ cm}^2$

(SSC CPO S.I. Exam. 03.09.2006)

37. From a point in the interior of an equilateral triangle, the length of the perpendiculars to the three sides are 6 cm, 8 cm and 10 cm respectively. The area of the triangle is

- (1) 48 cm^2 (2) $16\sqrt{3} \text{ cm}^2$
 (3) $192\sqrt{3} \text{ cm}^2$ (4) 192 cm^2

(SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (Second Sitting))

38. The area of two equilateral triangles are in the ratio 25 : 36. Their altitudes will be in the ratio :

- (1) 36 : 25 (2) 25 : 36
 (3) 5 : 6 (4) $\sqrt{5} : \sqrt{6}$

(SSC CPO S.I. Exam. 16.12.2007)

39. ABC is an equilateral triangle of side 2 cm. With A, B, C as centre and radius 1 cm three arcs are drawn. The area of the region within the triangle bounded by the three arcs is

- (1) $\left(3\sqrt{3} - \frac{\pi}{2}\right) \text{ cm}^2$
 (2) $\left(\sqrt{3} - \frac{3\pi}{2}\right) \text{ cm}^2$
 (3) $\left(\sqrt{3} - \frac{\pi}{2}\right) \text{ cm}^2$
 (4) $\left(\frac{\pi}{2} - \sqrt{3}\right) \text{ cm}^2$

(SSC CGL Prelim Exam. 27.07.2008 (First Sitting))

40. The area of a right-angled isosceles triangle having hypotenuse $16\sqrt{2}$ cm is

- (1) 144 cm^2 (2) 128 cm^2
 (3) 112 cm^2 (4) 110 cm^2

(SSC (South Zone) Investigator Exam. 12.09.2010)

41. The sides of a triangle are in the ratio 2 : 3 : 4. The perimeter of the triangle is 18 cm. The area (in cm^2) of the triangle is

- (1) 9 (2) 36
 (3) $\sqrt{42}$ (4) $3\sqrt{15}$

(SSC CGL Tier-1 Exam. 19.06.2011 (Second Sitting))

42. If the numerical value of the perimeter of an equilateral triangle is $\sqrt{3}$ times the area of it, then the length of each side of the triangle is

- (1) 2 units (2) 3 units
 (3) 4 units (4) 6 units

FCI Assistant Grade-III Exam. 25.02.2012 (Paper-I) North Zone (Ist Sitting)

43. Each side of an equilateral triangle is 6 cm. Find its area.

- (1) $9\sqrt{3}$ sq.cm. (2) $6\sqrt{3}$ sq.cm.
 (3) $4\sqrt{3}$ sq.cm. (4) $8\sqrt{3}$ sq.cm.

FCI Assistant Grade-III Exam. 05.02.2012 (Paper-I) East Zone (IIInd Sitting)

44. If a triangle with base 8 cm has the same area as a circle with radius 8 cm, then the corresponding altitude (in cm) of the triangle is

- (1) 12π (2) 20π
 (3) 16π (4) 32π

(SSC Data Entry Operator Exam. 02.08.2009)

45. The measures (in cm) of sides of a right angled triangle are given by consecutive integers. Its area (in cm^2) is

- (1) 9 (2) 8
 (3) 5 (4) 6

(SSC Data Entry Operator Exam. 02.08.2009)

46. The area of an equilateral triangle is $4\sqrt{3}$ cm^2 . The length of each side of the triangle is :

- (1) 3 cm (2) $2\sqrt{2}$ cm
 (3) $2\sqrt{3}$ cm (4) 4 cm

(SSC CHSL DEO & LDC Exam. 27.11.2010)

47. The length of three medians of a triangle are 9 cm, 12 cm and 15 cm. The area (in sq. cm) of the triangle is

- (1) 24 (2) 72
 (3) 48 (4) 144

(SSC Graduate Level Tier-II Exam. 16.09.2012)

48. The area of the triangle formed by the straight line $3x + 2y = 6$ and the co-ordinate axes is

- (1) 3 square units
 (2) 6 square units
 (3) 4 square units
 (4) 8 square units

(SSC Graduate Level Tier-II Exam. 16.09.2012)

49. The ratio of length of each equal side and the third side of an isosceles triangle is 3 : 4. If the area of the triangle is $18\sqrt{5}$ square units, the third side is

- (1) 16 units (2) $5\sqrt{10}$ units
 (3) $8\sqrt{2}$ units (4) 12 units

(SSC CHSL DEO & LDC Exam. 21.10.2012 (Ist Sitting))

50. The ratio of sides of a triangle is 3 : 4 : 5. If area of the triangle is 72 square unit, then the length of the smallest side is :

- (1) $4\sqrt{3}$ unit (2) $5\sqrt{3}$ unit
 (3) $6\sqrt{3}$ unit (4) $3\sqrt{3}$ unit

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IIInd Sitting))

51. If the length of each side of an equilateral triangle is increased by 2 unit, the area is found to be increased by $3 + \sqrt{3}$ square unit. The length of each side of the triangle is

- (1) $\sqrt{3}$ unit (2) 3 unit
 (3) $3\sqrt{3}$ unit (4) $1 + 3\sqrt{3}$ unit

(SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting))

52. What is the area of the triangle whose sides are 9cm, 10cm and 11cm?

- (1) 30 cm^2 (2) 60 cm^2
 (3) $30\sqrt{2} \text{ cm}^2$ (4) $60\sqrt{2} \text{ cm}^2$

(SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting))

53. The area of an isosceles triangle is 4 square unit. If the length of the third side is 2 unit, the length of each equal side is

- (1) 4 units (2) $2\sqrt{3}$ units
 (3) $\sqrt{17}$ units (4) $3\sqrt{2}$ units

(SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting))

MENSURATION

54. The ratio of sides of a triangle is 3:4:5 and area of the triangle is 72 square unit. Then the area of an equilateral triangle whose perimeter is same as that of the previous triangle is

- (1) $32\sqrt{3}$ square units
- (2) $48\sqrt{3}$ square units
- (3) 96 square units
- (4) $60\sqrt{3}$ square units

(SSC CHSL DEO & LDC Exam. 04.11.2012 (IInd Sitting))

55. A right angled isosceles triangle is inscribed in a semi-circle of radius 7 cm. The area enclosed by the semi-circle but exterior to the triangle is

- (1) 14 cm^2
- (2) 28 cm^2
- (3) 44 cm^2
- (4) 68 cm^2

(SSC Delhi Police S.I. Exam. 19.08.2012)

56. What is the area of a triangle having perimeter 32cm, one side 11cm and difference of other two sides 5cm?

- (1) $8\sqrt{30}\text{ cm}^2$
- (2) $5\sqrt{35}\text{ cm}^2$
- (3) $6\sqrt{30}\text{ cm}^2$
- (4) $8\sqrt{2}\text{ cm}^2$

(SSC Delhi Police S.I. (SI) Exam. 19.08.2012)

57. The area (in sq. unit) of the triangle formed in the first quadrant by the line $3x + 4y = 12$ is

- (1) 8
- (2) 12
- (3) 6
- (4) 4

(SSC FCI Assistant Grade-III Main Exam. 07.04.2013)

58. The height of an equilateral triangle is 15 cm. The area of the triangle is

- (1) $50\sqrt{3}$ sq. cm.
- (2) $70\sqrt{3}$ sq. cm.
- (3) $75\sqrt{3}$ sq. cm.
- (4) $150\sqrt{3}$ sq. cm.

(SSC Graduate Level Tier-I Exam. 19.05.2013)

59. The area of an equilateral triangle is $9\sqrt{3}\text{ m}^2$. The length (in m) of the median is

- (1) $2\sqrt{3}$
- (2) $3\sqrt{3}$
- (3) $3\sqrt{2}$
- (4) $2\sqrt{2}$

(SSC Graduate Level Tier-II Exam. 29.09.2013)

60. The sides of a triangle are 16 cm, 12 cm and 20 cm. Find the area.

- (1) 64 cm^2
- (2) 112 cm^2
- (3) 96 cm^2
- (4) 81 cm^2

(SSC CHSL DEO & LDC Exam. 20.10.2013)

61. 360 sq. cm and 250 sq. cm are the area of two similar triangles. If the length of one of the sides of the first triangle be 8 cm, then the length of the corresponding side of the second triangle is

- (1) $6\frac{1}{5}\text{ cm}$
- (2) $6\frac{1}{3}\text{ cm}$
- (3) $6\frac{2}{3}\text{ cm}$
- (4) 6 cm

(SSC CHSL DEO & LDC Exam. 20.10.2013)

62. The perimeter of an isosceles triangle is 544 cm and each of the

equal sides is $\frac{5}{6}$ times the base.

What is the area (in cm^2) of the triangle?

- (1) 38172
- (2) 18372
- (3) 31872
- (4) 13872

(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

63. The altitude drawn to the base of an isosceles triangle is 8 cm and its perimeter is 64 cm. The area (in cm^2) of the triangle is

- (1) 240
- (2) 180
- (3) 360
- (4) 120

(SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting)

64. The perimeter of a rhombus is 40 m and its height is 5 m. Its area is :

- (1) 60 m^2
- (2) 50 m^2
- (3) 45 m^2
- (4) 55 m^2

(SSC CGL Prelim Exam. 11.05.2003 (First Sitting))

65. The area of a field in the shape of a trapezium measures 1440 m^2 . The perpendicular distance between its parallel sides is 24 m. If the ratio of the parallel sides is 5 : 3, the length of the longer parallel side is :

- (1) 75 m
- (2) 45 m
- (3) 120 m
- (4) 60 m

(SSC CGL Prelim Exam. 08.02.2004 (First Sitting))

66. The area of a rhombus is 150 cm^2 . The length of one of its diagonals is 10 cm. The length of the other diagonal is :

- (1) 25 cm
- (2) 30 cm
- (3) 35 cm
- (4) 40 cm

(SSC CGL Prelim Exam. 08.02.2004 (Second Sitting))

67. The perimeter of a rhombus is 100 cm. If one of its diagonals is 14 cm, then the area of the rhombus is

- (1) 144 cm^2
- (2) 225 cm^2
- (3) 336 cm^2
- (4) 400 cm^2

(SSC Data Entry Operator Exam. 31.08.2008)

68. If the measure of one side and one diagonal of a rhombus are 10 cm and 16 cm respectively, then its area (in cm^2) is :

- (1) 60
- (2) 64
- (3) 96
- (4) 100

(SSC CHSL DEO & LDC Exam. 28.11.2010 (Ist Sitting))

69. The ratio of the length of the parallel sides of a trapezium is 3:2. The shortest distance between them is 15 cm. If the area of the trapezium is 450 cm^2 , the sum of the length of the parallel sides is

- (1) 15 cm
- (2) 36 cm
- (3) 42 cm
- (4) 60 cm

(SSC Multi-Tasking (Non-Technical) Staff Exam. 27.02.2011)

70. A parallelogram has sides 15 cm and 7 cm long. The length of one of the diagonals is 20 cm. The area of the parallelogram is

- (1) 42 cm^2
- (2) 60 cm^2
- (3) 84 cm^2
- (4) 96 cm^2

(SSC Multi-Tasking (Non-Technical) Staff Exam. 27.02.2011)

71. Sides of a parallelogram are in the ratio 5 : 4. Its area is 1000 sq. units. Altitude on the greater side is 20 units. Altitude on the smaller side is

- (1) 30 units
- (2) 25 units
- (3) 10 units
- (4) 15 units

(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (Delhi Zone)))

72. The perimeter of a rhombus is 40 cm and the measure of an angle is 60° , then the area of it is :

- (1) $100\sqrt{3}\text{ cm}^2$
- (2) $50\sqrt{3}\text{ cm}^2$
- (3) $160\sqrt{3}\text{ cm}^2$
- (4) 100 cm^2

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting (Delhi Zone)))

MENSURATION

- 73.** The parallel sides of a trapezium are in a ratio 2 : 3 and their shortest distance is 12 cm. If the area of the trapezium is 480 sq. cm., the longer of the parallel sides is of length :
- (1) 56 cm (2) 36 cm
 (3) 42 cm (4) 48 cm
 (SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting))
- 74.** If the sum of the length, breadth and height of a rectangular parallelopiped is 24 cm and the length of its diagonal is 15 cm, then its total surface area is
- (1) 256 cm² (2) 265 cm²
 (3) 315 cm² (4) 351 cm²
 (SSC Multi-Tasking Staff Exam. 17.03.2013, IInd Sitting)
- 75.** The perimeter of a non-square rhombus is 20 cm. One of its diagonal is 8 cm. The area of the rhombus is
- (1) 28 sq cm (2) 20 sq cm
 (3) 22 sq cm (4) 24 sq cm
 (SSC FCI Assistant Grade-III Main Exam. 07.04.2013)
- 76.** The perimeter of a rhombus is 100 cm and one of its diagonals is 40 cm. Its area (in cm²) is
- (1) 1200 (2) 1000
 (3) 600 (4) 500
 (SSC CHSL DEO & LDC Exam. 27.10.2013 IInd Sitting)
- 77.** In $\triangle ABC$, D and E are the points of sides AB and BC respectively such that $DE \parallel AC$ and $AD : DB = 3 : 2$. The ratio of area of trapezium ACED to that of $\triangle BED$ is
- (1) 4 : 15 (2) 15 : 4
 (3) 4 : 21 (4) 21 : 4
 (SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)
- 78.** ABCD is a trapezium in which $AB \parallel DC$ and $AB = 2 CD$. The diagonals AC and BD meet at O. The ratio of area of triangles AOB and COD is
- (1) 1 : 1 (2) 1 : $\sqrt{2}$
 (3) 4 : 1 (4) 1 : 4
 (SSC CHSL DEO & LDC Exam. 10.11.2013, IInd Sitting)
- 79.** The length of each side of a rhombus is equal to the length of the side of a square whose diagonal is $40\sqrt{2}$ cm. If the length of the diagonals of the rhombus are in the ratio 3 : 4, then its area (in cm²) is
- (1) 1550 (2) 1600
 (3) 1535 (4) 1536
 (SSC CHSL DEO & LDC Exam. 10.11.2013 (IInd Sitting))
- 80.** The area of a regular hexagon of side $2\sqrt{3}$ cm is :
- (1) $18\sqrt{3}$ cm² (2) $12\sqrt{3}$ cm²
 (3) $36\sqrt{3}$ cm² (4) $27\sqrt{3}$ cm²
 (SSC CGL Prelim Exam. 08.02.2004 (First Sitting))
- 81.** Each side of a regular hexagon is 1 cm. The area of the hexagon is
- (1) $\frac{3\sqrt{3}}{2}$ cm² (2) $\frac{3\sqrt{3}}{4}$ cm²
 (3) $4\sqrt{3}$ cm² (4) $3\sqrt{2}$ cm²
 (SSC CPO S.I. Exam. 05.09.2004)
- 82.** An equilateral triangle of side 6 cm has its corners cut off to form a regular hexagon. Area (in cm²) of this regular hexagon will be
- (1) $3\sqrt{3}$ (2) $3\sqrt{6}$
 (3) $6\sqrt{3}$ (4) $\frac{5\sqrt{3}}{2}$
 (SSC CGL Tier-I Exam. 16.05.2010 (First Sitting))
- 83.** The ratio of the area of a regular hexagon and an equilateral triangle having same perimeter is
- (1) 2 : 3 (2) 6 : 1
 (3) 3 : 2 (4) 1 : 6
 (SSC MTS (Non-Technical Exam. 20.02.2011) & (SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone)))
- 84.** The area of a sector of a circle of radius 5 cm, formed by an arc of length 3.5 cm is :
- (1) 8.5 cm² (2) 8.75 cm²
 (3) 7.75 cm² (4) 7.50 cm²
 (SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))
- 85.** The area (in sq. cm.) of the largest circle that can be drawn inside a square of side 28 cm, is :
- (1) 17248 (2) 784
 (3) 8624 (4) 616
 (SSC CGL Prelim Exam. 27.02.2000 (First Sitting))
- 86.** If the circumference of a circle increases from 4π to 8π , what change occurs in its area?
- (1) It doubles (2) It triples
 (3) It quadruples (4) It is halved
 (SSC CGL Prelim Exam. 27.02.2000 (First Sitting))
- 87.** The area of the ring between two concentric circles, whose circumference are 88 cm and 132 cm, is :
- (1) 780 cm² (2) 770 cm²
 (3) 715 cm² (4) 660 cm²
 (SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))
- 88.** Three circles of radius 3.5 cm each are placed in such a way that each touches the other two. The area of the portion enclosed by the circles is
- (1) 1.975 cm² (2) 1.967 cm²
 (3) 19.67 cm² (4) 21.21 cm²
 (SSC CGL Prelim Exam. 11.05.2003 (Second Sitting))
- 89.** The area of a circular garden is 2464 sq.m. How much distance will have to be covered if you like to cross the garden along its diameter ? (Use $\pi = \frac{22}{7}$)
- (1) 56 m (2) 48 m
 (3) 28 m (4) 24 m
 (SSC CPO S.I. Exam. 07.09.2003)
- 90.** Four equal circles each of radius 'a' units touch one another. The area enclosed between them ($\pi = \frac{22}{7}$), in square units, is
- (1) $3a^2$ (2) $\frac{6a^2}{7}$
 (3) $\frac{41a^2}{7}$ (4) $\frac{a^2}{7}$
 (SSC CPO S.I. Exam. 07.09.2003)
- 91.** Three coins of the same size (radius 1 cm) are placed on a table such that each of them touches the other two. The area enclosed by the coins is
- (1) $\left(\frac{\pi}{2} - \sqrt{3}\right)cm^2$
 (2) $\left(\sqrt{3} - \frac{\pi}{2}\right)cm^2$
 (3) $\left(2\sqrt{3} - \frac{\pi}{2}\right)cm^2$
 (4) $\left(3\sqrt{3} - \frac{\pi}{2}\right)cm^2$
 (SSC CGL Prelim Exam. 08.02.2004 (First Sitting))

MENSURATION

92. The area of the largest triangle, that can be inscribed in a semi-circle of radius r cm, is

- (1) $2r \text{ cm}^2$ (2) $r^2 \text{ cm}^2$
 (3) $2r^2 \text{ cm}^2$ (4) $\frac{1}{2} r^2 \text{ cm}^2$

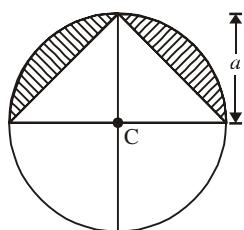
(SSC CPO S.I. Exam. 05.09.2004)

93. The area of circle whose radius is 6 cm is trisected by two concentric circles. The radius of the smallest circle is

- (1) $2\sqrt{3}$ cm (2) $2\sqrt{6}$ cm
 (3) 2 cm (4) 3 cm

(SSC CPO S.I. Exam. 03.09.2006)

94. The area of the shaded region in the figure given below is



- (1) $\frac{a^2}{2} \left(\frac{\pi}{2} - 1 \right)$ sq. units
 (2) $a^2 (\pi - 1)$ sq. units
 (3) $a^2 \left(\frac{\pi}{2} - 1 \right)$ sq. units
 (4) $\frac{a^2}{2} (\pi - 1)$ sq. units

(SSC CGL Prelim Exam. 04.02.2007
 (First Sitting))

95. The area of a circle is increased by 22 cm² its radius is increased by 1 cm. The original radius of the circle is

- (1) 6 cm (2) 3.2 cm
 (3) 3 cm (4) 3.5 cm

(SSC CGL Prelim Exam. 04.02.2007
 (First Sitting))

96. The radius of circle A is twice that of circle B and the radius of circle B is twice that of circle C. Their area will be in the ratio

- (1) 16 : 4 : 1 (2) 4 : 2 : 1
 (3) 1 : 2 : 4 (4) 1 : 4 : 16

(SSC CPO S.I. Exam. 06.09.2009)

97. The circumference of a circle is 11 cm and the angle of a sector of the circle is 60° . The area of

the sector is $\frac{22}{7}$)

- (1) $1\frac{29}{48} \text{ cm}^2$ (2) $2\frac{29}{48} \text{ cm}^2$

- (3) $1\frac{27}{48} \text{ cm}^2$ (4) $2\frac{27}{48} \text{ cm}^2$

(SSC Data Entry Operator Exam. 31.08.2008)

98. A 7 m wide road runs outside around a circular park, whose circumference is 176 m. The area of the road is :

[use $\pi = \frac{22}{7}$]

- (1) 1386 m² (2) 1472 m²

- (3) 1512 m² (4) 1760 m²

(SSC CHSL DEO & LDC Exam. 27.11.2010)

99. The four equal circles of radius 4 cm drawn on the four corners of a square touch each other externally. Then the area of the portion between the square and the four sectors is

- (1) $9(\pi - 4)$ sq. cm.
 (2) $16(\pi - 4)$ sq. cm.
 (3) $9(4 - \pi)$ sq. cm.
 (4) $16(4 - \pi)$ sq. cm.

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (North Zone))

100. If the four equal circles of radius 3 cm touch each other externally, then the area of the region bounded by the four circles is

- (1) $4(9 - \pi)$ sq.cm
 (2) $9(4 - \pi)$ sq.cm
 (3) $5(6 - \pi)$ sq.cm
 (4) $6(5 - \pi)$ sq.cm

(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (East Zone)))

101. The area of a circle is increased by 22 cm² when its radius is increased by 1 cm. The original radius of the circle is

- (1) 3 cm (2) 5 cm
 (3) 7 cm (4) 9 cm

(SSC Graduate Level Tier-II Exam. 16.09.2012)

102. The radii of two circles are 5cm and 12cm. The area of a third circle is equal to the sum of the area of the two circles. The radius of the third circle is :

- (1) 13 cm (2) 21 cm
 (3) 30 cm (4) 17 cm

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IIInd Sitting))

103. The perimeter of a semicircular path is 36 m. Find the area of this semicircular path.

- (1) 42sq.m (2) 54 sq. m
 (3) 63 sq.m (4) 77 sq. m

(SSC CHSL DEO & LDC Exam. 04.11.2012, IIInd Sitting)

104. The ratio between the area of two circles is 4 : 7. What will be the ratio of their radii?

- (1) 2 : $\sqrt{7}$ (2) 4 : 7
 (3) 16 : 49 (4) 4 : $\sqrt{7}$

(SSC FCI Assistant Grade-III Main Exam. 07.04.2013)

105. Three circles of radius a , b , c touch each other externally. The area of the triangle formed by joining their centre is

- (1) $\sqrt{(a+b+c)abc}$
 (2) $(a+b+c)\sqrt{ab+bc+ca}$

- (3) $ab + bc + ca$

- (4) None of the above

(SSC Graduate Level Tier-I Exam. 21.04.2013 IIInd Sitting)

106. The area of a circle is proportional to the square of its radius. A small circle of radius 3 cm is drawn within a larger circle of radius 5 cm. Find the ratio of the area of the annular zone to the area of the larger circle. (Area of the annular zone is the difference between the area of the larger circle and that of the smaller circle).

- (1) 9 : 16 (2) 9 : 25
 (3) 16 : 25 (4) 16 : 27

(SSC Graduate Level Tier-I Exam. 21.04.2013 IIInd Sitting)

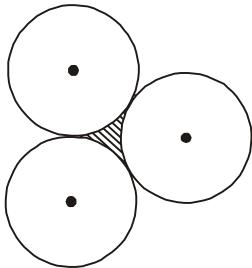
107. The diameter of two circles are the side of a square and the diagonal of the square. The ratio of the area of the smaller circle and the larger circle is

- (1) 1 : 2 (2) 1 : 4
 (3) $\sqrt{2} : \sqrt{3}$ (4) 1 : $\sqrt{2}$

(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

MENSURATION

- 108.** Three circles of equal radius 'a' cm touch each other. The area of the shaded region is :



- (1) $\left(\frac{\sqrt{3} + \pi}{2}\right)a^2$ sq.cm
 (2) $\left(\frac{6\sqrt{3} - \pi}{2}\right)a^2$ sq.cm
 (3) $(\sqrt{3} - \pi)a^2$ sq.cm
 (4) $\left(\frac{2\sqrt{3} - \pi}{2}\right)a^2$ sq.cm
 (SSC CAPFs SI & CISF ASI Exam. 23.06.2013)

- 109.** The radii of two circles are 10 cm and 24 cm. The radius of a circle whose area is the sum of the area of these two circles is
 (1) 36 cm (2) 17 cm
 (3) 34 cm (4) 26 cm
 (SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting)

- 110.** The area of the greatest circle inscribed inside a square of side 21 cm is (Take $\pi = \frac{22}{7}$)
 (1) 344.5 cm^2 (2) 364.5 cm^2
 (3) 346.5 cm^2 (4) 366.5 cm^2
 (SSC CGL Prelim Exam. 11.05.2003 (First Sitting))

- 111.** The area of the greatest circle, which can be inscribed in a square whose perimeter is 120 cm, is :
 (1) $\frac{22}{7} \times (15)^2 \text{ cm}^2$
 (2) $\frac{22}{7} \times \left(\frac{7}{2}\right)^2 \text{ cm}^2$
 (3) $\frac{22}{7} \times \left(\frac{15}{2}\right)^2 \text{ cm}^2$

- (4) $\frac{22}{7} \times \left(\frac{9}{2}\right)^2 \text{ cm}^2$
 (SSC CGL Prelim Exam. 08.02.2004 (First Sitting))

- 112.** The area of the incircle of an equilateral triangle of side 42 cm is (Take $\pi = \frac{22}{7}$) :

- (1) 231 cm^2 (2) 462 cm^2
 (3) $22\sqrt{3} \text{ cm}^2$ (4) 924 cm^2

(SSC CGL Prelim Exam. 08.02.2004 (Second Sitting))

- 113.** The ratio of the area of the in-circle and the circum-circle of a square is

- (1) $1 : 2$ (2) $\sqrt{2} : 1$
 (3) $1 : \sqrt{2}$ (4) $2 : 1$

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006 (IIInd Sitting) & (SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting, Delhi Zone))

- 114.** The area of an equilateral triangle inscribed in a circle is $4\sqrt{3} \text{ cm}^2$. The area of the circle is

- (1) $\frac{16}{3}\pi \text{ cm}^2$ (2) $\frac{22}{3}\pi \text{ cm}^2$
 (3) $\frac{28}{3}\pi \text{ cm}^2$ (4) $\frac{32}{3}\pi \text{ cm}^2$

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006 (IIInd Sitting) & (SSC SAS Exam. 26.06.2010 (Paper-I))

- 115.** The area of the largest circle, that can be drawn inside a rectangle with sides 18 cm. by 14 cm, is

- (1) 49 cm^2 (2) 154 cm^2
 (3) 378 cm^2 (4) 1078 cm^2
 (SSC CGL Prelim Exam. 04.02.2007 (First Sitting))

- 116.** A circle is inscribed in an equilateral triangle of side 8 cm. The area of the portion between the triangle and the circle is

- (1) 11 cm^2 (2) 10.95 cm^2
 (3) 10 cm^2 (4) 10.50 cm^2
 (SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (Second Sitting))

- 117.** If the difference between areas of the circumcircle and the incircle of an equilateral triangle is 44 cm^2 , then the area of the triangle is (Take $\pi = \frac{22}{7}$)

- (1) 28 cm^2 (2) $7\sqrt{3} \text{ cm}^2$
 (3) $14\sqrt{3} \text{ cm}^2$ (4) 21 cm^2

(SSC CGL Prelim Exam. 27.07.2008 (First Sitting))

- 118.** If the area of a circle inscribed in a square is $9\pi \text{ cm}^2$, then the area of the square is

- (1) 24 cm^2 (2) 30 cm^2
 (3) 36 cm^2 (4) 81 cm^2
 (SSC CGL Prelim Exam. 27.07.2008 (First Sitting))

- 119.** The sides of a triangle are 6 cm, 8 cm and 10 cm. The area of the greatest square that can be inscribed in it, is

- (1) 18 cm^2 (2) 15 cm^2
 (3) $\frac{2304}{49} \text{ cm}^2$ (4) $\frac{576}{50} \text{ cm}^2$

(SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))

- 120.** The length of a side of an equilateral triangle is 8 cm. The area of the region lying between the circumference and the incircle of

the triangle is (Use $\pi = \frac{22}{7}$)

- (1) $50\frac{1}{7} \text{ cm}^2$ (2) $50\frac{2}{7} \text{ cm}^2$
 (3) $75\frac{1}{7} \text{ cm}^2$ (4) $75\frac{2}{7} \text{ cm}^2$

(SSC CPO S.I. Exam. 09.11.2008)

- 121.** The length of each side of an equilateral triangle is $14\sqrt{3} \text{ cm}$. The area of the incircle (in cm^2), is

- (1) 450 (2) 308
 (3) 154 (4) 77
 (SSC CPO (SI, ASI & Intelligence Officer) Exam. 28.08.2011 Paper-I)

- 122.** The area of a circle inscribed in a square of area 2 m^2 is

- (1) $\frac{\pi}{4} \text{ m}^2$ (2) $\frac{\pi}{2} \text{ m}^2$
 (3) $\pi \text{ m}^2$ (4) $2\pi \text{ m}^2$

FCI Assistant Grade-III Exam. 25.02.2012 (Paper-I)
 North Zone (1st Sitting)

- 123.** Length of the perpendiculars from a point in the interior of an equilateral triangle on its sides are 3 cm, 4 cm and 5 cm. Area of the triangle is

- (1) $48\sqrt{3} \text{ cm}^2$ (2) $54\sqrt{3} \text{ cm}^2$
 (3) $72\sqrt{3} \text{ cm}^2$ (4) $80\sqrt{3} \text{ cm}^2$
 (SSC Data Entry Operator Exam. 02.08.2009)

MENSURATION

- 124.** The ratio of the areas of the circumcircle and the incircle of an equilateral triangle is

(1) 2 : 1 (2) 4 : 1
 (3) 8 : 1 (4) 3 : 2
 (SSC CHSL DEO & LDC Exam.
 04.12.2011 (IInd Sitting
 (North Zone)

- 125.** Area of the incircle of an equilateral triangle with side 6 cm is

(1) $\frac{\pi}{2}$ sq. cm. (2) $\sqrt{3}\pi$ sq. cm.
 (3) 6π sq. cm. (4) 3π sq. cm.
 (SSC CHSL DEO & LDC
 Exam. 04.12.2011
 (IInd Sitting (East Zone)

- 126.** The area of the square inscribed in a circle of radius 8 cm is

(1) 256 sq. cm (2) 250 sq. cm
 (3) 128 sq. cm (4) 125 sq. cm
 (SSC Graduate Level Tier-II
 Exam. 16.09.2012)

- 127.** A circle is inscribed in an equilateral triangle and a square is inscribed in that circle. The ratio of the areas of the triangle and the square is

(1) $\sqrt{3} : 4$ (2) $\sqrt{3} : 8$
 (3) $3\sqrt{3} : 2$ (4) $3\sqrt{3} : 1$
 (SSC Multi-Tasking Staff
 Exam. 17.03.2013, IInd Sitting)

- 128.** The ratio of the area of an equilateral triangle and that of its circumcircle is

(1) $2\sqrt{3} : 2\pi$ (2) $4 : \pi$
 (3) $3\sqrt{3} : 4\pi$ (4) $7\sqrt{2} : 2\pi$
 (SSC Multi-Tasking Staff
 Exam. 24.03.2013, Ist Sitting)

- 129.** Between a square of perimeter 44 cm and a circle of circumference 44 cm, which figure has larger area and by how much?

(1) Square, 33cm^2
 (2) Circle, 33 cm^2
 (3) Both have equal area.
 (4) Square, 495 cm^2
 (SSC CGL Prelim Exam. 27.02.2000
 (First Sitting)

- 130.** The perimeter of a square and a circular field are the same. If the area of the circular field is 3850 sq metres , what is the area (in m^2) of the square?

(1) 4225 (2) 3025
 (3) 2500 (4) 2025
 (SSC CGL Prelim Exam. 27.02.2000
 (Second Sitting)

- 131.** The areas of a square and a rectangle are equal. The length of the rectangle is greater than the length of any side of the square by 5 cm and the breadth is less by 3 cm. Find the perimeter of the rectangle.

(1) 17 cm (2) 26 cm
 (3) 30 cm (4) 34 cm
 (SSC CGL Prelim Exam. 24.02.2002
 (IInd Sitting) & (SSC CGL Prelim
 Exam. 13.11.2005 (Ist Sitting))

- 132.** If a wire is bent into the shape of a square, the area of the square is 81 sq. cm. When the wire is bent into a semicircular shape, the area of the semicircle

(taking $\pi = \frac{22}{7}$) is :
 (1) 154 cm^2 (2) 77 cm^2
 (3) 44 cm^2 (4) 22 cm^2

(SSC CGL Prelim Exam. 24.02.2002
 (IInd Sitting) & (SSC CGL Tier-I
 Exam. 26.06.2011 (IInd Sitting))

- 133.** The perimeter of a rectangle is 160 metre and the difference of two sides is 48 metre. Find the side of a square whose area is equal to the area of this rectangle.

(1) 32 m (2) 8 m
 (3) 4 m (4) 16 m

(SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone) & (SSC CGL Prelim
 Exam. 13.11.2005 (Ist Sitting))

- 134.** If the area of a triangle with base 12 cm is equal to the area of a square with side 12 cm, the altitude of the triangle will be

(1) 12 cm (2) 24 cm
 (3) 18 cm (4) 36 cm

(SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone) & (SSC CGL Prelim
 Exam. 13.11.2005 (Ist Sitting))

- 135.** The area (in m^2) of the square which has the same perimeter as a rectangle whose length is 48 m and is 3 times its breadth, is :

(1) 1000 (2) 1024
 (3) 1600 (4) 1042

(SSC CGL Prelim Exam. 11.05.2003
 (First Sitting))

- 136.** A square and an equilateral triangle are drawn on the same base. The ratio of their area is

(1) 2 : 1 (2) 1 : 1
 (3) $\sqrt{3} : 4$ (4) $4 : \sqrt{3}$

(SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting))

- 137.** A wire, when bent in the form of a square, encloses a region having area 121 cm^2 . If the same wire is bent into the form of a circle, then the area of the circle

is $\left(\text{Take } \pi = \frac{22}{7}\right)$
 (1) 144 cm^2 (2) 180 cm^2
 (3) 154 cm^2 (4) 176 cm^2
 (SSC CGL Prelim Exam. 27.07.2008
 (Ist Sitting) & (SSC HSL DEO & LDC
 Exam. 28.11.2010 (IInd Sitting))

- 138.** A copper wire is bent in the form of an equilateral triangle and has area $121\sqrt{3}\text{ cm}^2$. If the same wire is bent into the form of a circle, the area (in cm^2) enclosed by the wire is (Take $\pi = \frac{22}{7}$)

(1) 364.5 (2) 693.5
 (3) 346.5 (4) 639.5
 (SSC CGL Tier-1 Exam. 19.06.2011
 (First Sitting))

- 139.** A copper wire is bent in the shape of a square of area 81cm^2 . If the same wire is bent in the form of a semicircle, the radius (in cm) of the semicircle is (Take $\pi = \frac{22}{7}$)

(1) 16 (2) 14
 (3) 10 (4) 7
 (SSC CGL Tier-1 Exam. 26.06.2011
 (First Sitting))

- 140.** At each corner of a triangular field of sides 26 m, 28 m and 30 m, a cow is tethered by a rope of length 7 m. The area (in m^2) ungrazed by the cows is

(1) 336 (2) 259
 (3) 154 (4) 77
 (SSC CGL Tier-1 Exam. 26.06.2011
 (Second Sitting))

- 141.** An equilateral triangle is drawn on the diagonal of a square. The ratio of the area of the triangle to that of the square is

(1) $\sqrt{3} : 2$ (2) $\sqrt{2} : \sqrt{3}$
 (3) $2 : \sqrt{3}$ (4) $1 : \sqrt{2}$
 (FCI Assistant Grade-III
 Exam. 25.02.2012 (Paper-I)
 North Zone (Ist Sitting))

- 142.** A cow is tied on the corner of a rectangular field of size $30\text{ m} \times 20\text{ m}$ by a 14m long rope. The area of the region, that she can graze, is (use $\pi = \frac{22}{7}$) :

(1) 350 m^2 (2) 196 m^2
 (3) 154 m^2 (4) 22 m^2
 (SSC CHSL DEO & LDC
 Exam. 28.11.2010 (Ist Sitting))

MENSURATION

- 143.** A circle and a square have equal areas. The ratio of a side of the square and the radius of the circle is
 (1) $1 : \sqrt{\pi}$ (2) $\sqrt{\pi} : 1$
 (3) $1 : \pi$ (4) $\pi : 1$
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (IInd Sitting))
- 144.** If the perimeters of a rectangle and a square are equal and the ratio of two adjacent sides of the rectangle is $1 : 2$ then the ratio of area of the rectangle and that of the square is
 (1) $1 : 1$ (2) $1 : 2$
 (3) $2 : 3$ (4) $8 : 9$
 (SSC Graduate Level Tier-I Exam. 21.04.2013)
- 145.** The perimeter of a triangle and an equilateral triangle are same. Also, one of the sides of the rectangle is equal to the side of the triangle. The ratio of the area of the rectangle and the triangle is
 (1) $\sqrt{3} : 1$ (2) $1 : \sqrt{3}$
 (3) $2 : \sqrt{3}$ (4) $4 : \sqrt{3}$
 (SSC Constable (GD) Exam. 12.05.2013 Ist Sitting)
- 146.** The radius of a circle is a side of a square. The ratio of the area of the circle and the square is
 (1) $1 : \pi$ (2) $\pi : 1$
 (3) $\pi : 2$ (4) $2 : \pi$
 (SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)
- 147.** If the length of a rectangle is increased by 25% and the width is decreased by 20%, then the area of the rectangle :
 (1) increases by 5%
 (2) decreases by 5%
 (3) remains unchanged
 (4) increases by 10%
 (SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))
- 148.** The length of a rectangle is decreased by 10% and its breadth is increased by 10%. By what per cent is its area changed?
 (1) 0% (2) 1%
 (3) 5% (4) 100%
 (SSC CGL Prelim Exam. 08.02.2004 (Ist Sitting) & (SSC CGL Tier-I Exam. 16.05.2010 (Ist Sitting)))
- 149.** The percentage increase in the area of a rectangle, if each of its sides is increased by 20%, is :
 (1) 40% (2) 42%
 (3) 44% (4) 46%
 (SSC CGL Prelim Exam. 08.02.2004 (First Sitting))
- 150.** If the circumference of a circle is reduced by 50%, its area will be reduced by
 (1) 12.5% (2) 25%
 (3) 50% (4) 75%
 (SSC CPO S.I. Exam. 05.09.2004)
- 151.** If the side of a square is increased by 25%, then its area is increased by :
 (1) 25% (2) 55%
 (3) 40.5% (4) 56.25%
 (SSC CPO S.I. Exam. 26.05.2005)
- 152.** If the radius of a circle is increased by 50%, its area is increased by :
 (1) 125% (2) 100%
 (3) 75% (4) 50%
 (SSC CGL Prelim Exam. 13.11.2005 (Ist Sitting) & (SSC CGL Tier-I Exam. 26.06.2010 (IInd Sitting)))
- 153.** If the length of a rectangle is increased by 20% and its breadth is decreased by 20%, then its area
 (1) increases by 4%
 (2) decreases by 4%
 (3) decreases by 1%
 (4) remains unchanged
 (SSC CPO S.I. Exam. 03.09.2006)
- 154.** If each side of a rectangle is increased by 50%, its area will be increased by
 (1) 50% (2) 125%
 (3) 100% (4) 250%
 (SSC CGL Prelim Exam. 04.02.2007 (IInd Sitting) & (SSC HSL DEO & LDC Exam. 28.11.2010))
- 155.** If the altitude of a triangle is increased by 10% while its area remains same, its corresponding base will have to be decreased by
 (1) 10 % (2) 9 %
 (3) $9\frac{1}{11}\%$ (4) $11\frac{1}{9}\%$
 (SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (IInd Sitting) & (SSC MTS Exam. 17.03.2013, Kolkata Region))
- 156.** If the circumference of a circle is increased by 50% then the area will be increased by
 (1) 50% (2) 75%
 (3) 100% (4) 125%
 (SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (Second Sitting))
- 157.** The length and breadth of a rectangle are increased by 12% and 15% respectively. Its area will be increased by :
 (1) $27\frac{1}{5}\%$ (2) $28\frac{4}{5}\%$
 (3) 27% (4) 28%
 (SSC CPO S.I. Exam. 16.12.2007)
- 158.** Each side of a rectangular field is diminished by 40%. By how much per cent is the area of the field diminished?
 (1) 32% (2) 64%
 (3) 25% (4) 16%
 (SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))
- 159.** The length of rectangle is increased by 60%. By what percent would the breadth to be decreased to maintain the same area?
 (1) $37\frac{1}{2}\%$ (2) 60%
 (3) 75% (4) 120%
 (SSC CPO S.I. Exam. 06.09.2009 & (SSC MTS Exam. 17.03.2013, Kolkata Region))
- 160.** If each side of a square is increased by 10%, its area will be increased by
 (1) 10% (2) 21%
 (3) 44% (4) 100%
 (SSC CGL Tier-I Exam. 16.05.2010 (IInd Sitting) & (SSC SAS Exam. 26.06.2010 (Paper-I)))
- 161.** If the length of a rectangular plot of land is increased by 5% and the breadth is decreased by 10%, how much will its area increase or decrease?
 (1) 6.5% increase
 (2) 5.5% decrease
 (3) 5.5% increase
 (4) 6.5% decrease
 (SSC CPO S.I. Exam. 12.12.2010 (Paper-I))
- 162.** The radius of a circle is increased by 1%. How much does the area of the circle increase?
 (1) 1% (2) 1.1%
 (3) 2 % (4) 2.01%
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (Ist Sitting))
- 163.** In measuring the sides of a rectangle, there is an excess of 5% on one side and 2% deficit on the other. Then the error percent in the area is
 (1) 3.3% (2) 3.0%
 (3) 2.9% (4) 2.7%
 (SSC Multi-Tasking (Non-Technical) Staff Exam. 20.02.2011))

MENSURATION

- 164.** The length and breadth of a square are increased by 30% and 20% respectively. The area of the rectangle so formed exceeds the area of the square by
 (1) 46% (2) 66%
 (3) 42% (4) 56%

(SSC CHSL DEO & LDC Exam.
04.11.2012, Ist Sitting)

- 165.** If each edge of a cube is increased by 40%, the percentage increase in its surface area is
 (1) 40% (2) 60%
 (3) 80% (4) 96%

(SSC Multi-Tasking Staff Exam.
10.03.2013, Ist Sitting : Patna)

- 166.** If the diameter of a circle is increased by 8%, then its area is increased by :
 (1) 16.64% (2) 6.64%
 (3) 16% (4) 16.46%

(SSC Multi-Tasking Staff
Exam. 10.03.2013)

- 167.** One side of a square is increased by 30%. To maintain the same area, the other side will have to be decreased by

$$(1) \frac{1}{13} \% \quad (2) \frac{12}{13} \% \\ (3) 30\% \quad (4) 15\%$$

(SSC Graduate Level Tier-I
Exam. 21.04.2013 IIInd Sitting)

- 168.** The length and breadth of a rectangle are doubled. Percentage increase in area is
 (1) 150% (2) 200%
 (3) 300% (4) 400%

(SSC CHSL DEO & LDC
Exam. 20.10.2013)

- 169.** ABC is an equilateral triangle. P and Q are two points on \overline{AB} and \overline{AC} respectively such that $\overline{PQ} \parallel \overline{BC}$. If $\overline{PQ} = 5$ cm, then area of $\triangle APQ$ is :

$$(1) \frac{25}{4} \text{ sq. cm} \quad (2) \frac{25}{\sqrt{3}} \text{ sq. cm} \\ (3) \frac{25\sqrt{3}}{4} \text{ sq. cm} \quad (4) 25\sqrt{3} \text{ sq. cm}$$

(SSC CHSL DEO & LDC Exam.
11.12.2011 (IIInd Sitting (East Zone))

- 170.** If area of an equilateral triangle is a and height b , then value of

$$\frac{b^2}{a}$$

$$(1) 3 \quad (2) \frac{1}{3}$$

$$(3) \sqrt{3} \quad (4) \frac{1}{\sqrt{3}}$$

(SSC CAPFs SI & CISF ASI
Exam. 23.06.2013)

- 171.** ABC is an isosceles right angled triangle with $\angle B = 90^\circ$. On the sides AC and AB, two equilateral triangles ACD and ABE have been constructed. The ratio of area of $\triangle ABE$ and $\triangle ACD$ is

$$(1) 1 : 3 \quad (2) 2 : 3 \\ (3) 1 : 2 \quad (4) 1 : \sqrt{2}$$

(SSC CHSL DEO & LDC Exam.
27.10.2013 IIInd Sitting)

- 172.** Two triangles ABC and DEF are similar to each other in which $AB = 10$ cm, $DE = 8$ cm. Then the ratio of the area of triangles ABC and DEF is

$$(1) 4 : 5 \quad (2) 25 : 16 \\ (3) 64 : 125 \quad (4) 4 : 7$$

(SSC CHSL DEO & LDC Exam.
04.11.2012, IIInd Sitting)

- 173.** If $\triangle ABC$ is similar to $\triangle DEF$ such that $BC = 3$ cm, $EF = 4$ cm and area of $\triangle ABC = 54$ cm^2 , then the area of $\triangle DEF$ is :

$$(1) 66 \text{ cm}^2 \quad (2) 78 \text{ cm}^2 \\ (3) 96 \text{ cm}^2 \quad (4) 54 \text{ cm}^2$$

(SSC Graduate Level Tier-I
Exam. 21.04.2013, Ist Sitting)

- 174.** The area of two similar triangles ABC and DEF are 20 cm^2 and 45 cm^2 respectively. If $AB = 5$ cm, then DE is equal to :

$$(1) 6.5 \text{ cm} \quad (2) 7.5 \text{ cm} \\ (3) 8.5 \text{ cm} \quad (4) 5.5 \text{ cm}$$

(SSC CAPFs SI & CISF ASI
Exam. 23.06.2013)

- 175.** ABCD is a parallelogram. BC is produced to Q such that $BC = CQ$. Then

$$(1) \text{area}(\triangle BCP) = \text{area}(\triangle DPQ) \\ (2) \text{area}(\triangle BCP) > \text{area}(\triangle DPQ) \\ (3) \text{area}(\triangle BCP) < \text{area}(\triangle DPQ) \\ (4) \text{area}(\triangle BCP) + \text{area}(\triangle DPQ) \\ = \text{area}(\triangle BCD)$$

(SSC Graduate Level Tier-I
Exam. 21.04.2013 IIInd Sitting)

- 176.** The ratio of the length of the parallel sides of a trapezium is 3:2. The shortest distance between them is 15 cm. If the area of the trapezium is 450 cm^2 , the sum of the length of the parallel sides is

(1) 15 cm (2) 36 cm
 (3) 42 cm (4) 60 cm
 (SSC Multi-Tasking (Non-Technical)
Staff Exam. 27.02.2011)

- 177.** C_1 and C_2 are two concentric circles with centre at O. Their radii are 12 cm. and 3 cm. respectively. B and C are the point of contact of two tangents drawn to C_2 from a point A lying on the circle C_1 . Then, the area of the quadrilateral ABOC is

$$(1) \frac{9\sqrt{15}}{2} \text{ sq. cm.}$$

$$(2) 12\sqrt{15} \text{ sq. cm.}$$

$$(3) 9\sqrt{15} \text{ sq. cm.}$$

$$(4) 6\sqrt{15} \text{ sq. cm.}$$

(SSC Graduate Level Tier-I
Exam. 21.04.2013 IIInd Sitting)

- 178.** From a point P which is at a distance of 13 cm from centre O of a circle of radius 5 cm, in the same plane, a pair of tangents PQ and PR are drawn to the circle. Area of quadrilateral PQOR is

$$(1) 65 \text{ cm}^2 \quad (2) 60 \text{ cm}^2 \\ (3) 30 \text{ cm}^2 \quad (4) 90 \text{ cm}^2$$

(SSC Graduate Level Tier-I
Exam. 21.04.2013)

- 179.** In $\triangle ABC$, O is the centroid and AD, BE, CF are three medians and the area of $\triangle AOE = 15 \text{ cm}^2$, then area of quadrilateral BDOF is

$$(1) 20 \text{ cm}^2 \quad (2) 30 \text{ cm}^2 \\ (3) 40 \text{ cm}^2 \quad (4) 25 \text{ cm}^2$$

(SSC CHSL DEO & LDC Exam.
04.12.2011 (Ist Sitting (North Zone))

- 180.** A straight line parallel to the base BC of the triangle ABC intersects AB and AC at the points D and E respectively. If the area of the $\triangle ABE$ be 36 sq.cm , then the area of the $\triangle ACD$ is

$$(1) 18 \text{ sq.cm} \quad (2) 36 \text{ sq.cm} \\ (3) 18 \text{ cm} \quad (4) 36 \text{ cm}$$

(SSC CHSL DEO & LDC Exam.
04.12.2011 (IIInd Sitting (North Zone))

- 181.** If in a $\triangle ABC$, the medians CD and BE intersect each other at O, then the ratio of the areas of $\triangle ODE$ and $\triangle ABC$ is

$$(1) 1 : 6 \quad (2) 6 : 1 \\ (3) 1 : 12 \quad (4) 12 : 1$$

(SSC CHSL DEO & LDC Exam.
04.12.2011 (IIInd Sitting (East Zone))

MENSURATION

- 182.** Three circles of radii 4 cm, 6 cm and 8 cm touch each other pairwise externally. The area of the triangle formed, by the line-segments joining the centres of the three circles is
 (1) $144\sqrt{13}$ sq. cm
 (2) $12\sqrt{105}$ sq. cm
 (3) $6\sqrt{6}$ sq. cm
 (4) $24\sqrt{6}$ sq. cm
 (SSC CHSL DEO & LDC Exam. 21.10.2012 (Ist Sitting))
- 183.** Two circles with centre A and B and radius 2 units touch each other externally at 'C'. A third circle with centre 'C' and radius '2' units meets other two at D and E. Then the area of the quadrilateral ABDE is
 (1) $2\sqrt{2}$ sq. units
 (2) $3\sqrt{3}$ sq. units
 (3) $3\sqrt{2}$ sq. units
 (4) $2\sqrt{3}$ sq. units
 (SSC CHSL DEO & LDC Exam. 04.11.2012 (IIInd Sitting))
- 184.** ABC is a right angled triangle, B being the right angle. Mid-points of BC and AC are respectively B' and A'. The ratio of the area of the quadrilateral AA'B'B to the area of the triangle ABC is
 (1) 1 : 2 (2) 2 : 3
 (3) 3 : 4
 (4) None of the above
 (SSC Graduate Level Tier-I Exam. 21.04.2013)
- 185.** Two triangles ABC and PQR are congruent. If the area of Δ ABC is 60 sq. cm, then area of Δ PQR will be
 (1) 60 sq.cm (2) 30 sq.cm
 (3) 15 sq.cm (4) 120 sq.cm
 (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)
- 186.** In Δ PQR, the line drawn from the vertex P intersects QR at a point S. If $QR = 4.5$ cm and $SR = 1.5$ cm then the ratios of the area of triangle PQS and triangle PSR is
 (1) 4 : 1 (2) 3 : 1
 (3) 3 : 2 (4) 2 : 1
 (SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)
- 187.** The difference between the radii of the bigger circle and smaller circle is 14 cm and the difference between their areas is 1056 cm^2 . Radius of the smaller circle is
 (1) 7 cm (2) 5 cm
 (3) 9 cm (4) 3 cm
 (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))
- 188.** ABCD is parallelogram. P and Q are the mid-points of sides BC and CD respectively. If the area of Δ ABC is 12 cm^2 , then the area of Δ APQ is
 (1) 12 cm^2 (2) 8 cm^2
 (3) 9 cm^2 (4) 10 cm^2
 (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IIInd Sitting))
- 189.** ABC is a right angled triangle. B being the right angle. Mid-points of BC and AC are respectively B' and A'. Area of Δ A'B'C' is
 (1) $\frac{1}{2} \times$ area of Δ ABC
 (2) $\frac{2}{3} \times$ area of Δ ABC
 (3) $\frac{1}{4} \times$ area of Δ ABC
 (4) $\frac{1}{8} \times$ area of Δ ABC
 (SSC CGL Tier-I Exam. 19.10.2014 (Ist Sitting))
- 190.** A wire of length 44 cm is first bent to form a circle and then rebent to form a square. The difference of the two enclosed areas is
 (1) 44 cm^2 (2) 33 cm^2
 (3) 55 cm^2 (4) 66 cm^2
 (SSC CGL Tier-I Exam. 19.10.2014)
- 191.** A parallelogram has sides 60 m and 40m and one of its diagonals is 80 m long. Its area is
 (1) $500\sqrt{15}\text{ m}^2$
 (2) $600\sqrt{15}\text{ m}^2$
 (3) $400\sqrt{15}\text{ m}^2$
 (4) $450\sqrt{15}\text{ m}^2$
 (SSC CGL Tier-I Exam. 26.10.2014)
- 192.** \angle ACB is an angle in the semicircle of diameter AB = 5 and AC : BC = 3 : 4. The area of the triangle ABC is
 (1) $6\sqrt{2}$ sq. cm (2) 4 sq. cm
 (3) 12 sq. cm (4) 6 sq. cm
 (SSC CGL Tier-I Exam. 26.10.2014)
- 193.** If the lengths of the sides AB, BC and CA of a triangle ABC are 10 cm, 8 cm and 6 cm respectively and if M is the mid - point of BC and MN || AB to cut AC at N, then the area of the trapezium ABMN is equal to
 (1) 18 sq. cm. (2) 20 sq. cm.
 (3) 12 sq. cm. (4) 16 sq. cm.
- 194.** ABCD is a trapezium with AD and BC parallel sides. E is a point on BC. The ratio of the area of ABCD to that of AED is
 (1) $\frac{\overline{AD}}{\overline{BC}}$ (2) $\frac{\overline{BE}}{\overline{EC}}$
 (3) $\frac{\overline{AD} + \overline{BE}}{\overline{AD} + \overline{CE}}$ (4) $\frac{\overline{AD} + \overline{BC}}{\overline{AD}}$
 (SSC CGL Tier-II Exam. 21.09.2014)
- 195.** In an equilateral triangle of side 24 cm, a circle is inscribed touching its sides. The area of the remaining portion of the triangle is
 $(\sqrt{3} = 1.732)$
 (1) 98.55 sq cm (2) 100 sq cm
 (3) 101 sq cm (4) 95 sq cm
 (SSC CGL Tier-II Exam. 21.0.2014)
- 196.** Perimeter of a rhombus is 2p unit and sum of length of diagonals is m unit, then area of the rhombus is
 (1) $\frac{1}{4}m^2p$ sq unit
 (2) $\frac{1}{4}mp^2$ sq unit
 (3) $\frac{1}{4}(m^2 - p^2)$ sq unit
 (4) $\frac{1}{4}(p^2 - m^2)$ sq unit
 (SSC CGL Tier-II Exam. 21.09.2014)
- 197.** Two sides of a plot measuring 32 m and 24 m and the angle between them is a perfect right angle. The other two sides measure 25 m each and the other three angles are not right angles. The area of the plot in m^2 is
 (1) 768 (2) 534
 (3) 696.5 (4) 684
 (SSC CGL Tier-II Exam. 21.09.2014)

MENSURATION

- 198.** a and b are two sides adjacent to the right angle of a right-angled triangle and p is the perpendicular drawn to the hypotenuse from the opposite vertex. Then p^2 is equal to

- (1) $a^2 + b^2$ (2) $\frac{1}{a^2} + \frac{1}{b^2}$
 (3) $\frac{a^2 b^2}{a^2 + b^2}$ (4) $a^2 - b^2$

(SSC CGL Tier-II Exam. 21.09.2014)

- 199.** A is the centre of circle whose radius is 8 and B is the centre of a circle whose diameter is 8. If these two circles touch externally, then the area of the circle with diameter AB is

- (1) 36π (2) 64π
 (3) 144π (4) 256π

(SSC CGL Tier-II Exam. 21.09.2014)

- 200.** The length of a rectangle is increased by 10% and breadth decreased by 10%. The area of the new rectangle is

- (1) neither increased nor decreased
 (2) increased by 1%
 (3) decreased by 2%
 (4) decreased by 1%

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

- 201.** If the numerical values of the height and the area of an equilateral triangle be same, then the length of each side of the triangle is

- (1) 2 units (2) 4 units
 (3) 5 units (4) 8 units

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

- 202.** If the length of a side of the square is equal to that of the diameter of a circle, then the ratio of the area of the square and that of the circle is

$$\left(\pi = \frac{22}{7} \right)$$

- (1) $14 : 11$ (2) $7 : 11$
 (3) $11 : 14$ (4) $11 : 7$

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

- 203.** The median of an equilateral triangle is $6\sqrt{3}$ cm. The area (in cm^2) of the triangle is

- (1) 72 (2) 108
 (3) $72\sqrt{3}$ (4) $36\sqrt{3}$

(SSC CHSL DEO & LDC Exam. 02.11.2014 (IIInd Sitting))

- 204.** If the numerical value of the circumference and area of a circle is same, then the area is
 (1) 6π sq. unit (2) 4π sq. unit
 (3) 8π sq. unit (4) 12π sq. unit
 (SSC CHSL DEO & LDC Exam. 02.11.2014 (IIInd Sitting))

- 205.** The area of an equilateral triangle is 48 sq. cm. The length of the side is

- (1) $\sqrt{8} \times 4$ cm (2) $4\sqrt{3}$ cm
 (3) 8 cm (4) 16 cm
 (SSC CHSL DEO & LDC Exam. 02.11.2014 (IIInd Sitting))

- 206.** Area of regular hexagon with side 'a' is

- (1) $\frac{3\sqrt{3}}{4} a^2$ sq. unit
 (2) $\frac{12}{2\sqrt{3}} a^2$ sq. unit
 (3) $\frac{9}{2\sqrt{3}} a^2$ sq. unit
 (4) $\frac{6}{\sqrt{2}} a^2$ sq. unit

(SSC CHSL DEO & LDC Exam. 9.11.2014)

- 207.** The external fencing of a circular path around a circular plot of land is 33 m more than its interior fencing. The width of the path around the plot is

- (1) 5.52 m (2) 5.25 m
 (3) 2.55 m (4) 2.25 m

(SSC CHSL DEO & LDC Exam. 9.11.2014)

- 208.** In $\triangle ABC$, D and E are two points on the sides AB and AC respectively so that $DE \parallel BC$ and

- $$\frac{AD}{BD} = \frac{2}{3}.$$
- Then

the area of trapezium DECB

the area of $\triangle ABC$ is

- equal to

- (1) $\frac{5}{9}$ (2) $\frac{21}{25}$
 (3) $1\frac{4}{5}$ (4) $5\frac{1}{4}$

(SSC CHSL DEO & LDC Exam. 9.11.2014)

- 209.** The sides of a rhombus are 10 cm each and a diagonal measures 16 cm. Area of the rhombus is
 (1) 96 sq.cm (2) 160 sq.cm
 (3) 100 sq. cm (4) 40 sq.cm
 (SSC CHSL DEO Exam. 02.11.2014 (Ist Sitting))

- 210.** The perimeter of a triangle is 54 m and its sides are in the ratio of 5 : 6 : 7. The area of the triangle is

- (1) 18 m^2 (2) $54\sqrt{6}\text{ m}^2$
 (3) $27\sqrt{2}\text{ m}^2$ (4) 25 m^2
 (SSC CHSL DEO Exam. 16.11.2014 (Ist Sitting))

- 211.** The lengths of two parallel sides of a trapezium are 6 cm and 8 cm. If the height of the trapezium be 4 cm, then its area is
 (1) 28 cm (2) 28 sq.cm
 (3) 30 sq.cm (4) 30 cm
 (SSC CHSL DEO Exam. 16.11.2014 (Ist Sitting))

- 212.** If a and b are the lengths of the sides of a right triangle whose hypotenuse is 10 and whose area is 20, then the value of $(a+b)^2$ is

- (1) 140 (2) 180
 (3) 120 (4) 160
 (SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

- 213.** A wire is bent into the form of a circle, whose area is 154 cm^2 . If the same wire is bent into the form of an equilateral triangle, the approximate area of the equilateral triangle is

- (1) 93.14 cm^2 (2) 90.14 cm^2
 (3) 83.14 cm^2 (4) 39.14 cm^2
 (SSC CGL Tier-I Exam. 19.10.2014 TF No. 022 MH 3)

- 214.** If the ratio of the altitudes of two triangles be 3 : 4 and the ratio of their corresponding areas be 4 : 3, then the ratio of their corresponding lengths of bases is

- (1) 1 : 1 (2) 16 : 9
 (3) 1 : 2 (4) 2 : 1
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014 , Ist Sitting TF No. 333 LO 2)

- 215.** Let A be the area of a square whose each side is 10 cm. Let B be the area of a square whose diagonals are 14 cm each. Then $(A - B)$ is equal to

- (1) 0 (2) 1
 (3) 2 (4) 4
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014 , Ist Sitting TF No. 333 LO 2)

MENSURATION

216. Two sides of a parallelogram are 20 cm and 25 cm. If the altitude corresponding to the side of length 25 cm is 10 cm, then the altitude corresponding to the other pair of sides is

- (1) 10.5 cm (2) 12 cm
 - (3) 12.5 cm (4) 10 cm
- (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014 , Ist Sitting TF No. 333 LO 2)

217. If the sides of an equilateral triangle be increased by 1 m its area is increased by $\sqrt{3}$ sq. metre. The length of any of its sides is

- (1) 2 metre (2) $\frac{5}{2}$ metre
- (3) $\frac{3}{2}$ metre (4) $\sqrt{3}$ metre

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting TF No. 545 QP 6)

218. The in-radius of a triangle is 6 cm, and the sum of the lengths of its sides is 50 cm. The area of the triangle (in square cm.) is

- (1) 150 (2) 50
- (3) 300 (4) 56

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

219. One of the angles of a right-angled triangle is 15° , and the hypotenuse is 1 metre. The area of the triangle (in square cm.) is

- (1) 1220 (2) 1200
- (3) 1250 (4) 1215

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

220. If for an isosceles triangle the length of each equal side is 'a' units and that of the third side is 'b' units, then its area will be

- (1) $\frac{a}{4}\sqrt{4b^2 - a^2}$ square units
- (2) $\frac{a}{2}\sqrt{2a^2 - b^2}$ square units
- (3) $\frac{b}{4}\sqrt{4a^2 - b^2}$ square units
- (4) $\frac{b}{2}\sqrt{a^2 - 2b^2}$ square units

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

221. The outer and inner diameter of a circular path be 728 metre and 700 metre respectively. The breadth of the path is

- (1) 7 metre (2) 28 metre
 - (3) 14 metre (4) 20 metre
- (SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

222. The area of the parallelogram whose length is 30 cm, width is 20 cm and one diagonal is 40 cm is

- (1) $200\sqrt{15}$ cm²
 - (2) $100\sqrt{15}$ cm²
 - (3) $300\sqrt{15}$ cm²
 - (4) $150\sqrt{15}$ cm²
- (SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

223. On increasing each side of a square by 50%, the ratio of the area of new square formed and the given square will be

- (1) 9 : 5 (2) 9 : 3.5
 - (3) 9 : 7 (4) 9 : 4
- (SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

224. The area of a circle is 324π square cm. The length of its longest chord (in cm.) is

- (1) 36 (2) 28
- (3) 38 (4) 32

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

225. The area of a rhombus is 256 square cm. and one of its diagonals is twice the other in length. Then length of its larger diagonal is

- (1) 32 cm (2) 16 cm
- (3) 48 cm (4) 24 cm

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

226. If the side of a square is $\frac{1}{2}(x + 1)$ units and its diagonal is

$\frac{3-x}{\sqrt{2}}$ units, then the length of the side of the square would be

- (1) $\frac{4}{3}$ units (2) $\frac{1}{2}$ unit
- (3) 1 unit (4) 2 units

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

227. The circumference of a triangle is 24 cm and the circumference of its in-circle is 44 cm. Then the area of the triangle is (taking $\pi = \frac{22}{7}$)

- (1) 56 square cm.
- (2) 84 square cm.
- (3) 48 square cm.
- (4) 68 square cm.

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

228. If the length of each of two equal sides of an isosceles triangle is 10 cm. and the adjacent angle is 45° , then the area of the triangle is

- (1) $20\sqrt{2}$ square cm.
- (2) $12\sqrt{2}$ square cm.
- (3) $25\sqrt{2}$ square cm.
- (4) $15\sqrt{2}$ square cm.

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

229. The length of the diagonal of a rectangle with sides 4 m and 3 m would be

- (1) 12 m (2) 7 m
 - (3) 5 m (4) 14 m
- (SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

230. In a right angled triangle ΔPQR , PR is the hypotenuse of length 20 cm, $\angle PRQ = 30^\circ$, the area of the triangle is

- (1) $50\sqrt{3}$ cm² (2) $100\sqrt{3}$ cm²
- (3) $25\sqrt{3}$ cm² (4) $\frac{100}{\sqrt{3}}$ cm²

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

231. The perimeter of an equilateral triangle is equal to the circumference of a circle. The ratio of their areas is

$$\left(\text{Use } \pi = \frac{22}{7} \right)$$

- (1) $22 : 21\sqrt{3}$ (2) $21 : 22\sqrt{3}$
 - (3) $21 : 22\sqrt{2}$ (4) $22 : 21\sqrt{2}$
- (SSC CGL Tier-II Exam. 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

MENSURATION

232. From any point inside an equilateral triangle, the lengths of perpendiculars on the sides are 'a' cm, 'b' cm and 'c' cms. Its area (in cm^2) is

(1) $\frac{\sqrt{2}}{3} (a + b + c)$

(2) $\frac{\sqrt{3}}{3} (a + b + c)^2$

(3) $\frac{\sqrt{3}}{3} (a + b + c)$

(4) $\frac{\sqrt{2}}{3} (a + b + c)^2$

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region)
TF No. 789 TH 7)

233. The areas of a circle and a square are same. The ratio of the side of the square to the radius of the circle is

(1) $2\pi : 1$ (2) $1 : \sqrt{\pi}$

(3) $\sqrt{\pi} : 1$ (4) $1 : \pi$

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region)
TF No. 789 TH 7)

234. ABCD is a square inscribed in a circle of radius r. Then the total area (in square units) of the portions of the circle lying outside the square is

(1) $\pi(r^2 - 4)$ (2) $2\pi(r^2 - 1)$

(3) $\pi^2 r(r - 7)$ (4) $r^2(\pi - 2)$

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region)
TF No. 789 TH 7)

235. The lengths of the two parallel sides of a trapezium are 28 cm and 40 cm. If the length of each of its other two sides be 12 cm, then the area (in cm^2) of the trapezium is

(1) $312\sqrt{5}$ (2) $408\sqrt{3}$

(3) $204\sqrt{3}$ (4) $504\sqrt{3}$

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region)
TF No. 789 TH 7)

236. The perimeter of a sheet of paper in the shape of a quadrant of a circle is 75 cm. Its area would

be $\left(\pi = \frac{22}{7} \right)$

(1) 100 cm^2 (2) 346.5 cm^2

(3) 693 cm^2 (4) 512.25 cm^2

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
(1st Sitting) TF No. 8037731)

237. The diagonal of a quadrilateral shaped field is 24m and the perpendiculars dropped on it from the remaining opposite vertices are 8m and 13m. The area of the field is

(1) 252 m^2 (2) 156 m^2

(3) 96 m^2 (4) 1152 m^2

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
(1st Sitting) TF No. 8037731)

238. Two isosceles triangles have equal vertical angles and their areas are in the ratio 9:16. Then the ratio of their corresponding heights is-

(1) $4.5 : 8$ (2) $4 : 3$

(3) $8 : 4.5$ (4) $3 : 4$

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
(1st Sitting) TF No. 8037731)

239. In $\triangle ABC$, a line through A cuts the side BC at D such that $BD : DC = 4 : 5$. If the area of $\triangle ABD = 60 \text{ cm}^2$, then the area of $\triangle ADC$ is

(1) 90 cm^2 (2) 50 cm^2

(3) 60 cm^2 (4) 75 cm^2

(SSC CGL Tier-I Exam, 09.08.2015
(1st Sitting) TF No. 1443088)

240. If the area of a circle is A, radius of the circle is r and circumference of it is C, then

(1) $\frac{A}{r} = C$ (2) $rC = 2A$

(3) $\frac{C}{A} = \frac{r}{2}$ (4) $AC = \frac{r^2}{4}$

(SSC CGL Tier-I Exam, 09.08.2015
(1st Sitting) TF No. 1443088)

241. In a rhombus ABCD, $\angle A = 60^\circ$ and $AB = 12 \text{ cm}$. Then the diagonal BD is

(1) 10 cm (2) $2\sqrt{3} \text{ cm}$

(3) 6 cm (4) 12 cm

(SSC CGL Tier-I Exam, 09.08.2015
(1st Sitting) TF No. 4239378)

242. If two medians BE and CF of a triangle ABC, intersect each other at G and if $BG = CG$, $\angle BGC = 60^\circ$ and $BC = 8 \text{ cm}$ then area of the triangle ABC is

(1) $96\sqrt{3} \text{ cm}^2$ (2) $64\sqrt{3} \text{ cm}^2$

(3) $48\sqrt{3} \text{ cm}^2$ (4) 48 cm^2

(SSC CGL Tier-I Exam, 09.08.2015
(1st Sitting) TF No. 4239378)

243. Two circles touch each other externally. The sum of their areas is $130\pi \text{ sq cm}$ and the distance between their centres is 14 cm. The radius of the smaller circle is

(1) 2 cm (2) 4 cm

(3) 5 cm (4) 3 cm

(SSC CGL Tier-I Exam, 09.08.2015
(1st Sitting) TF No. 4239378)

244. Let C_1 and C_2 be the inscribed and circumscribed circles of a triangle with sides 3cm, 4cm and 5cm then $\frac{\text{area of } C_1}{\text{area of } C_2}$ is

(1) $\frac{9}{25}$ (2) $\frac{4}{25}$

(3) $\frac{9}{16}$ (4) $\frac{16}{25}$

(SSC CGL Tier-I Exam, 16.08.2015
(1st Sitting) TF No. 3196279)

245. If the altitude of an equilateral triangle is $12\sqrt{3} \text{ cm}$, then its area would be :

(1) 12 cm^2 (2) $144\sqrt{3} \text{ cm}^2$

(3) 72 cm^2 (4) $36\sqrt{3} \text{ cm}^2$

(SSC CGL Tier-I Exam, 16.08.2015
(1st Sitting) TF No. 3196279)

246. Given that : $\triangle ABC \sim \triangle PQR$, If $\frac{\text{area } (\triangle PQR)}{\text{area } (\triangle ABC)} = \frac{256}{441}$ and $PR = 12$

cm, then AC is equal to

(1) 15.75 cm (2) 16 cm

(3) $12\sqrt{2} \text{ cm}$ (4) 15.5 cm

(SSC CGL Tier-I Exam, 16.08.2015
(1st Sitting) TF No. 2176783)

247. ABCD is a cyclic quadrilateral. Diagonals AC and BD meets at P. If $\angle APB = 110^\circ$ and $\angle CBD = 30^\circ$, then $\angle ADB$ measures

(1) 55° (2) 30°

(3) 70° (4) 80°

(SSC CGL Tier-I Exam, 16.08.2015
(1st Sitting) TF No. 2176783)

248. A circular swimming pool is surrounded by a concrete wall 4m wide. If the area of the concrete

wall surrounding the pool is $\frac{11}{25}$

that of the pool, then the radius (in m) of the pool is :

(1) 8 (2) 16

(3) 30 (4) 20

(SSC CGL Tier-I Exam, 16.08.2015
(1st Sitting) TF No. 2176783)

MENSURATION

249. $\triangle ABC$ is similar to $\triangle DEF$. The ratio of their perimeters is $4 : 1$. The ratio of their areas is

- (1) $4 : 1$
 - (2) $16 : 1$
 - (3) $8 : 1$
 - (4) $8\sqrt{2} : 1$
- (SSC CGL Tier-I
Re-Exam, 30.08.2015)

250. The amount of rice produced in a square field of side 50 m is 750 kg. The amount of rice produced in a similar square field of side 100 m will be

- (1) 2000 kg
 - (2) 3000 kg
 - (3) 3500 kg
 - (4) 1500 kg
- (SSC Constable (GD)
Exam, 04.10.2015, IInd Sitting)

251. The time required for a boy to travel along the external and internal boundaries of a circular path are in the ratio $20 : 19$. If the width of the path be 5 metres, the internal diameter is :

- (1) 195 metres
 - (2) 192 metres
 - (3) 180 metres
 - (4) 190 metres
- (SSC Constable (GD)
Exam, 04.10.2015, IInd Sitting)

252. In triangle ABC , $DE \parallel BC$ where D is a point on AB and E is a point on AC . DE divides the area of $\triangle ABC$ into two equal parts. Then $DB : AB$ is equal to

- (1) $\sqrt{2} : (\sqrt{2} + 1)$
 - (2) $\sqrt{2} : (\sqrt{2} - 1)$
 - (3) $(\sqrt{2} - 1) : \sqrt{2}$
 - (4) $(\sqrt{2} + 1) : \sqrt{2}$
- (SSC CGL Tier-II Exam,
25.10.2015, TF No. 1099685)

253. The centroid of a $\triangle ABC$ is G . The area of $\triangle ABC$ is 60 cm^2 . The area of $\triangle GBC$ is

- (1) 10 cm^2
 - (2) 30 cm^2
 - (3) 40 cm^2
 - (4) 20 cm^2
- (SSC CGL Tier-II Exam,
25.10.2015, TF No. 1099685)

254. In trapezium $ABCD$, $AB \parallel CD$ and $AB = 2CD$. Its diagonals intersect at O . If the area of $\triangle AOB = 84 \text{ cm}^2$, then the area of $\triangle COD$ is equal to

- (1) 72 cm^2
 - (2) 21 cm^2
 - (3) 42 cm^2
 - (4) 26 cm^2
- (SSC CGL Tier-II Exam,
25.10.2015, TF No. 1099685)

255. Given that the ratio of altitudes of two triangles is $4 : 5$, ratio of their areas is $3 : 2$. The ratio of their corresponding bases is

- (1) $8 : 15$
 - (2) $15 : 8$
 - (3) $5 : 8$
 - (4) $8 : 5$
- (SSC CGL Tier-II Exam,
25.10.2015, TF No. 1099685)

256. The area of an isosceles trapezium

is 176 cm^2 and the height is $\frac{2}{11}$ th

of the sum of its parallel sides. If the ratio of the length of the parallel sides is $4 : 7$, then the length of a diagonal (in cm) is

- (1) 28
 - (2) $\sqrt{137}$
 - (3) $2\sqrt{137}$
 - (4) 24
- (SSC CGL Tier-II Exam,
25.10.2015, TF No. 1099685)

257. The area of a circle whose radius is the diagonal of a square whose area is 4 sq. units is :

- (1) $16\pi \text{ sq. units}$
 - (2) $4\pi \text{ sq. units}$
 - (3) $6\pi \text{ sq. units}$
 - (4) $8\pi \text{ sq. units}$
- (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015
(Ist Sitting) TF No. 6636838)

258. A rectangular carpet has an area of 120 m^2 and a perimeter of 46 metre. The length of its diagonal is :

- (1) 23 metre
 - (2) 13 metre
 - (3) 17 metre
 - (4) 21 metre
- (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015
(Ist Sitting) TF No. 6636838)

259. A plate on square base made of brass is of length $x \text{ cm}$ and width 1 mm. The plate weighs 4725 gm. If 1 cubic cm of brass weighs 8.4 gram, then the value of x is :

- (1) 75
 - (2) 76
 - (3) 72
 - (4) 74
- (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015
(IInd Sitting) TF No. 7203752)

260. The length of two parallel sides of a trapezium are 15 cm and 20 cm. If its area is 175 sq.cm , then its height is :

- (1) 15 cm
 - (2) 10 cm
 - (3) 20 cm
 - (4) 25 cm
- (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015
(IInd Sitting) TF No. 3441135)

261. ABCD is a square. Draw a triangle QBC on side BC considering BC as base and draw a triangle PAC on AC as its base such that $\triangle QBC \sim \triangle PAC$. Then,

$\frac{\text{Area of } \triangle QBC}{\text{Area of } \triangle PAC}$ is equal to :

- (1) $\frac{1}{2}$
- (2) $\frac{2}{1}$

- (3) $\frac{1}{3}$
- (4) $\frac{2}{3}$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015
(IIInd Sitting) TF No. 3441135)

262. The hypotenuse of a right-angled triangle is 39 cm and the difference of other two sides is 21 cm. Then, the area of the triangle is

- (1) 270 sq. cm
 - (2) 450 sq. cm
 - (3) 540 sq. cm
 - (4) 180 sq. cm
- (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015
(Ist Sitting) TF No. 9692918)

263. The ratio between the length and the breadth of a rectangular park is $3 : 2$. If a man cycling along the boundary of the park at the speed of 12 km/hour completes one round in 8 minutes, then the area of the park is

- (1) 153650 sq.metre
- (2) 135600 sq.metre
- (3) 153600 sq.metre
- (4) 156300 sq.metre

(SSC CGL Tier-II Online Exam.01.12.2016)

264. A rectangular park 60 metre long and 40 metre wide has two concrete crossroads running in the middle of the park and rest of the park has been used as a lawn. If the area of the lawn is 2109 metre^2 then the width of the road is

- (1) 3 metre
 - (2) 5 metre
 - (3) 6 metre
 - (4) 2 metre
- (SSC CGL Tier-II Online Exam.01.12.2016)

265. A square and a regular hexagon are drawn such that all the vertices of the square and the hexagon are on a circle of radius $r \text{ cm}$. The ratio of area of the square and the hexagon is

- (1) $3 : 4$
 - (2) $4 : 3\sqrt{3}$
 - (3) $\sqrt{2} : \sqrt{3}$
 - (4) $1 : \sqrt{2}$
- (SSC CGL Tier-II Online Exam.01.12.2016)

266. $\triangle ABC$ is similar to $\triangle DEF$. If the area of $\triangle ABC$ is 9 sq.cm . and the area of $\triangle DEF$ is 16 sq.cm . and $BC = 2.1 \text{ cm}$, then the length of EF will be

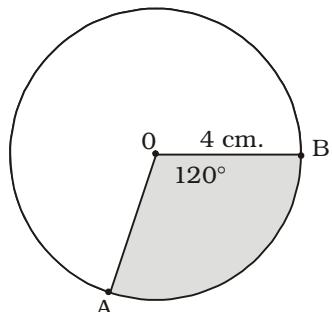
- (1) 5.6 cm.
 - (2) 2.8 cm.
 - (3) 3.7 cm.
 - (4) 1.4 cm.
- (SSC CGL Tier-II Online Exam.01.12.2016)

MENSURATION

- 267.** If D and E are the mid-points of AB and AC respectively of $\triangle ABC$, then the ratio of the areas of $\triangle ADE$ and $\square BCED$ is
 (1) 1 : 2 (2) 1 : 4
 (3) 2 : 3 (4) 1 : 3

(SSC CGL Tier-II Online Exam. 01.12.2016)

- 268.** What is the area of dark (coloured) sector for the figure given below?



- (1) 8.38 (2) 25.28
 (3) 16.76 (4) 18.56

(SSC CPO SI, ASI Online Exam. 05.06.2016) (IInd Sitting)

- 269.** If two medians BE and CF of a triangle ABC, intersect each other at G and if $BG = CG$, angle $BGC = 120^\circ$, $BC = 10$ cm, then area of the triangle ABC is :

- (1) $50\sqrt{3}$ cm² (2) 60 cm²
 (3) 25 cm² (4) $25\sqrt{3}$ cm²

(SSC CPO SI, ASI Online Exam. 05.06.2016) (IInd Sitting)

- 270.** A room 16m 5cm long and 15 m broad is to be fitted with equal square tiles. How many number of largest possible tiles are required so that they exactly fit?

- (1) 10400 (2) 10700
 (3) 10800 (4) 9800

(SSC CPO SI, ASI Online Exam. 05.06.2016) (IInd Sitting)

- 271.** Three equal circles of unit radius touch one another. Then the area of the circle circumscribing the three circles is

- (1) $6\pi(2 + \sqrt{3})^2$
 (2) $\frac{\pi}{6}(2 + \sqrt{3})^2$
 (3) $\frac{\pi}{3}(2 + \sqrt{3})^2$
 (4) $3\pi(2 + \sqrt{3})^2$

(SSC CPO Exam. 06.06.2016) (Ist Sitting)

- 272.** Area of the circle inscribed in a square of diagonal $6\sqrt{2}$ cm. (in sq. cm.) is

- (1) 9π (2) 6π
 (3) 3π (4) $9\sqrt{2}\pi$

(SSC CGL Tier-I (CBE) Exam. 09.09.2016) (Ist Sitting)

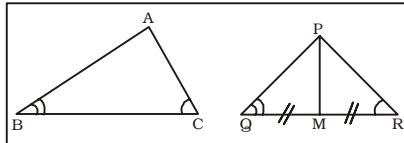
- 273.** The diagonals of two squares are in the ratio 5 : 2. The ratio of their area is

- (1) 5 : 6 (2) 25 : 4
 (3) 5 : 4 (4) 125 : 8

(SSC CGL Tier-I (CBE) Exam. 09.09.2016) (Ist Sitting)

- 274.** In $\triangle ABC$ and $\triangle PQR$, $\angle B = \angle Q$, $\angle C = \angle R$. M is the mid-point of side QR. If $AB : PQ = 7 : 4$, then

$\frac{\text{area}(\triangle ABC)}{\text{area}(\triangle PMR)}$ is :



- (1) $\frac{35}{8}$ (2) $\frac{49}{16}$
 (3) $\frac{49}{8}$ (4) $\frac{35}{16}$

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 20.03.2016)
 (IInd Sitting)

- 275.** The diagonals of two squares are in the ratio of 3 : 7. What is the ratio of their areas?

- (1) 3 : 7 (2) 9 : 49
 (3) 4 : 7 (4) 7 : 3

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016)
 (Ist Sitting)

- 276.** A string of length 24 cm is bent first into a square and then into a right-angled triangle by keeping one side of the square fixed as its base. Then the area of triangle equals to :
 (1) 24 cm² (2) 60 cm²
 (3) 40 cm² (4) 28 cm²

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016)
 (Ist Sitting)

- 277.** ABCD is a square. Draw an equilateral triangle PBC on side BC considering BC is a base and an equilateral triangle QAC on diagonal AC considering AC is a base. Find the value of

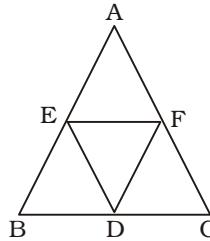
$$\frac{\text{Area of } \triangle PBC}{\text{Area of } \triangle QAC}.$$

- (1) $\frac{1}{2}$ (2) 1

- (3) $\frac{1}{3}$ (4) $\frac{1}{4}$

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016)
 (Ist Sitting)

- 278.** If D, E and F are the mid-points of the sides of an equilateral triangle ABC, then the ratio of the area of triangle DEF and DCF is :



- (1) 1.1 : 1 (2) 1 : 1.1
 (3) 0.9 : 1 (4) 1 : 1

(SSC CGL Tier-I (CBE) Exam. 27.08.2016) (IInd Sitting)

- 279.** The area of a rectangle is 60 cm² and its perimeter is 34 cm, then the length of the diagonal is
 (1) 17 cm (2) 11 cm
 (3) 15 cm (4) 13 cm

(SSC CGL Tier-I (CBE) Exam. 29.08.2016) (IInd Sitting)

- 280.** The centroid of a triangle $\triangle ABC$ is G. If the area of $\triangle ABC = 72$ sq. units, then the area of $\triangle BGC$ is
 (1) 16 sq. units (2) 24 sq. units
 (3) 36 sq. units (4) 48 sq. units

(SSC CGL Tier-I (CBE) Exam. 30.08.2016) (Ist Sitting)

- 281.** In a trapezium ABCD, $AB \parallel CD$, $AB < CD$, $CD = 6$ cm and distance between the parallel sides is 4 cm. If the area of ABCD is 16 cm², then AB is
 (1) 1 cm (2) 2 cm
 (3) 3 cm (4) 8 cm

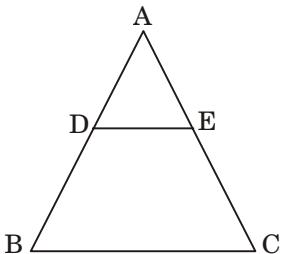
(SSC CGL Tier-I (CBE) Exam. 31.08.2016) (Ist Sitting)

- 282.** In a triangle ABC, $AB = 8$ cm, $AC = 10$ cm and $\angle B = 90^\circ$, then the area of $\triangle ABC$ is
 (1) 49 sq.cm (2) 36 sq.cm
 (3) 25 sq.cm (4) 24 sq.cm

(SSC CGL Tier-I (CBE) Exam. 01.09.2016) (Ist Sitting)

MENSURATION

- 283.** In figure, $DE \parallel BC$. If $DE = 3$ cm, $BC = 6$ cm and area of $\triangle ADE$ = 15 sq. cm, then the area of $\triangle ABC$ is



- (1) 75 sq. cm. (2) 45 sq. cm.
(3) 30 sq. cm. (4) 60 sq. cm.

(SSC CGL Tier-I (CBE))

Exam. 02.09.2016 (Ist Sitting)

- 284.** $\triangle ABC$ is a right angled triangle, the radius of its circumcircle is 3 cm and the length of its altitude drawn from the opposite vertex to the hypotenuse is 2 cm. Then the area of the triangle is
(1) 12 sq. cm. (2) 3 sq. cm.
(3) 6 sq. cm. (4) 5 sq. cm.

(SSC CGL Tier-I (CBE))

Exam. 02.09.2016 (Ist Sitting)

- 285.** The lengths of the diagonals of a rhombus are 8 cm and 6 cm. The area of rhombus is :
(1) 96 cm² (2) 60 cm²
(3) 48 cm² (4) 24 cm²

(SSC CGL Tier-I (CBE))

Exam. 06.09.2016 (Ist Sitting)

- 286.** Two adjacent sides of a parallelogram are 21 cms and 20 cms. The diagonal joining the end points of these two sides is 29 cms. The area of the parallelogram (in sq. cms) is
(1) 240 (2) 120
(3) 210 (4) 420

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (Ist Sitting)

- 287.** $\triangle ABC$ is an equilateral triangle and D and E are midpoints of AB and BC respectively. Then the area of $\triangle ABC$: the area of the trapezium ADEC is

- (1) 5 : 3 (2) 4 : 1
(3) 8 : 5 (4) 4 : 3

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (Ist Sitting)

- 288.** The perimeters of a square and a rectangle are equal. If their area be 'A' m² and 'B' m² respectively, then correct statement is
(1) A < B (2) A \leq B
(3) A > B (4) A \geq B

(SSC CGL Tier-I (CBE))

Exam. 30.08.2016 (IIInd Sitting)

- 289.** A rectangle with one side of length 4 cm. is inscribed in a circle of diameter 5 cm. Find, the area of the rectangle.

- (1) 21 cm² (2) 12 cm²
(3) 4 cm² (4) 3 cm²

(SSC CGL Tier-I (CBE))

Exam. 30.08.2016 (IIInd Sitting)

- 290.** A rectangle with one side 4 cm is inscribed in a circle of radius 2.5 cm. The area of the rectangle is :
(1) 8 cm² (2) 12 cm²
(3) 16 cm² (4) 20 cm²

(SSC CGL Tier-I (CBE))

Exam. 31.08.2016 (IIInd Sitting)

- 291.** If O is the centroid and AD, BE and CF are the three medians of $\triangle ABC$ with an area of 96 cm² then the area of $\triangle AOD$ in cm² is

- (1) 8 (2) 12
(3) 16 (4) 24

(SSC CGL Tier-I (CBE))

Exam. 01.09.2016 (IIInd Sitting)

- 292.** $\triangle ABC$ is similar to $\triangle DEF$. If the ratio of similar sides is $k : 1$, the ratio of their areas is

- (1) $k^2 : 1$ (2) $2k : 1$

- (3) $\frac{k^2}{2} : 1$ (4) $2k^2 : 1$

(SSC CGL Tier-I (CBE))

Exam. 02.09.2016 (IIInd Sitting)

- 293.** The height of an equilateral triangle is 18 cm. Its area is

- (1) $36\sqrt{3}$ square metre

- (2) $108\sqrt{3}$ square cm.

- (3) 108 square cm.

- (4) $96\sqrt{3}$ square metre

(SSC CGL Tier-II (CBE))

Exam. 30.11.2016

- 294.** The length and breadth of a rectangular piece of a land are in a ratio 5 : 3. The owner spent Rs. 6000 for surrounding it from all sides at Rs. 7.50 per metre. The difference between its length and breadth is

- (1) 50 metre (2) 100 metre
(3) 150 metre (4) 250 metre

(SSC CGL Tier-II (CBE))

Exam. 30.11.2016

- 295.** The ratio between the area of a square and that of a circle, when the length of a side of the square is equal to that of the diameter of the circle, is

$$\left(\text{Take, } \pi = \frac{22}{7} \right)$$

- (1) 14 : 11 (2) 28 : 11
(3) 7 : 22 (4) 22 : 7

(SSC CGL Tier-II (CBE))

Exam. 30.11.2016

- 296.** A piece of wire 132 cm. long is bent successively in the shape of an equilateral triangle, a square and a circle. Then area will be longest in shape of

- (1) Circle (2) Equilateral triangle
(3) Square

- (4) Equal in all the shapes
(SSC CGL Tier-II (CBE))

Exam. 30.11.2016

- 297.** Let $\triangle ABC$ and $\triangle ABD$ be on the same base AB and between the same parallels AB and CD. Then the relation between areas of triangles ABC and ABD will be

$$(1) \Delta ABD = \frac{1}{3} \Delta ABC$$

$$(2) \Delta ABD = \frac{1}{2} \Delta ABC$$

$$(3) \Delta ABC = \frac{1}{2} \Delta ABD$$

$$(4) \Delta ABC = \Delta ABD$$

(SSC CGL Tier-I (CBE))

Exam. 10.09.2016 (IIInd Sitting)

- 298.** The perimeter of a rhombus is 240 metre and the distance between any two parallel sides is 20 metre. The area of the rhombus in square metre is

- (1) 600 square metre
(2) 1200 square metre

- (3) 2400 square metre
(4) 4800 square metre

(SSC CGL Tier-I (CBE))

Exam. 28.08.2016 (Ist Sitting)

- 299.** The area of the largest triangle that can be inscribed in a semi-circle of radius 6 m is

- (1) 36 m² (2) 72 m²
(3) 18 m² (4) 12 m²

(SSC CGL Tier-I (CBE))

Exam. 29.08.2016 (Ist Sitting)

- 300.** A circle and a square have same area. The ratio of the side of the square to the radius of the circle will be:

- (1) $\sqrt{\pi} : 1$ (2) $1 : \sqrt{\pi}$
(3) $\pi^2 : 1$ (4) $1 : \pi$

(SSC CGL Tier-I (CBE))

Exam. 02.09.2016 (IIInd Sitting)

- 301.** Point O is the centre of a circle of radius 5 cm. At a distance of 13 cm from O, a point P is taken. From this point, two tangents PQ and PR are drawn to the circle. Then, the area of quadrilateral PQOR is

- (1) 60 cm² (2) 32.5 cm²
(3) 65 cm² (4) 30 cm²

(SSC CGL Tier-I (CBE))

Exam. 03.09.2016 (IIIrd Sitting)

MENSURATION

- 302.** The length of a median of an equilateral triangle is $12\sqrt{3}$ cms. Then the area of the triangle is :
 (1) 144 sq. cm.
 (2) $288\sqrt{3}$ sq. cm.
 (3) $144\sqrt{3}$ sq. cm.
 (4) 288 sq. cm.
 (SSC CGL Tier-I (CBE)

Exam. 04.09.2016 (IIInd Sitting)

- 303.** Two circles touch externally. The sum of their areas is 130π sq. cm. and the distance between their centres is 14 cm. The radius of the bigger circle is
 (Take $\pi = \frac{22}{7}$)
 (1) 22 cm. (2) 11 cm.
 (3) 33 cm. (4) 44 cm.
 (SSC CGL Tier-I (CBE)

Exam. 06.09.2016 (IIInd Sitting)

- 304.** In an equilateral triangle of side 24 cm., a circle is inscribed touching its sides. The area of the remaining portion of the triangle is approximately equal to

$$\left(\text{assuming } \pi = \frac{22}{7} \text{ & } \sqrt{3} = 1.732 \right)$$

- (1) 36.6 cm^2 (2) 54.2 cm^2
 (3) 72.8 cm^2 (4) 98.5 cm^2

(SSC CGL Tier-I (CBE)

Exam. 06.09.2016 (IIInd Sitting)

- 305.** The inradius of triangle is 4 cm and its area is 34 sq. cm. the perimeter of the triangle is :
 (1) 8.5 cm (2) 17 cm
 (3) 34 cm (4) 20 cm
 (SSC CGL Tier-I (CBE)

Exam. 06.09.2016 (IIInd Sitting)

- 306.** The area of a triangle ABC is 10.8 cm^2 . If CP = PB and $2AQ = QB$, then the area of the triangle APQ is
 (1) 3.6 cm^2 (2) 0.9 cm^2
 (3) 2.7 cm^2 (4) 1.8 cm^2
 (SSC CGL Tier-I (CBE)

Exam. 06.09.2016 (IIInd Sitting)

- 307.** If a circle of radius 12 cm is divided into two equal parts by one concentric circle, then radius of inner circle is :
 (1) 6 cm (2) 4 cm
 (3) $6\sqrt{2}$ cm (4) $4\sqrt{2}$ cm

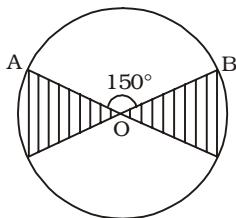
(SSC CGL Tier-I (CBE)

Exam. 06.09.2016 (IIInd Sitting)

- 308.** In $\triangle ABC$, the medians AD and BE meet at G. The ratio of the areas of $\triangle ABDG$ and the quadrilateral GDCE is :
 (1) 1 : 2 (2) 1 : 3
 (3) 2 : 3 (4) 3 : 4
 (SSC CGL Tier-I (CBE)

Exam. 08.09.2016 (IIInd Sitting)

- 309.** O is the centre of the circle and $\angle AOB = 150^\circ$, and the shaded portion is x part of the circular region, then $x = ?$



- (1) $\frac{1}{12}$ (2) $\frac{1}{9}$
 (3) $\frac{1}{6}$ (4) $\frac{1}{4}$

(SSC CGL Tier-I (CBE)

Exam. 09.09.2016 (IIIrd Sitting)

- 310.** The area of the circle with radius y is w . The difference between the areas of the bigger circle (with radius y) and that of the smaller

circle (with radius x) is w' . So $\frac{x}{y}$ is equal to

- (1) $\sqrt{1 - \frac{w'}{w}}$ (2) $\sqrt{1 + \frac{w'}{w}}$
 (3) $\sqrt{1 + \frac{w}{w'}}$ (4) $\sqrt{1 - \frac{w}{w'}}$

(SSC CGL Tier-I (CBE)

Exam. 10.09.2016 (IIInd Sitting)

- 311.** D, E and F are the mid points of the sides BC, CA and AB respectively of a $\triangle ABC$. Then the ratio of the areas of $\triangle DEF$ and $\triangle ABC$ is

- (1) $\frac{1}{2}$ (2) $\frac{1}{4}$
 (3) $\frac{1}{8}$ (4) $\frac{1}{16}$

(SSC CGL Tier-I (CBE)

Exam. 11.09.2016 (IIInd Sitting)

- 312.** An arc AB of a circle subtends an angle x radians at the centre of the circle. Given that the area of the sector AOB is equal to the square of the length of the arc AB, then the value of x is :
 (1) $\frac{1}{\sqrt{2}}$ (2) $\frac{1}{2}$
 (3) $\frac{1}{\sqrt{3}}$ (4) $\frac{1}{3}$

(SSC CGL Tier-I (CBE)

Exam. 27.10.2016 (Ist Sitting)

- 313.** The radii of two concentric circles are 68 cm and 22 cm. The area of the closed figure bounded by the boundaries of the circles is
 (1) 4140π sq. cm. (2) 4110π sq. cm.
 (3) 4080π sq. cm. (4) 4050π sq. cm.

(SSC CGL Tier-II (CBE)
 Exam. 12.01.2017)

- 314.** In a trapezium ABCD, AB and DC are parallel sides and $\angle ADC = 90^\circ$. If AB = 15 cm, CD = 40 cm and diagonal AC = 41 cm. then the area of the trapezium ABCD is
 (1) 245 cm^2 (2) 240 cm^2
 (3) 247.5 cm^2 (4) 250 cm^2
 (SSC CGL Tier-II (CBE)

Exam. 12.01.2017)

- 315.** The area of a rhombus having one side 10 cm and one diagonal 12 cm is
 (1) 48 cm^2 (2) 96 cm^2
 (3) 144 cm^2 (4) 192 cm^2
 (SSC CGL Tier-II (CBE)

Exam. 12.01.2017)

- 316.** The cost of levelling a circular field at 50 paise per square metre is Rs. 7700. The cost (in Rs.) of putting up a fence all round it at Rs. 1.20 per metre is
 (Use $\pi = \frac{22}{7}$)

- (1) Rs. 132 (2) Rs. 264
 (3) Rs. 528 (4) Rs. 1056

(SSC CGL Tier-II (CBE)

Exam. 12.01.2017)

- 317.** The sum of the length and breadth of a rectangle is 6 cm. A square is constructed such that one of its sides is equal to a diagonal of the rectangle. If the ratio of areas of the square and rectangle is 5 : 2, the area of the square in cm^2 is
 (1) 20 (2) 10
 (3) $4\sqrt{5}$ (4) $10\sqrt{2}$

(SSC CGL Tier-II (CBE)

Exam. 12.01.2017)

- 318.** The length of a side of an equilateral triangle is 8 cm. The area of the region lying between the circum circle and the incircle of the triangle is
 (Use : $\pi = \frac{22}{7}$)

- (1) $50\frac{1}{7} \text{ cm}^2$ (2) $50\frac{2}{7} \text{ cm}^2$

- (3) $75\frac{1}{7} \text{ cm}^2$ (4) $75\frac{2}{7} \text{ cm}^2$

(SSC CGL Tier-II (CBE)

Exam. 12.01.2017)

MENSURATION

- 319.** Two equal circles intersect so that their centres, and the points at which they intersect form a square of side 1 cm. The area (in sq.cm) of the portion that is common to the circles is

(1) $\frac{\pi}{4}$ (2) $\frac{\pi}{2} - 1$

(3) $\frac{\pi}{5}$ (4) $(\sqrt{2} - 1)$

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

- 320.** D and E are points on the sides AB and AC respectively of $\triangle ABC$ such that DE is parallel to BC and $AD : DB = 4 : 5$, CD and BE intersect each other at F. Then find the ratio of the areas of $\triangle DEF$ and $\triangle CBF$.

(1) 16 : 25 (2) 16 : 81
(3) 81 : 16 (4) 4 : 9

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

- 331.** Diagonals of a Trapezium ABCD with $AB \parallel CD$ intersect each other at the point O. If $AB = 2CD$, then the ratio of the areas of $\triangle AOB$ and $\triangle COD$ is

(1) 4 : 1 (2) 1 : 16
(3) 1 : 4 (4) 16 : 1

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

TYPE-II

- 1.** The perimeter of two squares are 24 cm and 32 cm. The perimeter (in cm) of a third square equal in area to the sum of the areas of these squares is :

(1) 45 (2) 40
(3) 32 (4) 48

(SSC CGL Prelim Exam. 24.02.2002
(First Sitting)

- 2.** The perimeter of two squares are 40 cm and 32 cm. The perimeter of a third square whose area is the difference of the area of the two squares is

(1) 24 cm (2) 42 cm
(3) 40 cm (4) 20 cm

(SSC CGL Prelim Exam. 11.05.2003
(Second Sitting)

- 3.** If the ratio of areas of two squares is 225 : 256, then the ratio of their perimeter is :

(1) 225 : 256 (2) 256 : 225
(3) 15 : 16 (4) 16 : 15

(SSC CGL Prelim Exam. 08.02.2004
(First Sitting)

- 4.** The perimeter of two squares are 40 cm and 24 cm. The perimeter of a third square, whose area is equal to the difference of the area of these squares, is

(1) 34 cm (2) 32 cm
(3) 38 cm (4) 30 cm

(SSC CPO S.I. Exam. 09.11.2008)

- 5.** The length and breadth of a rectangular field are in the ratio of 3 : 2. If the perimeter of the field is 80m, its breadth (in metres) is :

(1) 18 (2) 16
(3) 10 (4) 24

(SSC CGL Prelim Exam. 04.07.1999
(First Sitting)

- 6.** The sides of a rectangular plot are in the ratio 5:4 and its area is equal to 500 sq.m. The perimeter of the plot is :

(1) 80m. (2) 100m.
(3) 90m. (4) 95m.

(SSC CGL Prelim Exam. 04.07.1999
(Second Sitting)

- 7.** The perimeter of the top of a rectangular table is 28m., whereas its area is 48m². What is the length of its diagonal?

(1) 5m. (2) 10m.
(3) 12m. (4) 12.5 m.

(SSC CGL Prelim Exam. 27.02.2000
(First Sitting)

- 8.** If the length and the perimeter of a rectangle are in the ratio 5 : 16, then its length and breadth will be in the ratio

(1) 5 : 11 (2) 5 : 8
(3) 5 : 4 (4) 5 : 3

(SSC CPO S.I. Exam. 09.11.2008)

- 9.** The length and perimeter of a rectangle are in the ratio 5:18. Then length and breadth will be in the ratio

(1) 4 : 3 (2) 3 : 5
(3) 5 : 4 (4) 4 : 7

(SSC Graduate Level Tier-I
Exam. 11.11.2012 (Ist Sitting))

- 10.** If the area of a rectangle be $(x^2 + 7x + 10)$ sq. cm, then one of the possible perimeter of it is

(1) $(4x + 14)$ cm (2) $(2x + 14)$ cm
(3) $(x + 14)$ cm (4) $(2x + 7)$ cm

(SSC Assistant Grade-III
Exam. 11.11.2012 (IIInd Sitting))

- 11.** The perimeter of a rectangular plot is 48 m and area is 108 m². The dimensions of the plot are

(1) 36 m and 3 m
(2) 12 m and 9 m
(3) 27 m and 4 m
(4) 18 m and 6 m

(SSC Graduate Level Tier-I
Exam. 19.05.2013 Ist Sitting)

- 12.** The sides of a triangle are in the ratio $\frac{1}{2} : \frac{1}{3} : \frac{1}{4}$. If the perimeter of the triangle is 52 cm, the length of the smallest side is :

(1) 24 cm (2) 10 cm
(3) 12 cm (4) 9 cm

(SSC CGL Prelim Exam. 27.02.2000
(Second Sitting))

- 13.** The area of an equilateral triangle is $400 \sqrt{3}$ sq.m. Its perimeter is :

(1) 120 m (2) 150 m
(3) 90 m (4) 135 m

(SSC CGL Prelim Exam. 11.05.2003
(First Sitting))

- 14.** From a point in the interior of an equilateral triangle, the perpendicular distance of the sides are $\sqrt{3}$ cm, $2\sqrt{3}$ cm and $5\sqrt{3}$ cm. The perimeter (in cm) of the triangle is

(1) 64 (2) 32
(3) 48 (4) 24

(SSC CGL Prelim Exam. 11.05.2003
(Second Sitting))

- 15.** The perimeter of a triangle is 30 cm and its area is 30 cm^2 . If the largest side measures 13 cm, what is the length of the smallest side of the triangle ?

(1) 3 cm (2) 4 cm
(3) 5 cm (4) 6 cm

(SSC CGL Prelim Exam. 11.05.2003
(Second Sitting))

- 16.** The area of a triangle is 216 cm^2 and its sides are in the ratio 3 : 4 : 5. The perimeter of the triangle is :

(1) 6 cm (2) 12 cm
(3) 36 cm (4) 72 cm

(SSC CGL Prelim Exam. 08.02.2004
(Second Sitting))

- 17.** In a triangular field having sides 30m, 72m and 78m, the length of the altitude to the side measuring 72m is :

(1) 25 m (2) 28 m
(3) 30 m (4) 35 m

(SSC CPO S.I. Exam. 16.12.2007)

- 18.** If the perimeter of a right-angled isosceles triangle is $(4\sqrt{2} + 4)$ cm, the length of the hypotenuse is :

(1) 4 cm (2) 6 cm
(3) 8 cm (4) 10 cm

(SSC CPO S.I. Exam. 16.12.2007)

MENSURATION

- 19.** Through each vertex of a triangle, a line parallel to the opposite side is drawn. The ratio of the perimeter of the new triangle, thus formed, with that of the original triangle is
 (1) 3 : 2 (2) 4 : 1
 (3) 2 : 1 (4) 2 : 3
 (SSC CPO S.I. Exam. 09.11.2008)
- 20.** The sides of a triangle are in the ratio $\frac{1}{3} : \frac{1}{4} : \frac{1}{5}$ and its perimeter is 94 cm. The length of the smallest side of the triangle is:
 (1) 18 cm (2) 22.5 cm
 (3) 24 cm (4) 27 cm
 (SSC CHSL DEO & LDC Exam. 27.11.2010)
- 21.** The length of two sides of an isosceles triangle are 15 and 22 respectively. What are the possible values of perimeter?
 (1) 52 or 59 (2) 52 or 60
 (3) 15 or 37 (4) 37 or 29
 (SSC CISF Constable (GD) Exam. 05.06.2011)
- 22.** If the perimeter of a right-angled triangle is 56 cm and area of the triangle is 84 sq. cm, then the length of the hypotenuse is (in cm)
 (1) 25 (2) 50
 (3) 7 (4) 24
 (SSC CHSL DEO & LDC Exam. 21.10.2012 (1st Sitting))
- 23.** If the length of each median of an equilateral triangle is $6\sqrt{3}$ cm, the perimeter of the triangle is
 (1) 24 cm (2) 32 cm
 (3) 36 cm (4) 42 cm
 (SSC Graduate Level Tier-I Exam. 11.11.2012 (1st Sitting))
- 24.** The area of an equilateral triangle is $4\sqrt{3}$ sq. cm. Its perimeter is
 (1) 12 cm (2) 6 cm
 (3) 8 cm (4) $3\sqrt{3}$ cm
 (SSC Assistant Grade-III Exam. 11.11.2012 (1st Sitting))
- 25.** The sides of a triangle are in the ratio $\frac{1}{4} : \frac{1}{6} : \frac{1}{8}$ and its perimeter is 91 cm. The difference of the length of longest side and that of shortest side is
 (1) 19 cm (2) 20 cm
 (3) 28 cm (4) 21 cm
 (SSC FCI Assistant Grade-III Main Exam. 07.04.2013)
- 26.** The diagonals of a rhombus are 32 cm and 24 cm respectively. The perimeter of the rhombus is:
 (1) 80 cm (2) 72 cm
 (3) 68 cm (4) 64 cm
 (SSC CGL Prelim Exam. 24.02.2002 (First Sitting))
- 27.** The diagonals of a rhombus are 24 cm and 10 cm. The perimeter of the rhombus (in cm) is:
 (1) 68 (2) 65
 (3) 54 (4) 52
 (SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))
- 28.** The perimeter of a rhombus is 40 cm. If one of the diagonals be 12 cm long, what is the length of the other diagonal?
 (1) 12 cm (2) $\sqrt{136}$ cm
 (3) 16 cm (4) $\sqrt{44}$ cm
 (SSC CGL Prelim Exam. 24.02.2002 (Middle Zone))
- 29.** The perimeter of a rhombus is 40 cm. If the length of one of its diagonals be 12 cm, the length of the other diagonal is
 (1) 14 cm (2) 15 cm
 (3) 16 cm (4) 12 cm
 (SSC CGL Prelim Exam. 11.05.2003 (Second Sitting))
- 30.** The sides of a quadrilateral are in the ratio 3 : 4 : 5 : 6 and its perimeter is 72 cm. The length of its greatest side (in cm) is
 (1) 24 (2) 27
 (3) 30 (4) 36
 (SSC (South Zone) Investigator Exam. 12.09.2010)
- 31.** The area of a rhombus is 216 cm² and the length of its one diagonal is 24 cm. The perimeter (in cm) of the rhombus is
 (1) 52 (2) 60
 (3) 120 (4) 100
 (SSC CHSL DEO & LDC Exam. 10.11.2013, 1st Sitting)
- 32.** The area of a circle is 38.5 sq. cm. Its circumference (in cm) is

$$\left(\text{use } \pi = \frac{22}{7} \right):$$

 (1) 22 (2) 24
 (3) 26 (4) 32
 (SSC CGL Prelim Exam. 04.07.1999 (First Sitting))
- 33.** The diameter of a toy wheel is 14 cm. What is the distance travelled by it in 15 revolutions?
 (1) 880 cm (2) 660 cm
 (3) 600 cm (4) 560 cm
 (SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))
- 34.** A can go round a circular path 8 times in 40 minutes. If the diameter of the circle is increased to 10 times the original diameter, the time required by A to go round the new path once travelling at the same speed as before is:
 (1) 25 min (2) 20 min
 (3) 50 min (4) 100 min
 (SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))
- 35.** Diameter of a wheel is 3 cm. The wheel revolves 28 times in a minute. To cover 5.280 km distance, the wheel will take (Take $\pi = \frac{22}{7}$):
 (1) 10 minutes (2) 20 minutes
 (3) 30 minutes (4) 40 minutes
 (SSC CGL Prelim Exam. 11.05.2003 (First Sitting))
- 36.** Find the diameter of a wheel that makes 113 revolutions to go 2 km
 26 decameters. (Take $\pi = \frac{22}{7}$)
- (1) $4\frac{4}{13}$ m (2) $6\frac{4}{11}$ m
 (3) $12\frac{4}{11}$ m (4) $12\frac{8}{11}$ m
 (SSC CGL Prelim Exam. 11.05.2003 (Second Sitting))
- 37.** The radius of a circular wheel is 1.75 m. The number of revolutions that it will make in travelling 11 km., is
 (1) 1000 (2) 10,000
 (3) 100 (4) 10
 (SSC Section Officer (Commercial Audit) Exam. 16.11.2003 (Second Sitting))
- 38.** A circular wire of radius 42 cm is bent in the form of a rectangle whose sides are in the ratio of 6 : 5. The smaller side of the rectangle is (Take $\pi = \frac{22}{7}$)
 (1) 60 cm (2) 30 cm
 (3) 25 cm (4) 36 cm
 (SSC CGL Prelim Exam. 08.02.2004 (Second Sitting))

MENSURATION

39. The number of revolutions, a wheel of diameter 40 cm makes in travelling a distance of 176 m,

$$\text{is } \left(\text{Take } \pi = \frac{22}{7} \right)$$

- (1) 140 (2) 150

- (3) 160 (4) 166

(SSC CGL Prelim Exam. 08.02.2004

(Second Sitting)

40. If the difference between the circumference and diameter of a circle is 30 cm, then the radius of the circle must be

- (1) 6 cm (2) 7 cm

- (3) 5 cm (4) 8 cm

(SSC CPO S.I. Exam. 03.09.2006)

41. If the perimeter of a semicircular field is 144m, then the diameter

$$\text{of the field is } \left(\text{take } \pi = \frac{22}{7} \right)$$

- (1) 55m (2) 30m

- (3) 28m (4) 56m

(SSC CGL Prelim Exam. 27.07.2008

(Second Sitting)

42. The perimeter (in metres) of a semicircle is numerically equal to its area (in square metres). The length of its diameter is

$$\left(\text{take } \pi = \frac{22}{7} \right)$$

- (1) $3\frac{6}{11}$ metres (2) $5\frac{6}{11}$ metres

- (3) $6\frac{6}{11}$ metres (4) $6\frac{2}{11}$ metres

(SSC CGL Prelim Exam. 27.07.2008

(Second Sitting)

43. The ratio of the numbers giving the measure of the circumference and the area of a circle of radius 3 cm is

- (1) 1 : 3 (2) 2 : 3

- (3) 2 : 9 (4) 3 : 2

(SSC CPO S.I. Exam. 09.11.2008)

44. The ratio of the radii of two wheels is 3 : 4. The ratio of their circumference is

- (1) 4 : 3 (2) 3 : 4

- (3) 2 : 3 (4) 3 : 2

(SSC CGL Tier-I Exam. 16.05.2010

(Second Sitting)

45. The length (in cm) of a chord of a circle of radius 13 cm at a distance of 12 cm from its centre is

- (1) 5 (2) 8

- (3) 10 (4) 12

(SSC (South Zone) Investigator

Exam. 12.09.2010)

46. The diameter of a wheel is 98 cm. The number of revolutions in which it will have to cover a distance of 1540 m is

- (1) 500 (2) 600

- (3) 700 (4) 800

(SSC CGL Tier-1 Exam. 19.06.2011

(First Sitting)

47. The wheel of a motor car makes 1000 revolutions in moving 440 m. The diameter (in metre) of the wheel is

- (1) 0.44 (2) 0.14

- (3) 0.24 (4) 0.34

(SSC CGL Tier-1 Exam. 19.06.2011

(Second Sitting)

48. A bicycle wheel makes 5000 revolutions in moving 11 km. Then the radius of the wheel (in cm) is

$$\left(\text{Take } \pi = \frac{22}{7} \right)$$

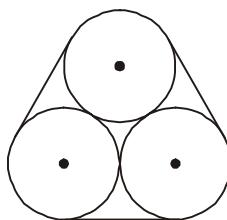
- (1) 70 (2) 35

- (3) 17.5 (4) 140

(SSC CGL Tier-1 Exam. 26.06.2011

(First & Second Sitting)

49. Three circles of diameter 10 cm each, are bound together by a rubber band, as shown in the figure.



The length of the rubber band, (in cm) if it is stretched as shown, is

- (1) 30 (2) $30 + 10\pi$

- (3) 10π (4) $60 + 20\pi$

(SSC CPO (SI, ASI & Intelligence Officer) Exam. 28.08.2011 (Paper-I))

50. If a chord of length 16 cm is at a distance of 15 cm from the centre of the circle, then the length of the chord of the same circle which is at a distance of 8 cm from the centre is equal to

- (1) 10 cm (2) 20 cm

- (3) 30 cm (4) 40 cm

(SSC CPO (SI, ASI & Intelligence Officer)

Exam. 28.08.2011 (Paper-I))

51. A semicircular shaped window has diameter of 63 cm. Its per-

$$\text{imeter equals } \left(\pi = \frac{22}{7} \right)$$

- (1) 126 cm (2) 162 cm

- (3) 198 cm (4) 251 cm

(SSC CISF Constable (GD)

Exam. 05.06.2011)

52. A gear 12 cm in diameter is turning a gear 18 cm in diameter. When the smaller gear has 42 revolutions, how many has the larger one made ?

- (1) 28 (2) 20

- (3) 15 (4) 24

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting))

53. The perimeter of a semi-circular area is 18cm, then the radius is :

$$\left(\text{using } \pi = \frac{22}{7} \right)$$

- (1) $5\frac{1}{3}$ cm (2) $3\frac{1}{2}$ cm

- (3) 6 cm (4) 4 cm

(SSC CHSL DEO & LDC Exam. 04.11.2012, Ist Sitting)

54. A circular road runs around a circular ground. If the difference between the circumference of the outer circle and the inner circle is 66 metres, the width of the road is:

$$\left(\text{Take } \pi = \frac{22}{7} \right)$$

- (1) 10.5 metres (2) 7 metres

- (3) 5.25 metres (4) 21 metres

(SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting)

55. A person observed that he required 30 seconds less time to cross a circular ground along its diameter than to cover it once along the boundary. If his speed was 30 m/minute, then the radius of the circular ground is (Take

$$\pi = \frac{22}{7}) :$$

- (1) 5.5 m (2) 7.5 m

- (3) 10.5 m (4) 3.5 m

(SSC Graduate Level Tier-I Exam. 21.04.2013)

MENSURATION

56. The difference of perimeter and diameter of a circle is X unit. The diameter of the circle is

- (1) $\frac{X}{\pi - 1}$ unit (2) $\frac{X}{\pi + 1}$ unit
 (3) $\frac{X}{\pi}$ unit (4) $\left(\frac{X}{\pi} - 1\right)$ unit

(SSC Graduate Level Tier-I Exam. 19.05.2013)

57. The circumference of a circle is 100 cm. The side of a square inscribed in the circle is

- (1) $\frac{100\sqrt{2}}{\pi}$ cm (2) $\frac{50\sqrt{2}}{\pi}$ cm
 (3) $\frac{100}{\pi}$ cm (4) $50\sqrt{2}$ cm

(SSC CPO S.I. Exam. 12.01.2003 & 09.11.2008)

58. A path of uniform width surrounds a circular park. The difference of internal and external circumference of this circular path is 132 metres. Its width is :

$$\text{(Take } \pi = \frac{22}{7} \text{)}$$

- (1) 22m (2) 20 m
 (3) 21m (4) 24m

(SSC CGL Prelim Exam. 11.05.2003 (First Sitting))

59. The ratio of the outer and the inner perimeter of a circular path is 23 : 22. If the path is 5 metres wide, the diameter of the inner circle is :

- (1) 110 m (2) 55 m
 (3) 220 m (4) 230 m
 (SSC CGL Prelim Exam. 08.02.2004 (First Sitting))

60. The radius of the incircle of a triangle is 2 cm. If the area of the triangle is 6 cm^2 , then its perimeter is

- (1) 2 cm (2) 3 cm
 (3) 6 cm (4) 9 cm
 (SSC CPO (SI, ASI & Intelligence Officer) Exam. 28.08.2011 (Paper-I))

61. The area of the circumcircle of an equilateral triangle is $3\pi \text{ sq. cm}$. The perimeter of the triangle is

- (1) $3\sqrt{3}$ cm (2) 9 cm
 (3) 18 cm (4) 3 cm
 (SSC FCI Assistant Grade-III Main Exam. 07.04.2013)

62. A wire when bent in the form of a square encloses an area of 484 sq. cm. What will be the enclosed area when the same wire is bent into the form of a circle?

$$\text{(Take } \pi = \frac{22}{7} \text{)}$$

- (1) 462 sq.cm (2) 539 sq.cm
 (3) 616 sq.cm (4) 693 sq.cm

(SSC CGL Prelim Exam. 24.02.2002 (1st Sitting) & (SSC CGL Prelim Exam. 13.11.2005 (1st Sitting) & (SSC CHSL DEO & LDC Exam. 11.12.2011 (1st Sitting, Delhi Zone))

63. Four equal sized maximum circular plates are cut off from a square paper sheet of area 784 sq.cm. The circumference of each plate is (Take $\pi = \frac{22}{7}$)

- (1) 22 cm (2) 44 cm
 (3) 66 cm (4) 88 cm
 (SSC CGL Prelim Exam. 11.05.2003 (Second Sitting))

64. If the area of a circle and a square are equal, then the ratio of their perimeter is

- (1) 1 : 1 (2) 2 : π
 (3) $\pi : 2$ (4) $\sqrt{\pi} : 2$

(SSC CGL Prelim Exam. 13.11.2005 (Second Sitting))

65. A copper wire is bent in the form of square with an area of 121 cm^2 . If the same wire is bent in the form of a circle, the radius (in

cm) of the circle is (Take $\pi = \frac{22}{7}$)

- (1) 7 (2) 10
 (3) 11 (4) 14
 (SSC CGL Tier-1 Exam. 19.06.2011 (Second Sitting))

66. If the perimeter of a square and a rectangle are the same, then the area P and Q enclosed by them would satisfy the condition

- (1) P < Q (2) P \leq Q
 (3) P > Q (4) P = Q
 (SSC Assistant Grade-III Exam. 11.11.2012 (IIInd Sitting))

67. A circle and a rectangle have the same perimeter. The sides of the rectangle are 18 cm and 26 cm. The area of the circle is

$$\left[\text{Take } \pi = \frac{22}{7} \right]$$

- (1) 125 cm^2 (2) 230 cm^2
 (3) 550 cm^2 (4) 616 cm^2

(SSC Graduate Level Tier-II Exam. 16.09.2012)

68. If the sides of an equilateral triangle are increased by 20%, 30% and 50% respectively to form a new triangle, the increase in the perimeter of the equilateral triangle is

- (1) 25% (2) $33\frac{1}{3}\%$

- (3) 75% (4) 100%

(SSC CGL Prelim Exam. 04.02.2007 (Second Sitting))

69. A horse is tied to a post by a rope. If the horse moves along a circular path always keeping the rope stretched and describes 88 metres when it has traced out 72° at the centre, the length of the rope is

$$\left(\text{Take } \pi = \frac{22}{7} \right)$$

- (1) 70 m (2) 75 m
 (3) 80 m (4) 65 m

(SSC Graduate Level Tier-I Exam. 21.04.2013)

70. Three circles of radii 3.5 cm, 4.5 cm and 5.5 cm touch each other externally. Then the perimeter of the triangle formed by joining the centres of the circles, in cm, is

- (1) 27 (2) $\pi[(3.5)^2 + (4.5)^2 + (5.5)^2]$
 (3) 27π (4) 13.5

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IIInd Sitting))

71. ABCD is a parallelogram in which diagonals AC and BD intersect at O. If E, F, G and H are the mid points of AO, DO, CO and BO respectively, then the ratio of the perimeter of the quadrilateral EFGH to the perimeter of parallelogram ABCD is

- (1) 1 : 4 (2) 2 : 3
 (3) 1 : 2 (4) 1 : 3

(SSC CGL Tier-I Exam. 19.10.2014)

MENSURATION

72. A circular wire of diameter 112 cm is cut and bent in the form of a rectangle whose sides are in the ratio of 9 : 7. The smaller side of the rectangle is

- (1) 77 cm (2) 97 cm
(3) 67 cm (4) 87 cm

(SSC CGL Tier-I Exam. 26.10.2014)

73. If the perimeter of an equilateral triangle be 18 cm, then the length of each median is

- (1) $3\sqrt{2}$ cm (2) $2\sqrt{3}$ cm
(3) $3\sqrt{3}$ cm (4) $2\sqrt{2}$ cm

(SSC CHSL DEO & LDC Exam. 02.11.2014 (IInd Sitting))

74. Two equal maximum sized circular plates are cut off from a circular paper sheet of circumference 352 cm. Then the circumference of each circular plate is

- (1) 176 cm (2) 150 cm
(3) 165 cm (4) 180 cm

(SSC CHSL DEO & LDC Exam. 16.11.2014)

75. If diagonals of a rhombus are 24 cm and 32 cm, then perimeter of that rhombus is

- (1) 80 cm (2) 84 cm
(3) 76 cm (4) 72 cm

(SSC CHSL DEO & LDC Exam. 16.11.2014)

76. The inradius of an equilateral triangle is $\sqrt{3}$ cm, then the perimeter of that triangle is

- (1) 18 cm (2) 15 cm
(3) 12 cm (4) 6 cm

(SSC CHSL DEO & LDC Exam. 16.11.2014)

77. Length of a side of a square inscribed in a circle is $a\sqrt{2}$ units. The circumference of the circle is

- (1) $2\pi a$ units (2) πa units
(3) $4\pi a$ units (4) $\frac{2a}{\pi}$ units

(SSC CHSL DEO Exam. 02.11.2014 (Ist Sitting))

78. The perimeter and length of a rectangle are 40 m and 12 m respectively. Its breadth will be

- (1) 10 m (2) 8 m
(3) 6 m (4) 3 m

(SSC CHSL DEO Exam. 02.11.2014 (Ist Sitting))

79. The difference between the circumference and diameter of a circle is 150 m. The radius of that

circle is (Take $\pi = \frac{22}{7}$)

- (1) 25 metre (2) 35 metre
(3) 30 metre (4) 40 metre

(SSC CHSL DEO Exam. 16.11.2014 (Ist Sitting))

80. PQRS is a square with side 10 cm. A, B, C and D are mid-points of PQ, QR, RS and SP respectively. Then the perimeter of the square ABCD so formed is

- (1) $10\sqrt{2}$ cm (2) $20\sqrt{2}$ cm
(3) $25\sqrt{2}$ cm (4) $15\sqrt{2}$ cm

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, Ist Sitting TF No. 333 LO 2)

81. A piece of wire when bent to form a circle will have a radius of 84 cm. If the wire is bent to form a square, the length of a side of the square is

- (1) 152 cm (2) 132 cm
(3) 168 cm (4) 225 cm

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

82. The perimeters of two similar triangles are 30 cm and 20 cm respectively. If one side of the first triangle is 9 cm. Determine the corresponding side of the second triangle.

- (1) 13.5 cm (2) 6 cm
(3) 15 cm (4) 5 cm

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 21.06.2015 (Ist Sitting) TF No. 8037731)

83. The sides of a triangle having area 7776 sq. cm are in the ratio 3 : 4 : 5. The perimeter of the triangle is

- (1) 432 cm (2) 400 cm
(3) 412 cm (4) 424 cm

(SSC CGL Tier-I Exam. 09.08.2015 (Ist Sitting) TF No. 1443088)

84. The diameter of each wheel of a car is 70 cm. If each wheel rotates 400 times per minute, then the speed of the car (in km/hr) is

(Take $\pi = \frac{22}{7}$)

- (1) 0.528 (2) 528
(3) 52.8 (4) 5.28

(SSC CGL Tier-II Exam. 25.10.2015, TF No. 1099685)

85. Quadrilateral ABCD is circumscribed about a circle. If the lengths of AB, BC and CD are 7 cm, 8.5 cm, and 9.2 cm respectively, then the length (in cm) of DA is

- (1) 7.7 (2) 16.2
(3) 10.7 (4) 7.2

(SSC CGL Tier-II Exam. 25.10.2015, TF No. 1099685)

86. The perimeter of a rhombus is 60 cm and one of its diagonal is 24 cm. The area of the rhombus is

- (1) 108 sq. cm. (2) 216 sq. cm.
(3) 432 sq. cm. (4) 206 sq. cm.

(SSC CGL Tier-II Exam. 25.10.2015, TF No. 1099685)

87. The ratio of circumference and diameter of a circle is 22 : 7. If

the circumference be $1\frac{4}{7}$ m, then the radius of the circle is :

- (1) $\frac{1}{3}$ m (2) $\frac{1}{2}$ m
(3) $\frac{1}{4}$ m (4) 1 m

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam. 15.11.2015 (Ist Sitting) TF No. 6636838)

88. Four circles of equal radii are described about the four corners of a square so that each touches two of the other circles. If each side of the square is 140 cm then area of the space enclosed between the circumference of the

circle is (Take $\pi = \frac{22}{7}$)

- (1) 4200 cm^2 (2) 2100 cm^2
(3) 7000 cm^2 (4) 2800 cm^2

(SSC CGL Tier-II Online Exam.01.12.2016)

89. The perimeter of a triangle is 67 cm. The first side is twice the length of the second side. The third side is 11 cm more than the second side. Find the length of the shortest side of the triangle.

- (1) 12 cm. (2) 14 cm.
(3) 17 cm. (4) 25 cm.

(SSC CPO SI, ASI Online Exam.05.06.2016) (IInd Sitting)

90. The radius of a wheel is 25 cm. How many rounds it will take to complete 11 km.

- (1) 5000 (2) 6000
(3) 7000 (4) 4000

(SSC CPO SI, ASI Online Exam.05.06.2016) (IInd Sitting)

91. If the perimeter of circle A is equal

MENSURATION

to perimeter of semi circle B, what is the ratio of their areas?

(1) $(\pi+2)^2 : 2\pi^2$

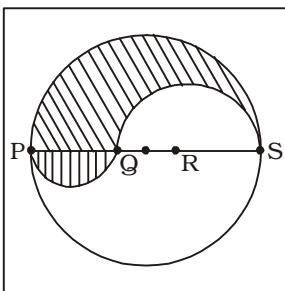
(2) $2\pi^2 : (\pi+2)^2$

(3) $(\pi+2)^2 : 4\pi^2$

(4) $4\pi^2 : (\pi+2)^2$

(SSC CPO Exam. 06.06.2016)
(Ist Sitting)

92. PS is a diameter of a circle of radius 6 cm. In the diameter PS, Q and R are two points such that PQ, QR and RS are all equal. Semicircles are drawn on PQ and QS as diameter (as shown in the figure). The perimeter of shaded portion is :



(1) $15\frac{6}{7}$ cm (2) $75\frac{3}{7}$ cm

(3) $37\frac{5}{7}$ cm (4) $18\frac{6}{7}$ cm

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 20.03.2016)
(IIInd Sitting)

93. The perimeter of a certain isosceles right triangle is $10 + 10\sqrt{2}$ cm. What is the length of the hypotenuse of the triangle?

(1) 5 cm (2) 10 cm

(3) $5\sqrt{2}$ cm (4) $10\sqrt{2}$ cm

(SSC CPO SI & ASI, Online
Exam. 06.06.2016) (IIInd Sitting)

94. The radius of wheel moving on a road, is $\frac{3}{4}$ cm. How many rounds it will take to complete 55 metre distance.

(1) 10 (2) 11
(3) 100 (4) 55

(SSC CPO SI & ASI, Online
Exam. 06.06.2016) (IIInd Sitting)

95. The sides of a triangle are in the ratio $\frac{1}{2} : \frac{1}{3} : \frac{1}{4}$ and its perimeter is 104 cm. The length of the longest side (in cm) is

- (1) 52 (2) 48
(3) 32 (4) 26
(SSC CGL Tier-II (CBE)
Exam. 30.11.2016)

96. In an isosceles triangle, the length of each equal side is twice the length of the third side. The ratio of areas of the isosceles triangle and an equilateral triangle with same perimeter is

(1) $30\sqrt{5} : 100$ (2) $32\sqrt{5} : 100$

(3) $36\sqrt{5} : 100$ (4) $42\sqrt{5} : 100$

(SSC CGL Tier-II (CBE)
Exam. 30.11.2016)

97. The radius of the incircle of an equilateral ΔABC of side $2\sqrt{3}$ units is x cm. The value of x is :

- (1) $\frac{1}{3}$ (2) $\frac{1}{2}$
(3) 1 (4) $\sqrt{3}$

(SSC CGL Tier-I (CBE))

Exam. 28.08.2016 (Ist Sitting)

98. The four sides of a quadrilateral are in the ratio of $2 : 3 : 4 : 5$ and its perimeter is 280 metre. The length of the longest side is :

- (1) 100 metre (2) 150 metre
(3) 175 metre (4) 180 metre

(SSC CGL Tier-I (CBE))

Exam. 07.09.2016 (IIInd Sitting)

99. If x is the area, y is the circumference and z is the diameter of

circle then the value of $\frac{x}{yz}$ is

- (1) 4 : 1 (2) 1 : 4
(3) 1 : 2 (4) 2 : 1

(SSC CGL Tier-I (CBE))

Exam. 08.09.2016 (IIInd Sitting)

100. The lengths of diagonals of a rhombus are 24 cm and 10 cm the perimeter of the rhombus (in cm.) is :

- (1) 52 (2) 56
(3) 68 (4) 72

(SSC CGL Tier-I (CBE))

Exam. 08.09.2016 (IIIrd Sitting)

101. The length of the base of an isosceles triangle is $2x - 2y + 4z$, and its perimeter is $4x - 2y + 6z$. Then the length of each of the equal sides is

- (1) $x + y$ (2) $x + y + z$
(3) $2(x + y)$ (4) $x + z$

(SSC CGL Tier-I (CBE))

Exam. 09.09.2016 (IIInd Sitting)

102. Which of the following ratios can be the ratio of the sides of a right angled triangle?

- (1) 9 : 6 : 3 (2) 13 : 12 : 5
(3) 7 : 6 : 5 (4) 5 : 3 : 2

(SSC CGL Tier-I (CBE))

Exam. 11.09.2016 (IIIrd Sitting)

103. A square playground measures 1127.6164 sq. cm. If a man

walks $2\frac{9}{20}$ m a minute, the time taken by him to walk one round around it is approximately.

- (1) 50.82 minutes (2) 54.82 minutes
(3) 54.62 minutes (4) 50.62 minutes

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

TYPE-III

1. How many tiles, each 4 decimetre square, will be required to cover the floor of a room 8 m long and 6 m broad ?

- (1) 200 (2) 260
(3) 280 (4) 300

(SSC Graduate Level Tier-II
Exam. 29.09.2013)

2. The floor of a corridor is 100m long and 3 m wide. Cost of covering the floor with carpet 50 cm wide at the rate of ₹ 15 per m is

- (1) ₹ 4500 (2) ₹ 9000
(3) ₹ 7500 (4) ₹ 1900

(SSC CGL Prelim Exam. 04.02.2007
(Second Sitting))

3. Three sides of a triangular field are of length 15 m, 20 m and 25 m long respectively. Find the cost of sowing seeds in the field at the rate of 5 rupees per sq.m.

- (1) ₹300 (2) ₹600
(3) ₹750 (4) ₹150

(SSC Graduate Level Tier-I
Exam. 21.04.2013)

4. The radius of a circular wheel is 1.75 m. The number of revolutions it will make in travelling 11 km is :

$$\left(\text{use } \pi = \frac{22}{7} \right)$$

- (1) 800 (2) 900
(3) 1000 (4) 1200

(SSC CGL Prelim Exam. 04.07.1999
(First Sitting))

5. The radius of a wheel is 21 cm. How many revolutions will it make in travelling 924 metres ?

$$\left(\text{use } \pi = \frac{22}{7} \right)$$

- (1) 7 (2) 11
(3) 200 (4) 700

(SSC CGL Prelim Exam. 04.07.1999
(Second Sitting))

MENSURATION

- 6.** A playground is in the shape of a rectangle. A sum of ₹1,000 was spent to make the ground usable at the rate of 25 paise per sq. m. The breadth of the ground is 50 m. If the length of the ground is increased by 20 m, what will be the expenditure (in rupees) at the same rate per sq. m. ?
 (1) 1,250 (2) 1,000
 (3) 1,500 (4) 2,250
 (SSC Graduate Level Tier-II Exam. 16.09.2012)
- 7.** If each edge of a square be doubled, then the increase percentage in its area is
 (1) 200% (2) 250%
 (3) 280% (4) 300%
 (SSC CHSL DEO & LDC Exam. 16.11.2014)
- 8.** If radius of a circle is increased by 5%, then the increase in its area is
 (1) 10.25 % (2) 10 %
 (3) 5.75 % (4) 5 %
 (SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)
- 9.** The height of a triangle is increased by 10%. To retain the original area of the triangle, its corresponding base must be decreased by
 (1) 10% (2) $9\frac{1}{7}\%$
 (3) $9\frac{1}{8}\%$ (4) $9\frac{1}{11}\%$
 (SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015 (1st Sitting) TF No. 8037731)
- 10.** The percentage increase in the area of a rectangle, if each of its sides is increased by 20% is equal to
 (1) 32% (2) 34%
 (3) 42% (4) 44%
 (SSC CGL Tier-I Re-Exam, 30.08.2015)
- 11.** If the radius of a circle is decreased by 10%, then the area of the circle is decreased by
 (1) 89% (2) 18%
 (3) 19% (4) 25%
 (SSC Constable (GD) Exam, 04.10.2015, IInd Sitting)
- 12.** The outer circumference of a circular race-track is 528 metre. The track is everywhere 14 metre wide. Cost of levelling the track at the rate of Rs. 10 per sq. metre is :
 (1) Rs. 77660 (2) Rs. 66760
 (3) Rs. 76760 (4) Rs. 67760
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IInd Sitting) TF No. 3441135)
- 13.** If the area of a square is increased by 44%, retaining its shape as a square, each of its sides increases by :
 (1) 19% (2) 21%
 (3) 22% (4) 20%
 (SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 20.03.2016)
 (IInd Sitting)
- 14.** What will be the percentage increase in the area of a square when each of the its sides is increased by 10%?
 (1) 20 (2) 11
 (3) 121 (4) 21
 (SSC CGL Tier-I (CBE) Exam. 30.08.2016) (IInd Sitting)
- 15.** If the length and breadth of a rectangle are increased by 10% and 8% respectively, then the area of the rectangle increases by :
 (1) $18\frac{7}{5}\%$ (2) $18\frac{4}{5}\%$
 (3) 18% (4) $18\frac{1}{5}\%$
 (SSC CGL Tier-I (CBE) Exam. 27.10.2016 (1st Sitting))
- TYPE-IV**
- 1.** The edges of a rectangular box are in the ratio 1 : 2 : 3 and its surface area is 88 cm^2 . The volume of the box is
 (1) 24 cm^3 (2) 48 cm^3
 (3) 64 cm^3 (4) 120 cm^3
 (SSC CHSL DEO & LDC Exam. 28.10.2012, Ist Sitting)
- 2.** A right triangle with sides 3 cm, 4 cm and 5 cm is rotated about the side 3 cm to form a cone. The volume of the cone so formed is
 (1) $16\pi \text{ cm}^3$ (2) $12\pi \text{ cm}^3$
 (3) $15\pi \text{ cm}^3$ (4) $20\pi \text{ cm}^3$
 (SSC CGL Prelim Exam. 04.02.2007 (First Sitting))
- 3.** If the length of each side of a regular tetrahedron is 12 cm, then the volume of the tetrahedron is
 (1) $144\sqrt{2} \text{ cu. cm.}$
 (2) $72\sqrt{2} \text{ cu. cm.}$
 (3) $8\sqrt{2} \text{ cu. cm.}$
 (4) $12\sqrt{2} \text{ cu. cm.}$
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (1st Sitting (Delhi Zone)))
- 4.** Two right circular cylinders of equal volume have their heights in the ratio 1 : 2. The ratio of their radii is :
 (1) $\sqrt{2}:1$ (2) 2 : 1
 (3) 1 : 2 (4) 1 : 4
 (SSC CGL Prelim Exam. 04.07.1999 (First Sitting))
- 5.** The volume of a right circular cylinder whose height is 40cm, and circumference of its base is 66 cm, is :
 (1) 55440 cm^3 (2) 3465 cm^3
 (3) 7720 cm^3 (4) 13860 cm^3
 (SSC CGL Prelim Exam. 27.02.2000 (First Sitting))
- 6.** The base radii of two cylinders are in the ratio 2 : 3 and their heights are in the ratio 5 : 3. The ratio of their volumes is :
 (1) 27 : 20 (2) 20 : 27
 (3) 9 : 4 (4) 4 : 9
 (SSC CGL Prelim Exam. 24.02.2002 & 13.11.2005 (1st Sitting))
- 7.** The curved surface area of a cylindrical pillar is 264 m^2 and its volume is 924 m^3 .
 (Taking $\pi = \frac{22}{7}$). Find the ratio of its diameter to its height.
 (1) 7 : 6 (2) 6 : 7
 (3) 3 : 7 (4) 7 : 3
 (SSC CGL Prelim Exam. 24.02.2002 (IInd Sitting) & (SSC CGL Prelim Exam. 13.11.2005 (1st Sitting) & CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting, East Zone))
- 8.** A hollow cylindrical tube 20 cm long, is made of iron and its external and internal diameters are 8 cm and 6 cm respectively. The volume of iron used in making the tube is ($p = \frac{22}{7}$)
 (1) 1760 cu.cm. (2) 880 cu.cm.
 (3) 440 cu.cm. (4) 220 cu.cm.
 (SSC CGL Prelim Exam. 11.05.2003 (Second Sitting))

MENSURATION

- 9.** A hollow iron pipe is 21 cm long and its exterior diameter is 8 cm. If the thickness of the pipe is 1 cm and iron weighs 8 g/cm^3 , then the weight of the pipe is

$$\left(\text{Take } \pi = \frac{22}{7} \right)$$

- (1) 3.696 kg (2) 3.6 kg
 (3) 36 kg (4) 36.9 kg
 (SSC CGL Prelim Exam. 08.02.2004
 (IInd Sitting) & (SSC CHSL DEO
 & LDC Exam. 04.12.2011)

- 10.** The volume of a right circular cylinder, 14 cm in height, is equal to that of a cube whose edge is

11 cm . Taking $\pi = \frac{22}{7}$ the radius of the base of the cylinder is
 (1) 5.2 cm. (2) 5.5 cm.
 (3) 11.0 cm. (4) 22.0 cm.

(SSC CPO S.I. Exam. 05.09.2004)

- 11.** If the volume of a right circular cylinder is $9\pi h \text{ m}^3$, where h is its height (in metres) then the diameter of the base of the cylinder is equal to

- (1) 3 m (2) 6 m
 (3) 9 m (4) 12 m

(SSC CPO S.I. Exam. 05.09.2004)

- 12.** A right circular cylinder of height 16 cm is covered by a rectangular tin foil of size $16 \text{ cm} \times 22 \text{ cm}$. The volume of the cylinder is

- (1) 352 cm^3 (2) 308 cm^3
 (3) 616 cm^3 (4) 176 cm^3

(SSC CGL Prelim Exam. 04.02.2007
 (First Sitting))

- 13.** The volume of the metal of a cylindrical pipe is 748 cm^3 . The length of the pipe is 14 cm and its external radius is 9 cm. Its

thickness is $\left(\text{Take } \pi = \frac{22}{7} \right)$

- (1) 1 cm (2) 5.2 cm
 (3) 2.3 cm (4) 3.7 cm

(SSC CGL Prelim Exam. 27.07.2008
 (First Sitting))

- 14.** Two iron sheets each of diameter 6 cm are immersed in the water contained in a cylindrical vessel of radius 6 cm. The level of the water in the vessel will be raised by

- (1) 1 cm (2) 2 cm
 (3) 3 cm (4) 6 cm

(SSC CGL Prelim Exam. 27.07.2008
 (First Sitting))

- 15.** The radii of the base of two cylinders A and B are in the ratio $3 : 2$ and their height in the ratio $n : 1$. If the volume of cylinder A is 3 times that of cylinder B, the value of n is

- (1) $\frac{4}{3}$ (2) $\frac{2}{3}$
 (3) $\frac{3}{4}$ (4) $\frac{3}{2}$

(SSC CPO S.I. Exam. 09.11.2008)

- 16.** Water is being pumped out through a circular pipe whose internal diameter is 7 cm. If the flow of water is 12 cm per second, how many litres of water is being pumped out in one hour?

- (1) 1663.2 (2) 1500
 (3) 1747.6 (4) 2000

(SSC CPO S.I. Exam. 06.09.2009)

- 17.** The lateral surface area of a cylinder is 1056 cm^2 and its height is 16 cm. Find its volume.

- (1) 4545 cm^3 (2) 4455 cm^3
 (3) 5445 cm^3 (4) 5544 cm^3

(SSC CPO S.I. Exam. 06.09.2009)

- 18.** A cylinder has ' r ' as the radius of the base and ' h ' as the height. The radius of base of another cylinder, having double the volume but the same height as that of the first cylinder must be equal to

- (1) $\frac{r}{\sqrt{2}}$ (2) $2r$
 (3) $r\sqrt{2}$ (4) $\sqrt{2}r$

FCI Assistant Grade-III
 Exam. 25.02.2012 (Paper-I)

North Zone (Ist Sitting)

- 19.** The diameter of two cylinders, whose volumes are equal, are in the ratio $3 : 2$. Their heights will be in the ratio .

- (1) $4 : 9$ (2) $5 : 6$
 (3) $5 : 8$ (4) $8 : 9$

(SSC CHSL DEO & LDC Exam.
 28.11.2010 (Ist Sitting))

- 20.** From a solid cylinder of height 10 cm and radius of the base 6 cm, a cone of same height and same base is removed. The volume of the remaining solid is :

- (1) $240\pi \text{ cu.cm}$ (2) 5280 cu.cm
 (3) $620\pi \text{ cu.cm}$ (4) $360\pi \text{ cu.cm}$

(SSC CHSL DEO & LDC
 Exam. 11.12.2011 (IIInd Sitting
 (East Zone))

- 21.** From a solid cylinder whose height is 12 cm and diameter 10 cm, a conical cavity of same height and same diameter of the base is hollowed out. The volume of the remaining solid is approx-

$$\text{imately } \left(\pi = \frac{22}{7} \right)$$

- (1) 942.86 cm^3 (2) 314.29 cm^3
 (3) 628.57 cm^3 (4) 450.76 cm^3

(SSC Constable (GD) & Rifleman
 (GD) Exam. 22.04.2012 (IIInd Sitting))

- 22.** The radius of a cylinder is 10 cm and height is 4 cm. The number of centimetres that may be added either to the radius or to the height to get the same increase in the volume of the cylinder is

- (1) 5 cm (2) 4 cm
 (3) 25 cm (4) 16 cm

(SSC Graduate Level Tier-II
 Exam. 16.09.2012)

- 23.** The radii of the base of a cylinder and a cone are in the ratio $\sqrt{3} : \sqrt{2}$ and their heights are in the ratio $\sqrt{2} : \sqrt{3}$. Their volumes are in the ratio of

- (1) $\sqrt{3} : \sqrt{2}$ (2) $3\sqrt{3} : \sqrt{2}$
 (3) $\sqrt{3} : 2\sqrt{2}$ (4) $\sqrt{2} : \sqrt{6}$

(SSC Graduate Level Tier-I
 Exam. 11.11.2012 (Ist Sitting))

- 24.** The curved surface area and the total surface area of a cylinder are in the ratio $1 : 2$. If the total surface area of the right cylinder is 616 cm^2 , then its volume is :

- (1) 1232 cm^3 (2) 1848 cm^3
 (3) 1632 cm^3 (4) 1078 cm^3

(SSC Graduate Level Tier-I
 Exam. 21.04.2013)

- 25.** The perimeter of the base of a right circular cylinder is ' a ' unit. If the volume of the cylinder is V cubic unit, then the height of the cylinder is

$$(1) \frac{4a^2V}{\pi} \text{ unit} \quad (2) \frac{4\pi a^2}{V} \text{ unit}$$

$$(3) \frac{\pi a^2 V}{4} \text{ unit} \quad (4) \frac{4\pi V}{a^2} \text{ unit}$$

(SSC Graduate Level Tier-I
 Exam. 19.05.2013)

MENSURATION

- 26.** What is the height of a cylinder that has the same volume and radius as a sphere of diameter 12 cm ?
- (1) 7 cm (2) 10 cm
 (3) 9 cm (4) 8 cm
 (SSC CHSL DEO & LDC Exam. 20.10.2013)
- 27.** If diagonal of a cube is $\sqrt{12}$ cm, then its volume in cubic cm is :
- (1) 8 (2) 12
 (3) 24 (4) $3\sqrt{2}$
 (SSC CGL Prelim Exam. 04.07.1999 (First Sitting))
- 28.** If the volume of two cubes are in the ratio 27:1, the ratio of their edge is :
- (1) 3 : 1 (2) 27:1
 (3) 1:3 (4) 1:27
 (SSC CGL Prelim Exam. 04.07.1999 (IInd Sitting) & (SSC S.O. Commercial Audit Exam. 16.11.2003))
- 29.** The edges of a cuboid are in the ratio 1 : 2 : 3 and its surface area is 88cm^2 . The volume of the cuboid is :
- (1) 120 cm^3 (2) 64 cm^3
 (3) 48 cm^3 (4) 24 cm^3
 (SSC CGL Prelim Exam. 04.07.1999 (IInd Sitting) & (SSC CHSL DEO & LDC Exam. 28.10.2012))
- 30.** What is the volume of a cube (in cubic cm) whose diagonal measures $4\sqrt{3}$ cm?
- (1) 16 (2) 27
 (3) 64 (4) 8
 (SSC CGL Prelim Exam. 24.02.2002 (1st Sitting) & (SSC CPO S.I. Exam. 03.09.2006))
- 31.** A cuboidal water tank has 216 litres of water. Its depth is $\frac{1}{3}$ of its length and breadth is $\frac{1}{2}$ of $\frac{1}{3}$ of the difference of length and breadth. The length of the tank is
- (1) 72 dm (2) 18 dm
 (3) 6 dm (4) 2 dm
 (SSC CGL Prelim Exam. 24.02.2002 (Middle Zone) & (SSC CGL Prelim Exam. 13.11.2005 (First Sitting)))
- 32.** A wooden box measures 20 cm by 12 cm by 10 cm. Thickness of wood is 1 cm. Volume of wood to make the box (in cubic cm) is
- (1) 960 (2) 519
 (3) 2400 (4) 1120
 (SSC CGL Prelim Exam. 11.05.2003 (Second Sitting))
- 33.** The area of three adjacent faces of a cuboid are x , y , z square units respectively. If the volume of the cuboid be y cubic units, then the correct relation between v , x , y , z is
- (1) $v^2 = xyz$ (2) $v^3 = xyz$
 (3) $v^2 = x^3y^3z^3$ (4) $v^3 = x^2y^2z^2$
 (SSC CGL Prelim Exam. 04.02.2007 (Second Sitting))
- 34.** Water flows into a tank which is 200m long and 150m wide, through a pipe of cross-section $0.3\text{m} \times 0.2\text{m}$ at 20 km/hour. Then the time (in hours) for the water level in the tank to reach 8m is
- (1) 50 (2) 120
 (3) 150 (4) 200
 (SSC CGL Tier-1 Exam. 19.06.2011 (First Sitting))
- 35.** A rectangular sheet of metal is 40cm by 15cm. Equal squares of side 4cm are cut off at the corners and the remainder is folded up to form an open rectangular box. The volume of the box is
- (1) 896 cm^3 (2) 986 cm^3
 (3) 600 cm^3 (4) 916 cm^3
 (SSC CGL Tier-1 Exam. 19.06.2011 (First Sitting))
- 36.** The areas of three consecutive faces of a cuboid are 12 cm^2 , 20 cm^2 and 15 cm^2 , then the volume (in cm^3) of the cuboid is
- (1) 3600 (2) 100
 (3) 80 (4) 60
 (SSC CGL Tier-1 Exam. 19.06.2011 (Second Sitting))
- 37.** Surface areas of three adjacent faces of a cuboid are p , q , r . Its volume is
- (1) $\sqrt{pq^2 + qr^2 + rp^2}$
 (2) $(\sqrt{pq} + \sqrt{qr} + \sqrt{rp})(p^2 + q^2 + r^2)$
 (3) $\left(\sqrt{(p^2 + q^2 + r^2)(p + q + r)}\right)$
 (4) \sqrt{pqr}
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (IInd Sitting))
- 38.** A godown is 15 m long and 12 m broad. The sum of the area of the floor and the ceiling is equal to the sum of areas of the four walls. The volume (in m^3) of the godown is:
- (1) 900 (2) 1200
 (3) 1800 (4) 720
 (SSC CAPFs SI & CISF ASI Exam. 23.06.2013)
- 39.** If the total surface area of a cube is 96 cm^2 , its volume is
- (1) 56 cm^3 (2) 16 cm^3
 (3) 64 cm^3 (4) 36 cm^3
 (SSC CHSL DEO & LDC Exam. 20.10.2013)
- 40.** The ratio of the volume of two cones is 2 : 3 and the ratio of radii of their base is 1 : 2. The ratio of their height is
- (1) 3 : 8 (2) 8 : 3
 (3) 4 : 3 (4) 3 : 4
 (SSC CGL Prelim Exam. 24.02.2002 (Middle Zone) & (SSC CPO S.I. Exam. 03.09.2006) & (SSC CHSL DEO & LDC Exam. 10.11.2013))
- 41.** If the height of a given cone be doubled and radius of the base remains the same, the ratio of the volume of the given cone to that of the second cone will be
- (1) 2 : 1 (2) 1 : 8
 (3) 1 : 2 (4) 8 : 1
 (SSC CGL Prelim Exam. 11.05.2003 (Second Sitting))
- 42.** If the radius of the base of a cone be doubled and height is left unchanged, then ratio of the volume of new cone to that of the original cone will be :
- (1) 1 : 4 (2) 2 : 1
 (3) 1 : 2 (4) 4 : 1
 (SSC CGL Prelim Exam. 08.02.2004 (Second Sitting))
- 43.** Each of the measure of the radius of base of a cone and that of a sphere is 8 cm. Also, the volume of these two solids are equal. The slant height of the cone is
- (1) $8\sqrt{17}\text{ cm}$ (2) $4\sqrt{17}\text{ cm}$
 (3) $34\sqrt{2}\text{ cm}$ (4) 34 cm.
 (SSC CPO S.I. Exam. 05.09.2004)

MENSURATION

44. A cone of height 15 cm and basediameter 30 cm is carved out of a wooden sphere of radius 15 cm. The percentage of wasted wood is :

- (1) 75% (2) 50%
 (3) 40% (4) 25%

(SSC CPO S.I. Exam. 26.05.2005)

45. In a right circular cone, the radius of its base is 7 cm and its height 24 cm. A cross-section is made through the midpoint of the height parallel to the base. The volume of the upper portion is

- (1) 169 cm^3 (2) 154 cm^3
 (3) 1078 cm^3 (4) 800 cm^3

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006
 (Second Sitting))

46. If the area of the base of a cone is 770 cm^2 and the area of the curved surface is 814 cm^2 , then its volume (in cm^3) is :

- (1) $213\sqrt{5}$ (2) $392\sqrt{5}$
 (3) $550\sqrt{5}$ (4) $616\sqrt{5}$

(SSC CPO S.I. Exam. 16.12.2007)

47. Volume of two cones are in the ratio 1 : 4 and their diameters are in the ratio 4 : 5. The ratio of their height is

- (1) 1 : 5 (2) 5 : 4
 (3) 5 : 16 (4) 25 : 64

(SSC CPO S.I. Exam. 06.09.2009)

48. The height of the cone is 30 cm. A small cone is cut off at the top by a plane parallel to its base. If

its volume is $\frac{1}{27}$ of the volume of the cone, at what height, above the base, is the section made?

- (1) 6 cm (2) 8 cm
 (3) 10 cm (4) 20 cm

(SSC Data Entry Operator Exam. 31.08.2008)

49. The radius of the base and height of a right circular cone are in the ratio 5 : 12. If the volume of the

cone is $314\frac{2}{7} \text{ cm}^3$, the slant height (in cm) of the cone will be

- (1) 12 (2) 13
 (3) 15 (4) 17

(SSC Data Entry Operator Exam. 02.08.2009)

50. Two solid right cones of equal height and of radii r_1 and r_2 are melted and made to form a solid sphere of radius R. Then the height of the cone is

$$(1) \frac{4R^2}{r_1^2 + r_2^2} \quad (2) \frac{4R}{r_1 + r_2}$$

$$(3) \frac{4R^3}{r_1^2 + r_2^2} \quad (4) \frac{R^2}{r_1^2 + r_2^2}$$

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting (North Zone))

51. The ratio of radii of two cone is 3 : 4 and the ratio of their height is 4 : 3. Then the ratio of their volume will be

- (1) 3 : 4 (2) 4 : 3
 (3) 9 : 16 (4) 16 : 9

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting (North Zone))

52. If a right circular cone is separated into solids of volumes V_1 , V_2 , V_3 by two planes parallel to the base, which also trisect the altitude, then $V_1 : V_2 : V_3$ is

- (1) 1 : 2 : 3 (2) 1 : 4 : 6
 (3) 1 : 6 : 9 (4) 1 : 7 : 19

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone))

53. If the radii of the circular ends of a truncated conical bucket which is 45cm high be 28 cm and 7 cm, then the capacity of the bucket in

cubic centimetre is $\left(\text{use } \pi = \frac{22}{7} \right)$

- (1) 48510 (2) 45810
 (3) 48150 (4) 48051

(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (Delhi Zone))

54. The ratio of height and the diameter of a right circular cone is 3 : 2 and its volume is 1078 cc, then

(taking $\pi = \frac{22}{7}$) its height is :

- (1) 7 cm (2) 14 cm
 (3) 21 cm (4) 28 cm

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting (Delhi Zone))

55. The radius of the base of a right circular cone is doubled keeping its height fixed. The volume of the cone will be :

(1) three times of the previous volume

(2) four times of the previous volume

(3) $\sqrt{2}$ times of the previous volume

(4) double of the previous volume

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IIInd Sitting))

56. The heights of two cones are in the ratio 1 : 3 and the diameters of their base are in the ratio 3 : 5. The ratio of their volume is

- (1) 3 : 25 (2) 4 : 25
 (3) 6 : 25 (4) 7 : 25

(SSC Assistant Grade-III Exam. 11.11.2012 (IIInd Sitting))

57. The base of a right circular cone has the same radius a as that of a sphere. Both the sphere and the cone have the same volume. Height of the cone is

- (1) $3a$ (2) $4a$

$$(3) \frac{7}{4}a \quad (4) \frac{7}{3}a$$

(SSC CHSL DEO & LDC Exam. 28.10.2012, Ist Sitting)

58. The circumference of the base of a 16cm height solid cone is 33cm. What is the volume of the cone in cm^3 ?

- (1) 1028 (2) 616
 (3) 462 (4) 828

(SSC CHSL DEO & LDC Exam. 04.11.2012, Ist Sitting)

59. The perimeter of the base of a right circular cone is 8 cm. If the height of the cone is 21 cm, then its volume is:

$$(1) 108\pi \text{ cm}^3 \quad (2) \frac{112}{\pi} \text{ cm}^3$$

$$(3) 112\pi \text{ cm}^3 \quad (4) \frac{108}{\pi} \text{ cm}^3$$

(SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting)

60. If the volume of two right circular cones are in the ratio 4 : 1 and their diameter are in the ratio 5 : 4, then the ratio of their height is :

- (1) 25 : 16 (2) 25 : 64
 (3) 64 : 25 (4) 16 : 25

(SSC CAPFs SI & CISF ASI Exam. 23.06.2013)

61. The volume of a conical tent is 1232 cu. m and the area of its base is 154 sq. m. Find the length of the canvas required to build the tent, if the canvas is 2m in width.

$$\left(\text{Take } \pi = \frac{22}{7} \right)$$

- (1) 270 m (2) 272 m
 (3) 276 m (4) 275 m

(SSC Graduate Level Tier-II Exam. 29.09.2013)

MENSURATION

62. If the ratio of the diameters of two right circular cones of equal height be $3 : 4$, then the ratio of their volumes will be

- (1) $3 : 4$ (2) $9 : 16$
 (3) $16 : 9$ (4) $27 : 64$

(SSC CHSL DEO & LDC Exam.
10.11.2013, Ist Sitting)

63. A hollow spherical metallic ball has an external diameter 6 cm and is

$\frac{1}{2}$ cm thick. The volume of the

ball (in cm^3) is (Take $\pi = \frac{22}{7}$)

- (1) $41\frac{2}{3}$ (2) $37\frac{2}{3}$

- (3) $47\frac{2}{3}$ (4) $40\frac{2}{3}$

(SSC CGL Prelim Exam. 08.02.2004
(Second Sitting))

64. The sum of radii of two spheres is 10 cm and the sum of their volumes is 880 cm^3 . What will be the product of their radii?

- (1) 21 (2) $26\frac{1}{3}$

- (3) $33\frac{1}{3}$ (4) 70

(SSC Section Officer (Commercial Audit)
Exam. 25.09.2005)

65. If the radius of a sphere is doubled, its volume becomes

- (1) double (2) four times
 (3) six times (4) eight times

(SSC CGL Prelim Exam. 04.02.2007
(Second Sitting))

66. The radii of two spheres are in the ratio $3 : 2$. Their volume will be in the ratio :

- (1) $9 : 4$ (2) $3 : 2$
 (3) $8 : 27$ (4) $27 : 8$

(SSC CPO S.I. Exam. 16.12.2007)

67. The total surface area of a solid hemisphere is $108\pi \text{ cm}^2$. The volume of the hemisphere is

- (1) $72\pi \text{ cm}^3$ (2) $144\pi \text{ cm}^3$

- (3) $108\sqrt{6} \text{ cm}^3$ (4) $54\sqrt{6} \text{ cm}^3$

(SSC CGL Prelim Exam. 27.07.2008
(First Sitting))

68. The largest sphere is carved out of a cube of side 7 cm. The volume of the sphere (in cm^3) will be

- (1) 718.66 (2) 543.72
 (3) 481.34 (4) 179.67

(SSC CPO S.I. Exam. 06.09.2009)

69. The surface areas of two spheres are in the ratio $4 : 9$. Their volumes will be in the ratio

- (1) $2 : 3$ (2) $4 : 9$
 (3) $8 : 27$ (4) $64 : 729$

(SSC Data Entry Operator Exam. 31.08.2008) & (SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting) & (SSC GL Tier-II Exam. 29.09.2013)

70. A sphere and a hemisphere have the same volume. The ratio of their radii is

- (1) $1 : 2$ (2) $1 : 8$
 (3) $1 : \sqrt{2}$ (4) $1 : \sqrt[3]{2}$

(SSC CHSL DEO & LDC Exam.
04.11.2012 (IInd Sitting))

71. A solid sphere of 6 cm diameter is melted and recast into 8 solid spheres of equal volume. The radius (in cm) of each small sphere is

- (1) 1.5 (2) 3
 (3) 2 (4) 2.5

(SSC Assistant Grade-III Exam. 11.11.2012 (IInd Sitting))

72. The total surface area of a sphere is 8π square unit. The volume of the sphere is

- (1) $\frac{8\sqrt{2}}{3}\pi$ cubic unit

- (2) $\frac{8}{3}\pi$ cubic unit

- (3) $8\sqrt{3}\pi$ cubic unit

- (4) $\frac{8\sqrt{3}}{5}\pi$ cubic unit

(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

73. Area of the base of a pyramid is 57 sq.cm. and height is 10 cm, then its volume (in cm^3) is

- (1) 570 (2) 390
 (3) 190 (4) 590

(FCI Assistant Grade-III Exam. 25.02.2012 (Paper-I))

North Zone (Ist Sitting)

74. There is a pyramid on a base which is a regular hexagon of side $2a$ cm. If every slant edge of this

pyramid is of length $\frac{5a}{2}$ cm, then

the volume of this pyramid is

- (1) $3a^3 \text{ cm}^3$ (2) $3\sqrt{2}a^3 \text{ cm}^3$

- (3) $3\sqrt{3}a^3 \text{ cm}^3$ (4) $6a^3 \text{ cm}^3$

(SSC CHSL DEO & LDC Exam.
04.12.2011 (IInd Sitting (North Zone))

75. The base of a right pyramid is a square of side 40 cm long. If the volume of the pyramid is 8000 cm^3 , then its height is :

- (1) 5 cm (2) 10 cm
 (3) 15 cm (4) 20 cm

(SSC CHSL DEO & LDC Exam.
11.12.2011 (IInd Sitting (Delhi Zone))

76. The base of a right prism is a trapezium. The length of the parallel sides are 8 cm and 14 cm and the distance between the parallel sides is 8 cm. If the volume of the prism is 1056 cm^3 , then the height of the prism is

- (1) 44 cm (2) 16.5 cm
 (3) 12 cm (4) 10.56 cm

(SSC CHSL DEO & LDC Exam.
11.12.2011 (Ist Sitting (East Zone))

77. The height of a right prism with a square base is 15 cm. If the area of the total surface of the prism is 608 sq. cm. , its volume is

- (1) 910 cm^3 (2) 920 cm^3

- (3) 960 cm^3 (4) 980 cm^3

(SSC Graduate Level Tier-II Exam. 16.09.2012)

78. The base of a right prism is an equilateral triangle of side 8 cm and height of the prism is 10 cm. Then the volume of the prism is

- (1) $320\sqrt{3} \text{ cubic cm}$

- (2) $160\sqrt{3} \text{ cubic cm}$

- (3) $150\sqrt{3} \text{ cubic cm}$

- (4) $300\sqrt{3} \text{ cubic cm}$

(SSC Delhi Police S.I. (SI) Exam. 19.08.2012)

79. The base of right prism is a triangle whose perimeter is 28 cm and the inradius of the triangle is 4 cm. If the volume of the prism is 366 cc, then its height is

- (1) 6 cm (2) 8 cm

- (3) 4 cm (4) None of these

(SSC CHSL DEO & LDC Exam. 20.10.2013)

80. If the base of a right pyramid is triangle of sides 5 cm, 12 cm, 13 cm and its volume is 330 cm^3 , then its height (in cm) will be

- (1) 33 (2) 32
 (3) 11 (4) 22

(SSC CHSL DEO & LDC Exam.
27.10.2013 IInd Sitting))

MENSURATION

81. The diameter of the moon is assumed to be one fourth of the diameter of the earth. Then the ratio of the volume of the earth to that of the moon is

- (1) 64 : 1 (2) 1 : 64
 (3) 60 : 7 (4) 7 : 60

(SSC CHSL DEO & LDC Exam. 28.10.2012, Ist Sitting)

82. A conical vessel whose internal radius is 12 cm and height 50 cm is full of liquid. The contents are emptied into a cylindrical vessel with radius (internal) 10 cm. The height to which the liquid rises in the cylindrical vessel is :

- (1) 25cm (2) 20cm
 (3) 24cm (4) 22cm

(SSC CGL Prelim Exam. 04.07.1999 (First Sitting))

83. The volume of a right circular cylinder is equal to the volume of that right circular cone whose height is 108 cm and diameter of base is 30 cm. If the height of the cylinder is 9 cm, the diameter of its base is

- (1) 30 cm (2) 60 cm
 (3) 50 cm (4) 40 cm

(SSC CGL Prelim Exam. 24.02.2002 (Middle Zone))

84. The total surface area of a cube and a sphere are equal. What will be the ratio between their volume?

- (1) $\pi : 6$ (2) $\sqrt{\pi} : \sqrt{6}$
 (3) $\sqrt{6} : \sqrt{\pi}$ (4) $6 : \pi$

(SSC Section Officer (Commercial Audit) Exam. 25.09.2005) & (SSC HSGL Data Entry & LDC Exam. 28.11.2010 (Ist Sitting) & (SSC MTS (Non-Technical Staff Exam. 20.02.2011))

85. A rectangular paper sheet of dimensions $22 \text{ cm} \times 12 \text{ cm}$ is folded in the form of a cylinder along its length. What will be the volume of this cylinder? (Take $\pi = \frac{22}{7}$)

- (1) 460 cm^3 (2) 462 cm^3
 (3) 624 cm^3 (4) 400 cm^3

(SSC Section Officer (Commercial Audit) Exam. 25.09.2005)

86. The ratio of the volume of a cube to that of a sphere, which will fit exactly inside the cube, is

- (1) $\pi : 6$ (2) $6 : \pi$
 (3) $3 : \pi$ (4) $\pi : 3$

(SSC CGL Prelim Exam. 13.11.2005 (IIInd Sitting) & (SSC CGL Prelim Exam. 27.07.2008 (Ist Sitting))

87. The volume of a sphere and a right circular cylinder having the same radius are equal. The ratio of the diameter of the sphere to the height of the cylinder is

- (1) 3 : 2 (2) 2 : 3
 (3) 1 : 2 (4) 2 : 1

(SSC CGL Prelim Exam. 04.02.2007 (First Sitting))

88. The size of a rectangular piece of paper is $100 \text{ cm} \times 44 \text{ cm}$. A cylinder is formed by rolling the paper along its length. The volume of the cylinder is (Use $\pi = \frac{22}{7}$)

- (1) 4400 cm^3 (2) 15400 cm^3
 (3) 35000 cm^3 (4) 144 cm^3

(SSC CGL Prelim Exam. 04.02.2007 (First Sitting))

89. A cone, a hemisphere and a cylinder stand on equal bases and have the same height. The ratio of their respective volume is

- (1) $1 : 2 : 3$ (2) $2 : 1 : 3$
 (3) $1 : 3 : 2$ (4) $3 : 1 : 2$

(SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (IIInd Sitting) & (SSC CHSL DEO & LDC Exam. 11.12.2011 (Delhi Zone) & (FCI Asst. Grade-III Exam. 25.02.2012 (Paper-I, North Zone, Ist Sitting))

90. The height of a cylinder and that of a cone are in the ratio $2 : 3$ and the radii of their bases in the ratio $3 : 4$. The ratio of their volume will be

- (1) $1 : 9$ (2) $2 : 9$
 (3) $9 : 8$ (4) $3 : 8$

(SSC CPO S.I. Exam. 09.11.2008)

91. Water is flowing at the rate of 5 km/h through a pipe of diameter 14 cm into a rectangular tank which is 50 m long, 44m wide. The time taken (in hours) for the rise in the level of water in the tank to be 7 cm is

- (1) 2 (2) $1\frac{1}{2}$
 (3) 3 (4) $2\frac{1}{2}$

(SSC CPO S.I. Exam. 06.09.2009 & (SSC CGL Tier-1 Exam. 19.06.2011 (IIInd Sitting))

92. The total surface area of a solid right circular cylinder is twice that of a solid sphere. If they have the same radii, the ratio of the volume of the cylinder to that of the sphere is given by

- (1) 9 : 4 (2) 2 : 1
 (3) 3 : 1 (4) 4 : 9

(SSC CPO (SI, ASI & Intelligence Officer) Exam. 28.08.2011 (Paper-I))

93. In a cylindrical vessel of diameter 24 cm filled up with sufficient quantity of water, a solid spherical ball of radius 6 cm is completely immersed. Then the increase in height of water level is :

- (1) 1.5 cm (2) 2 cm
 (3) 3 cm (4) 4.2 cm

FCI Assistant Grade-III

Exam. 05.02.2012 (Paper-I) East Zone (IIInd Sitting)

94. A solid wooden toy is in the shape of a right circular cone mounted on a hemisphere. If the radius of the hemisphere is 4.2 cm and the total height of the toy is 10.2 cm, find the volume of the wooden toy (nearly).

- (1) 104 cm^3 (2) 162 cm^3
 (3) 427 cm^3 (4) 266 cm^3

FCI Assistant Grade-III

Exam. 05.02.2012 (Paper-I) East Zone (IIInd Sitting)

95. The respective height and volume of a hemisphere and a right circular cylinder are equal, then the ratio of their radii is

- (1) $\sqrt{2} : \sqrt{3}$ (2) $\sqrt{3} : 1$
 (3) $\sqrt{3} : \sqrt{2}$ (4) $2 : \sqrt{3}$

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (North Zone)))

96. The ratio of the volume of a cube and of a solid sphere is 363 : 49. The ratio of an edge of the cube and the radius of the sphere is

- (taking $\pi = \frac{22}{7}$)

- (1) 7 : 11 (2) 22 : 7
 (3) 11 : 7 (4) 7 : 22

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone)))

97. From a right circular cylinder of radius 10 cm and height 21 cm, a right circular cone of same base-radius is removed. If the volume of the remaining portion is 4400 cm^3 , then the height of the removed cone (taking $\pi = \frac{22}{7}$) is :

- (1) 15 cm (2) 18 cm
 (3) 21 cm (4) 24 cm

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting (Delhi Zone)))

MENSURATION

98. If a solid cone of volume $27\pi \text{ cm}^3$ is kept inside a hollow cylinder whose radius and height are that of the cone, then the volume of water needed to fill the empty space is

(1) $3\pi \text{ cm}^3$ (2) $18\pi \text{ cm}^3$

(3) $54\pi \text{ cm}^3$ (4) $81\pi \text{ cm}^3$

(SSC Graduate Level Tier-II Exam. 16.09.2012)

99. A cylindrical can whose base is horizontal and is of internal radius 3.5 cm contains sufficient water so that when a solid sphere is placed inside, water just covers the sphere. The sphere fits in the can exactly. The depth of water in the can before the sphere was put, is

(1) $\frac{35}{3} \text{ cm}$ (2) $\frac{17}{3} \text{ cm}$

(3) $\frac{7}{3} \text{ cm}$ (4) $\frac{14}{3} \text{ cm}$

(SSC Graduate Level Tier-II Exam. 16.09.2012)

100. If A denotes the volume of a right circular cylinder of same height as its diameter and B is the volume of a sphere of same radius,

then $\frac{A}{B}$ is :

(1) $\frac{4}{3}$ (2) $\frac{3}{2}$

(3) $\frac{2}{3}$ (4) $\frac{3}{4}$

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting))

101. The base of a right circular cone has the same radius a as that of a sphere. Both the sphere and the cone have the same volume. Height of the cone is

(1) $3a$ (2) $4a$

(3) $\frac{7}{4}a$ (4) $\frac{7}{3}a$

(SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting))

102. The radii of the base of a cylinder and a cone are in the ratio $\sqrt{3} : \sqrt{2}$ and their heights are in the ratio $\sqrt{2} : \sqrt{3}$. Their volume are in the ratio of

(1) $\sqrt{3} : \sqrt{2}$ (2) $3\sqrt{3} : \sqrt{2}$

(3) $\sqrt{3} : 2\sqrt{2}$ (4) $\sqrt{2} : \sqrt{6}$

(SSC Graduate Level Tier-I Exam. 11.11.2012, Ist Sitting)

103. A semicircular sheet of metal of diameter 28 cm is bent into an open conical cup. The capacity

of the cup (taking $\pi = \frac{22}{7}$) is

(1) 624.26 cm^3 (2) 622.38 cm^3

(3) 622.56 cm^3 (4) 623.20 cm^3

(SSC FCI Assistant Grade-III Main Exam. 07.04.2013)

104. A conical flask is full of water. The flask has base radius r and height h . This water is poured into a cylindrical flask of base radius m . The height of water in the cylindrical flask is

(1) $\frac{m}{2h}$ (2) $\frac{h}{2}m^2$

(3) $\frac{2h}{m}$ (4) $\frac{h}{3m^2}$

(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

105. The volume of a cylinder and a cone are in the ratio $3 : 1$. Find their diameters and then compare them when their heights are equal.

(1) Diameter of cylinder = 2 times of diameter of cone

(2) Diameter of cylinder = Diameter of cone

(3) Diameter of cylinder > Diameter of cone

(4) Diameter of cylinder < Diameter of cone

(SSC CHSL DEO & LDC Exam. 20.10.2013)

106. A cone of height 7 cm and base radius 1 cm is carved from a cuboidal block of wood $10 \text{ cm} \times$

$5\text{cm} \times 2 \text{ cm}$. [Assuming $\pi = \frac{22}{7}$]

The percentage wood wasted in the process is :

(1) $92\frac{2}{3}\%$ (2) $46\frac{1}{3}\%$

(3) $53\frac{2}{3}\%$ (4) $7\frac{1}{3}\%$

(SSC CGL Prelim Exam. 24.02.2002 (Second Sitting))

107. If the radius of a cylinder is decreased by 50% and the height is increased by 50% to form a new cylinder, the volume will be decreased by

(1) 0% (2) 25%

(3) 62.5% (4) 75%

(SSC CPO S.I. Exam. 07.09.2003)

108. Each of the height and base-radius of a cone is increased by 100%. The percentage increase in the volume of the cone is

(1) 700% (2) 400%

(3) 300% (4) 100%

(SSC CPO S.I. Exam. 07.09.2003)

109. If both the radius and height of a right circular cone are increased by 20%, its volume will be increased by

(1) 20% (2) 40%

(3) 60% (4) 72.8%

(SSC CGL Prelim Exam. 08.02.2004)

(First Sitting)

110. If the height of a right circular cone is increased by 200% and the radius of the base is reduced by 50%, the volume of the cone

(1) increases by 25%

(2) increases by 50%

(3) remains unaltered

(4) decreases by 25%

(SSC CPO S.I. Exam. 03.09.2006)

111. If the height and the radius of the base of a cone are each increased by 100%, then the volume of the cone becomes

(1) double that of the original

(2) three times that of the original

(3) six times that of the original

(4) eight times that of the original

(SSC CPO S.I. Exam. 03.09.2006)

112. If the radius of a right circular cylinder is decreased by 50% and its height is increased by 60%, its volume will be decreased by

(1) 10% (2) 60%

(3) 40% (4) 20%

(SSC CGL Prelim Exam. 04.02.2007)

(Second Sitting)

113. The length, breadth and height of a cuboid are in the ratio $1 : 2 : 3$. If they are increased by 100%, 200% and 200% respectively, then compared to the original volume the increase in the volume of the cuboid will be

(1) 5 times (2) 18 times

(3) 12 times (4) 17 times

(SSC CGL Prelim Exam. 04.02.2007)

(Second Sitting)

MENSURATION

- 114.** Each of the radius of the base and the height of a right circular cylinder is increased by 10%. The volume of the cylinder is increased by
 (1) 3.31% (2) 14.5%
 (3) 33.1% (4) 19.5%

(SSC CPO S.I. Exam. 09.11.2008)
 & (SSC SAS Exam. 26.06.2010
 (Paper-I)

- 115.** If the height of a cone is increased by 100% then its volume is increased by :
 (1) 100% (2) 200%
 (3) 300% (4) 400%

(SSC CHSL DEO & LDC Exam. 27.11.2010)

- 116.** A hemispherical cup of radius 4 cm is filled to the brim with coffee. The coffee is then poured into a vertical cone of radius 8 cm and height 16 cm. The percentage of the volume of the cone that remains empty is :
 (1) 87.5% (2) 80.5%
 (3) 81.6% (4) 88.2%

(SSC CHSL DEO & LDC Exam.
 21.10.2012 (IInd Sitting)

- 117.** The volume (in m^3) of rain water that can be collected from 1.5 hectares of ground in a rainfall of 5 cm is
 (1) 75 (2) 750
 (3) 7500 (4) 75000
 (SSC CGL Tier-1 Exam. 26.06.2011
 (First Sitting))

- 118.** Each edge of a regular tetrahedron is 3 cm, then its volume is

$$(1) \frac{9\sqrt{2}}{4} \text{ c.c.} \quad (2) 27\sqrt{3} \text{ c.c.}$$

$$(3) \frac{4\sqrt{2}}{9} \text{ c.c.} \quad (4) 9\sqrt{3} \text{ c.c.}$$

(SSC CHSL DEO & LDC Exam.
 04.12.2011 (Ist Sitting (North Zone))

- 119.** The perimeter of the triangular base of a right prism is 15 cm and radius of the incircle of the triangular base is 3 cm. If the volume of the prism be 270 cm^3 , then the height of the prism is
 (1) 6 cm (2) 7.5 cm
 (3) 10 cm (4) 12 cm
 (SSC CHSL DEO & LDC Exam.
 04.12.2011 (IInd Sitting (East Zone))

- 120.** A prism has as the base a right-angled triangle whose sides adjacent to the right angles are 10 cm and 12 cm long. The height

of the prism is 20 cm. The density of the material of the prism is 6 gm/cubic cm. The weight of the prism is

- (1) 6.4 kg (2) 7.2 kg
 (3) 3.4 kg (4) 4.8 kg
 (SSC CHSL DEO & LDC Exam.
 21.10.2012 (Ist Sitting))

- 121.** A copper rod of 1 cm diameter and 8 cm length is drawn into a wire of uniform diameter and 18 m length. The radius (in cm) of the wire is

$$(1) \frac{1}{15} \quad (2) \frac{1}{30} \\ (3) \frac{2}{15} \quad (4) 15$$

(SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting))

- 122.** A well 20 m in diameter is dug 14 m deep and the earth taken out is spread all around it to a width of 5 m to form an embankment. The height of the embankment is :
 (1) 10 m (2) 11 m
 (3) 11.2 m (4) 11.5 m

(SSC CGL Prelim Exam. 08.02.2004
 (Second Sitting))

- 123.** Two solid cylinders of radii 4 cm and 5 cm and length 6 cm and 4 cm respectively are recast into cylindrical disc of thickness 1 cm. The radius of the disc is
 (1) 7 cm (2) 14 cm
 (3) 21 cm (4) 28 cm
 (SSC CPO S.I. Exam. 06.09.2009)

- 124.** A metallic hemisphere is melted and recast in the shape of a cone with the same base radius (R) as that of the hemisphere. If H is the height of the cone, then :
 (1) $H = 2R$ (2) $H = \frac{2}{3}R$
 (3) $H = \sqrt{3R}$ (4) $B = 3R$

(SSC CGL Prelim Exam. 04.07.1999
 (First Sitting))

- 125.** Three solid metallic spheres of diameter 6 cm, 8 cm and 10 cm are melted and recast into a new solid sphere. The diameter of the new sphere is :
 (1) 4 cm (2) 6 cm
 (3) 8 cm (4) 12 cm

(SSC CGL Prelim Exam. 24.02.2002
 (First Sitting))

- 126.** Three solid metallic balls of radii 3 cm, 4 cm and 5 cm are melted and moulded into a single solid ball. The radius of the new ball is :

- (1) 2 cm (2) 3 cm
 (3) 4 cm (4) 6 cm
 (SSC CGL Prelim Exam. 24.02.2002
 (Second Sitting))

- 127.** Three solid spheres of a metal whose radii are 1 cm, 6 cm and 8 cm are melted to form an other solid sphere. The radius of this new sphere is
 (1) 10.5 cm (2) 9.5 cm
 (3) 10 cm (4) 9 cm
 (SSC CGL Prelim Exam. 24.02.2002
 (Middle Zone))

- 128.** A sphere of radius 2 cm is put into water contained in a cylinder of base-radius 4 cm. If the sphere is completely immersed in the water, the water level in the cylinder rises by

$$(1) \frac{1}{3} \text{ cm} \quad (2) \frac{1}{2} \text{ cm} \\ (3) \frac{2}{3} \text{ cm} \quad (4) 2 \text{ cm}$$

- (SSC CPO S.I. Exam. 07.09.2003)
129. 12 spheres of the same size are made by melting a solid cylinder of 16 cm diameter and 2 cm height. The diameter of each sphere is :
 (1) 2 cm (2) 4 cm
 (3) 3 cm (4) $\sqrt{3}$ cm

(SSC CGL Prelim Exam. 13.11.2005
 (First Sitting))

- 130.** By melting a solid lead sphere of diameter 12 cm, three small spheres are made whose diameters are in the ratio 3 : 4 : 5. The radius (in cm) of the smallest sphere is
 (1) 3 (2) 6
 (3) 1.5 (4) 4

(SSC CGL Prelim Exam. 13.11.2005
 (Second Sitting))

- 131.** A solid metallic sphere of radius 3 decimetres is melted to form a circular sheet of 1 milimetre thickness. The diameter of the sheet so formed is
 (1) 26 metres (2) 24 metres
 (3) 12 metres (4) 6 metres
 (SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting))

- 132.** A copper wire of length 36 m and diameter 2 mm is melted to form a sphere. The radius of the sphere (in cm) is
 (1) 2.5 (2) 3
 (3) 3.5 (4) 4

(SSC CGL Tier-I Exam. 16.05.2010
 (Second Sitting))

MENSURATION

133. A child reshapes a cone made up of clay of height 24 cm and radius 6 cm into a sphere. The radius (in cm) of the sphere is

- (1) 6 (2) 12
 (3) 24 (4) 48

(SSC CGL Tier-I Exam. 19.06.2011
 (First Sitting)

134. A solid metallic spherical ball of diameter 6 cm is melted and recasted into a cone with diameter of the base as 12 cm. The height of the cone is

- (1) 6 cm (2) 2 cm
 (3) 4 cm (4) 3 cm

(SSC CPO S.I. Exam. 12.01.2003)

135. The diameter of the iron ball used for the shot-put game is 14 cm. It is melted and then a solid

cylinder of height $2\frac{1}{3}$ cm is made. What will be the diameter of the base of the cylinder ?

- (1) 14 cm (2) 28 cm
 (3) $\frac{14}{3}$ cm (4) $\frac{28}{3}$ cm

(SSC CGL Prelim Exam. 08.02.2004
 (First Sitting)

136. The radius of the base and height of a metallic solid cylinder are r cm and 6 cm respectively. It is melted and recast into a solid cone of the same radius of base. The height of the cone is :

- (1) 54 cm (2) 27 cm
 (3) 18 cm (4) 9 cm

(SSC CPO S.I. Exam. 16.12.2007)

137. A solid metallic cone is melted and recast into a solid cylinder of the same base as that of the cone. If the height of the cylinder is 7 cm, the height of the cone was

- (1) 20 cm (2) 21 cm
 (3) 28 cm (4) 24 cm

(SSC Data Entry Operator Exam. 02.08.2009)

138. A solid spherical copper ball, whose diameter is 14 cm, is melted and converted into a wire having diameter equal to 14 cm. The length of the wire is

- (1) 27 cm (2) $\frac{16}{3}$ cm
 (3) 15 cm (4) $\frac{28}{3}$ cm

(SSC Constable (GD)
 Exam. 12.05.2013 Ist Sitting)

139. A solid sphere is melted and recast into a right circular cone with a base radius equal to the radius of sphere. What is the ratio of the height and radius of the cone so formed?

- (1) 4:3 (2) 2:3
 (3) 3 : 4 (4) 4 : 1

(SSC Constable (GD)
 Exam. 12.05.2013)

140. A sphere of diameter 6 cm is dropped in a right circular cylindrical vessel partly filled with water. The diameter of the cylindrical vessel is 12 cm. If the sphere is just completely submerged in water, then the rise of water level in the cylindrical vessel is

- (1) 2 cm (2) 1 cm
 (3) 3 cm (4) 4 cm

(SSC Graduate Level Tier-I
 Exam. 19.05.2013)

141. A copper sphere of diameter 18 cm is drawn into a wire of diameter 4 mm. The length of the wire, in metre, is :

- (1) 2.43 (2) 243
 (3) 2430 (4) 24.3

(SSC CAPFs SI & CISF ASI
 Exam. 23.06.2013)

142. A rectangular block of metal has dimensions 21 cm, 77 cm and 24 cm. The block has been melted into a sphere. The radius of the sphere is

$$\left(\text{Take } \pi = \frac{22}{7} \right)$$

- (1) 21 cm (2) 7 cm
 (3) 14 cm (4) 28 cm

(SSC Graduate Level Tier-II
 Exam. 29.09.2013)

143. The radius of cross-section of a solid cylindrical rod of iron is 50 cm. The cylinder is melted down and formed into 6 solid spherical balls of the same radius as that of the cylinder. The length of the rod (in metres) is

- (1) 0.8 (2) 2
 (3) 3 (4) 4

(SSC CHSL DEO & LDC Exam.
 27.10.2013 IIInd Sitting)

144. Two right circular cones of equal height of radii of base 3 cm and 4 cm are melted together and made to a solid sphere of radius 5 cm. The height of a cone is

- (1) 10 cm (2) 20 cm
 (3) 30 cm (4) 40 cm

(SSC CHSL DEO & LDC Exam.
 27.10.2013 IIInd Sitting)

145. A tank 40 m long, 30 m broad and 12 m deep is dug in a field 1000 m long and 30 m wide. By how much will the level of the field rise if the earth dug out of the tank is evenly spread over the field ?

- (1) 2 metre (2) 1.2 metre
 (3) 0.5 metre (4) 5 metre

(SSC CGL Tier-I
 Re-Exam. (2013) 27.04.2014)

146. A right pyramid 6 m high has a square base of which the diagonal is $\sqrt{1152}$ m. Volume of the pyramid is

- (1) 144 m^3 (2) 288 m^3
 (3) 576 m^3 (4) 1152 m^3

(SSC CGL Tier-I
 Re-Exam. (2013) 27.04.2014)

147. If the ratio of volumes of two cones is 2 : 3 and the ratio of the radii of their bases is 1 : 2, then the ratio of their heights will be

- (1) 8 : 3 (2) 3 : 8
 (3) 4 : 3 (4) 3 : 4

(SSC CGL Tier-I
 Re-Exam. (2013) 27.04.2014)

148. Two cubes have their volumes in the ratio 27 : 64. The ratio of their surface areas is

- (1) 9 : 25 (2) 16 : 25
 (3) 9 : 16 (4) 4 : 9

(SSC CGL Tier-I Re-Exam. (2013)
 20.07.2014 (Ist Sitting)

149. The radius of the base and the height of a right circular cone are doubled. The volume of the cone will be

- (1) 8 times of the previous volume
 (2) three times of the previous volume

(3) $3\sqrt{2}$ times of the previous volume

- (4) 6 times of the previous volume

(SSC CGL Tier-I Re-Exam. (2013)
 20.07.2014 (IIInd Sitting)

150. The ratio of weights of two spheres of different materials is 8 : 17 and the ratio of weights per 1 cc of materials of each is 289 : 64. The ratio of radii of the two spheres is

- (1) 8 : 17 (2) 4 : 17
 (3) 17 : 4 (4) 17 : 8

(SSC CGL Tier-I Re-Exam. (2013)
 20.07.2014 (IIInd Sitting)

151. Three cubes of sides 6 cm, 8 cm and 1 cm are melted to form a new cube. The surface area of the new cube is

- (1) 486 cm^2 (2) 496 cm^2
 (3) 586 cm^2 (4) 658 cm^2

(SSC CGL Tier-I Re-Exam. (2013)
 20.07.2014 (IIInd Sitting)

MENSURATION

152. A sphere is cut into two hemispheres. One of them is used as bowl. It takes 8 bowlfuls of this to fill a conical vessel of height 12 cm and radius 6 cm. The radius of the sphere (in centimetre) will be

- (1) 3 (2) 2
(3) 4 (4) 6

(SSC CGL Tier-I Exam. 19.10.2014 (1st Sitting)

153. The volumes of a right circular cylinder and a sphere are equal. The radius of the cylinder and the diameter of the sphere are equal. The ratio of height and radius of the cylinder is

- (1) 3 : 1 (2) 1 : 3
(3) 6 : 1 (4) 1 : 6

(SSC CGL Tier-I Exam. 19.10.2014)

154. Some bricks are arranged in an area measuring 20 cu. m. If the length, breadth and height of each brick is 25 cm, 12.5 cm and 8 cm respectively, then in that pile the number of bricks are (suppose there is no gap in between two bricks)

- (1) 6,000 (2) 8,000
(3) 4,000 (4) 10,000

(SSC CGL Tier-I Exam. 26.10.2014)

155. The height of a cone is 30 cm. A small cone is cut off at the top by a plane parallel to the base.

If its volume be $\frac{1}{27}$ th of the volume of the given cone, at what height above the base is the section made?

- (1) 19 cm (2) 20 cm
(3) 12 cm (4) 15 cm

(SSC CGL Tier-II Exam. 21.09.2014)

156. The height of the right pyramid whose area of the base is 30 m^2 and volume is 500 m^3 , is

- (1) 50 m (2) 60 m
(3) 40 m (4) 20 m

(SSC CGL Tier-II Exam. 21.09.2014)

157. The base of a right prism is an equilateral triangle. If the lateral surface area and volume is 120 cm^2 , $40\sqrt{3} \text{ cm}^3$ respectively then the side of base of the prism is

- (1) 4 cm (2) 5 cm
(3) 7 cm (4) 40 cm

(SSC CGL Tier-II Exam. 21.09.2014)

158. A ball of lead 4 cm in diameter is covered with gold. If the volume of the gold and lead are equal, then the thickness of gold [given

$\sqrt[3]{2} = 1.259$] is approximately

- (1) 5.038 cm (2) 5.190 cm
(3) 1.038 cm (4) 0.518 cm

(SSC CGL Tier-II Exam. 21.09.2014)

159. A large solid sphere is melted and moulded to form identical right circular cones with base radius and height same as the radius of the sphere. One of these cones is melted and moulded to form a smaller solid sphere. Then the ratio of the surface area of the smaller to the surface area of the larger sphere is

- (1) $1 : 3^3$ (2) $1 : 2^2$
 $\frac{2}{3}$ $\frac{4}{3}$
(3) $1 : 3^3$ (4) $1 : 2^3$

(SSC CGL Tier-II Exam. 21.09.2014)

160. A conical cup is filled with ice-cream. The ice-cream forms a hemispherical shape on its open top. The height of the hemispherical part is 7 cm. The radius of the hemispherical part equals the height of the cone. Then the vol-

ume of the ice-cream is $\left[\pi = \frac{22}{7} \right]$

- (1) 1078 cubic cm
(2) 1708 cubic cm
(3) 7108 cubic cm
(4) 7180 cubic cm

(SSC CGL Tier-II Exam. 21.09.2014)

161. A hollow sphere of internal and external diameters 6 cm and 10 cm respectively is melted into a right circular cone of diameter 8 cm. The height of the cone is

- (1) 22.5 cm (2) 23.5 cm
(3) 24.5 cm (4) 25.5 cm

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

162. Each edge of a regular tetrahedron is 4 cm. Its volume (in cubic cm) is

- (1) $\frac{16\sqrt{3}}{3}$ (2) $16\sqrt{3}$
(3) $\frac{16\sqrt{2}}{3}$ (4) $16\sqrt{2}$

(SSC CHSL DEO & LDC Exam. 02.11.2014 (1Ind Sitting))

163. A flask in the shape of a right circular cone of height 24 cm is filled with water. The water is poured in right circular cylindri-

cal flask whose radius is $\frac{1}{3}$ rd of

radius of the base of the circular cone. Then the height of the water in the cylindrical flask is

- (1) 32 cm (2) 24 cm
(3) 48 cm (4) 72 cm

(SSC CHSL DEO & LDC Exam. 9.11.2014)

164. The whole surface of a cube is 150 sq.cm. Then the volume of the cube is

- (1) 125 cm^3 (2) 216 cm^3
(3) 343 cm^3 (4) 512 cm^3

(SSC CHSL DEO & LDC Exam. 16.11.2014)

165. A solid metallic spherical ball of diameter 6 cm is melted and re-cast into a cone with diameter of the base as 12 cm. The height of the cone is

- (1) 2 cm (2) 3 cm
(3) 4 cm (4) 6 cm

(SSC CHSL DEO & LDC Exam. 16.11.2014)

166. A hemispherical bowl of internal radius 15 cm contains a liquid. The liquid is to be filled into cylindrical shaped bottles of diameter 5 cm and height 6 cm. The number of bottles required to empty the bowl is

- (1) 30 (2) 40
(3) 50 (4) 60

(SSC CHSL DEO & LDC Exam. 16.11.2014)

167. If V_1 , V_2 and V_3 be the volumes of a right circular cone, a sphere and a right circular cylinder having the same radius and same height, then

$$(1) V_1 = \frac{V_2}{2} = \frac{V_3}{3}$$

$$(2) \frac{V_1}{2} = \frac{V_2}{3} = V_3$$

$$(3) \frac{V_1}{3} = \frac{V_2}{2} = V_3$$

$$(4) \frac{V_1}{3} = V_2 = \frac{V_3}{2}$$

(SSC CHSL DEO Exam. 02.11.2014 (1st Sitting))

168. If the radius of a shphere be doubled, then the percentage increase in volume is

- (1) 500% (2) 700%
(3) 600% (4) 800%

(SSC CHSL DEO Exam. 16.11.2014 (1st Sitting))

MENSURATION

169. If 64 buckets of water are removed from a cubical shaped water tank completely filled with

water, $\frac{1}{3}$ of the tank remains filled with water. The length of each side of the tank is 1.2 m. Assuming that all buckets are of the same measure, then the volume (in litres) of water contained by each bucket is

- (1) 12 (2) 16
 (3) 15 (4) 18

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

170. A wooden box of dimensions 8 metre \times 7 metre \times 6 metre is to carry rectangular boxes of dimensions 8 cm \times 7 cm \times 6 cm. The maximum number of boxes that can be carried in 1 wooden box is

- (1) 7500000 (2) 9800000
 (3) 1200000 (4) 1000000

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014 TF No. 999 KPO)

171. Two circular cylinders of equal volume have their heights in the ratio 1 : 2. Ratio of their radii is

$$\left(\text{Take } \pi = \frac{22}{7}\right)$$

- (1) 1 : 4 (2) 1 : $\sqrt{2}$
 (3) $\sqrt{2}$: 1 (4) 1 : 2

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014 TF No. 999 KPO)

172. A rectangular piece of paper of dimensions 22 cm by 12 cm is rolled along its length to form a cylinder. The volume (in cu.cm.) of the cylinder so formed is (use

$$\pi = \frac{22}{7}$$

- (1) 562 (2) 412
 (3) 462 (4) 362

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014 TF No. 999 KPO)

173. A sphere is placed inside a right circular cylinder so as to touch the top, base and the lateral surface of the cylinder. If the radius of the sphere is R, the volume of the cylinder is

- (1) $2\pi R^3$ (2) $4\pi R^3$
 (3) $8\pi R^3$ (4) $\frac{8}{3}\pi R^3$

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014 TF No. 999 KPO)

174. The base of a right pyramid is an equilateral triangle of side 4 cm each. Each slant edge is 5 cm long. The volume of the pyramid is

- (1) $\frac{4\sqrt{8}}{3}$ cm³ (2) $\frac{4\sqrt{60}}{3}$ cm³
 (3) $\frac{4\sqrt{59}}{3}$ cm³ (4) $\frac{4\sqrt{61}}{3}$ cm³

(SSC CGL Tier-I Exam. 19.10.2014 TF No. 022 MH 3)

175. If the radius of the base of a cone be 7 cm and its curved surface area be 550 sq. cm, then the volume of the cone is

- (1) 1232 cu. cm (2) 1024 cu. cm
 (3) 1132 cu. cm (4) 1324 cu. cm

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, Ist Sitting TF No. 333 LO 2)

176. A hemisphere of iron is melted and recast in the shape of a right circular cylinder of diameter 18 cm and height 162 cm. The radius of the hemisphere is

- (1) 27 cm (2) 9 cm
 (3) 6 cm (4) 12 cm

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting TF No. 545 QP 6)

177. An iron sphere of radius 27 cm is melted to form a wire of length 729 cm. The radius of wire is

- (1) 6 cm (2) 9 cm
 (3) 18 cm (4) 36 cm

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting TF No. 545 QP 6)

178. A right circular cylinder is circumscribed about a hemisphere so that they share the same base. The ratio of the volumes of cylinder and hemisphere is

- (1) 4 : 3 (2) 3 : 1
 (3) 3 : 4 (4) 3 : 2

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting TF No. 545 QP 6)

179. The ratio of volumes of two cubes is 8 : 125. The ratio of their surface areas is

- (1) 4 : 25 (2) 2 : 75
 (3) 2 : 15 (4) 4 : 15

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting TF No. 545 QP 6)

180. A spherical ball of radius 1 cm is dropped into a conical vessel of radius 3 cm and slant height 6 cm. The volume of water (in cm³), that can just immerse the ball, is

- (1) $\frac{5\pi}{3}$ (2) $\frac{\pi}{3}$
 (3) 3π (4) $\frac{4\pi}{3}$

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

181. Assume that a drop of water is spherical and its diameter is one-tenth of a cm. A conical glass has a height equal to the diameter of its rim. If 32000 drops of water fill the glass completely, then the height of the glass (in cm.) is

- (1) 3 (2) 1
 (3) 4 (4) 2

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

182. If the height of a cylinder is 4 times its circumference, the volume of the cylinder in terms of its circumference c, is

- (1) $\frac{2c^3}{\pi}$ (2) $4\pi c^3$
 (3) $\frac{c^3}{\pi}$ (4) $2\pi c^3$

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

183. Base of a right pyramid is a square whose area is 324 sq. metre. If the volume of the pyramid is 1296 cu.metre, then the area (in sq. metre) of the slant surface is

- (1) 432 (2) 540
 (3) 1080 (4) 360

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

184. If the surface areas of two spheres are in the ratio 9 : 16, the ratio of their volumes is

- (1) 16 : 9 (2) 27 : 64
 (3) 64 : 27 (4) 9 : 16

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

185. The volume of a right circular cone is equal to the volume of a right circular cylinder. The height and the radius of the cylinder are 9 cm and 20 cm respectively. If the height of the cone is 108 cm, then its radius, (in cm) is

- (1) 12 (2) 14
 (3) 20 (4) 10

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

MENSURATION

186. A right circular cone and a right circular cylinder have the same base and their heights are in the ratio 2 : 3. The ratio of their volumes will be

- (1) 1 : 9 (2) 4 : 9
 (3) 5 : 9 (4) 2 : 9

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region)
 TF No. 789 TH 7)

187. A cone, a cylinder and a hemisphere stand on equal bases and have equal heights. The ratio of their volumes is

- (1) 2 : 3 : 1 (2) 2 : 1 : 3
 (3) 1 : 3 : 2 (4) 1 : 2 : 3

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region)
 TF No. 789 TH 7)

188. The diameters of the internal and external surfaces of a hollow spherical shell are 6 cm and 10 cm respectively. If it is melted

and a solid cylinder of length $\frac{8}{3}$ cm is made, then the diameter (in cm) of the cylinder is

- (1) 10 (2) 14
 (3) 16 (4) 7

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region)
 TF No. 789 TH 7)

189. The volume of a metallic cylindrical pipe is 748 cm^3 . Its length is 14 cm and external radius is 9 cm. Its thickness is

$$(\text{Use } \pi = \frac{22}{7})$$

- (1) 1 cm (2) 7 cm
 (3) 17 cm (4) 11 cm

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region)
 TF No. 789 TH 7)

190. A cylindrical vessel of diameter 24 cm contains some water. If two spheres of radii 6 cm each are lowered into the water until they are completely immersed, then the water level (in cm) in the vessel will rise by

- (1) 12 (2) 6
 (3) 4 (4) 9

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region)
 TF No. 789 TH 7)

191. The perimeter of one face of a cube is 20 cm. Its volume will be

- (1) 625 cm^3 (2) 100 cm^3
 (3) 125 cm^3 (4) 400 cm^3

(SSC CGL Tier-I Exam, 09.08.2015
 (Ist Sitting) TF No. 1443088)

192. If the volume of a sphere is numerically equal to its surface area then its diameter is

- (1) 6 cm (2) 4 cm
 (3) 2 cm (4) 3 cm

(SSC CGL Tier-I Exam, 16.08.2015
 (1st Sitting) TF No. 3196279)

193. A conical iron piece having diameter 28 cm and height 30 cm is totally immersed into the water of a cylindrical vessel, resulting in the rise of water level by 6.4 cm. The diameter, in cm, of the vessel is :

- (1) 3.5 (2) $\frac{35}{2}$
 (3) 32 (4) 35

(SSC CGL Tier-I Exam, 16.08.2015
 (IInd Sitting) TF No. 2176783)

194. A solid right prism made of iron has cross section of a triangle of sides 5cm, 10cm, 13cm and of height 10 cm. If one cubic cm of iron weights 7g, then the weight of the prism is (approximately)

- (1) 1570.8 gram
 (2) 1371.32 gram
 (3) 1470.8 gram
 (4) 1100.68 gram

(SSC Constable (GD) Exam, 04.10.2015, 1st Sitting)

195. A right circular cone of height 20 cm and base radius 15 cm is melted and cast into smaller cones of equal sizes of height 5 cm and base radius 1.5 cm. The number of cones cast are

- (1) 300 (2) 150
 (3) 400 (4) 100

(SSC Constable (GD) Exam, 04.10.2015, 1st Sitting)

196. A right prism has a triangular base whose sides are 13 cm, 20 cm and 21 cm. If the altitude of the prism is 9 cm, then its volume is

- (1) 1314 cm^3 (2) 1134 cm^3
 (3) 1413 cm^3 (4) 1143 cm^3

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

197. The portion of a ditch 48m long, 16.5 m wide and 4 m deep that can be filled with stones and earth available during excavation of a tunnel, cylindrical in shape, of diameter 4 m and length 56 m is

$$\left(\text{Take } \pi = \frac{22}{7} \right)$$

- (1) $\frac{1}{4}$ Part (2) $\frac{1}{2}$ Part

- (3) $\frac{2}{9}$ Part (4) $\frac{1}{9}$ Part

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

198. If a hemisphere is melted and four spheres of equal volume are made, the radius of each sphere will be equal to

- (1) $\frac{1}{4}$ th of the radius of the hemisphere

- (2) radius of the hemisphere

- (3) $\frac{1}{2}$ of the radius of the hemisphere

- (4) $\frac{1}{6}$ th of the radius of the hemisphere

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

199. A cylinder with base radius 8 cm and height 2 cm is melted to form a cone of height 6 cm. The radius of the cone will be

- (1) 6 cm (2) 8 cm
 (3) 4 cm (4) 5 cm

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

200. A plane divides a right circular cone into two parts of equal volume. If the plane is parallel to the base, then the ratio, in which the height of the cone is divided, is

- (1) $1 : 3\sqrt{2}$ (2) $1 : \sqrt{2}$

- (3) $1 : 3\sqrt{2} + 1$ (4) $1 : 3\sqrt{2} - 1$

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

201. The radii of two solid iron spheres are 1 cm and 6 cm respectively. A hollow sphere is made by melting the two spheres. If the external radius of the hollow sphere is 9 cm, then its thickness (in cm) is

- (1) 2 (2) 1.5
 (3) 0.5 (4) 1

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

202. The base of a right prism is a trapezium whose lengths of two parallel sides are 10 cm and 6 cm and distance between them is 5 cm. If the height of the prism is 8 cm, its volume is

- (1) 320 cm^3 (2) 300.5 cm^3
 (3) 310 cm^3 (4) 300 cm^3

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IInd Sitting)

MENSURATION

- 203.** The radius of a hemispherical bowl is 6 cm. The capacity of the bowl is

$$\left(\text{Take } \pi = \frac{22}{7} \right)$$

- (1) 345.53 cm^3 (2) 452 cm^3
 (3) 495.51 cm^3 (4) 452.57 cm^3

- 204.** Length of each edge of a regular tetrahedron is 1 cm. Its volume is :

$$(1) \frac{\sqrt{3}}{12} \text{ cu. cm.}$$

$$(2) \frac{1}{4} \sqrt{3} \text{ cu. cm.}$$

$$(3) \frac{\sqrt{2}}{6} \text{ cu. cm.}$$

$$(4) \frac{1}{12} \sqrt{2} \text{ cu. cm.}$$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015
 (IInd Sitting) TF No. 7203752)

- 205.** The volume of a right circular cone which is obtained from a wooden cube of edge 4.2 dm wasting minimum amount of wood is :

- (1) 1940 cu. dm
 (2) 194.04 cu. dm
 (3) 19.404 cu. dm
 (4) 1940.4 cu. dm

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015
 (IInd Sitting) TF No. 7203752)

- 206.** Base of a right prism is a rectangle, the ratio of whose length and breadth is 3 : 2. If the height of the prism is 12 cm and total surface area is 288 sq. cm., the volume of the prism is :

- (1) 291 cm^3 (2) 288 cm^3
 (3) 290 cm^3 (4) 286 cm^3

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015
 (IInd Sitting) TF No. 7203752)

- 207.** A right triangle with sides 9 cm, 12 cm and 15 cm is rotated about the side of 9 cm to form a cone. The volume of the cone so formed is :

- (1) $327 \pi \text{ cm}^3$ (2) $330 \pi \text{ cm}^3$
 (3) $334 \pi \text{ cm}^3$ (4) $324 \pi \text{ cm}^3$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015
 (Ist Sitting) TF No. 1375232)

- 208.** Volume of a right circular cylinder of height 21 cm and base radius 5 cm is :

- (1) 1255 cm^3 (2) 1050 cm^3
 (3) 1175 cm^3 (4) 1650 cm^3
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015
 (Ist Sitting) TF No. 1375232)

- 209.** The volume of the largest right circular cone that can be cut out of a cube of edge 7 cm ?

$$\left(\text{Use } \pi = \frac{22}{7} \right)$$

- (1) 121 cm^3 (2) 89.8 cm^3
 (3) 13.6 cm^3 (4) 147.68 cm^3
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015
 (IIInd Sitting) TF No. 3441135)

- 210.** By melting two solid metallic spheres of radii 1 cm and 6 cm, a hollow sphere of thickness 1 cm is made. The external radius of the hollow sphere will be

- (1) 9 cm (2) 6 cm
 (3) 7 cm (4) 8 cm

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015
 (Ist Sitting) TF No. 9692918)

- 211.** Height of a prism-shaped part of a machine is 8 cm and its base is an isosceles triangle, whose each of the equal sides is 5 cm and remaining side is 6 cm. The volume of the part is

- (1) 96 cu. cm (2) 120 cu. cm
 (3) 86 cu. cm (4) 90 cu. cm

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015
 (Ist Sitting) TF No. 9692918)

- 212.** A cuboidal shaped water tank, 2.1 m long and 1.5 m broad is half filled with water. If 630 litres more water is poured into that tank, the water level will rise

- (1) 0.15 cm (2) 0.20 metre
 (3) 0.18 cm (4) 2 cm

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015
 (Ist Sitting) TF No. 9692918)

- 213.** A solid sphere of radius 9 cm is melted to form a sphere of radius 6 cm and a right circular cylinder of same radius. The height of the cylinder so formed is

- (1) 19 cm (2) 21 cm
 (3) 23 cm (4) 25 cm

(SSC CGL Tier-I (CBE)
 Exam.10.09.2016)

- 214.** A hollow cylindrical tube 20 cm. long is made of iron and its external and internal diameters are 8 cm. and 6 cm. respectively. The volume (in cubic cm.) of iron used in making the tube is

$$\left(\text{Take } \pi = \frac{22}{7} \right)$$

- (1) 1760 (2) 440
 (3) 220 (4) 880

(SSC CGL Tier-II Online Exam.01.12.2016)

- 215.** If the areas of three adjacent faces of a rectangular box which meet in a corner are 12 cm^2 , 15 cm^2 and 20 cm^2 respectively, then the volume of the box is

- (1) 3600 cm^3 (2) 300 cm^3
 (3) 60 cm^3 (4) 180 cm^3

(SSC CGL Tier-II Online Exam.01.12.2016)

- 216.** A cylindrical pencil of diameter 1.2 cm has one of its ends sharpened into a conical shape of height 1.4 cm. The volume of the material removed is

- (1) 1.056 cm^3 (2) 4.224 cm^3
 (3) 10.56 cm^3 (4) 42.24 cm^3

(SSC CGL Tier-II Online Exam.01.12.2016)

- 217.** A hemispherical bowl of internal radius 9 cm, contains a liquid. This liquid is to be filled into small cylindrical bottles of diameter 3 cm and height 4 cm. Then the number of bottles necessary to empty the bowl is

- (1) 18 (2) 45
 (3) 27 (4) 54

(SSC CGL Tier-II Online Exam.01.12.2016)

- 218.** A rectangular water tank is 80 metre \times 40 metre. Water flows into it through a pipe of 40 sq.cm at the opening at a speed of 10 km/hr. The water level will rise in the tank in half an hour by

- (1) $\frac{3}{2} \text{ cm.}$ (2) $\frac{4}{9} \text{ cm.}$

- (3) $\frac{5}{9} \text{ cm.}$ (4) $\frac{5}{8} \text{ cm.}$

(SSC CGL Tier-II Online Exam.01.12.2016)

MENSURATION

219. A solid cylinder has the total surface area 231 square cm. If its

curved surface area is $\frac{2}{3}$ of the total surface area, then the volume of the cylinder is
 (1) 154 cu. cm. (2) 308 cu. cm.
 (3) 269.5 cu. cm (4) 370 cu. cm
 (SSC CGL Tier-II Online Exam.01.12.2016)

220. A right circular cylinder having diameter 21 cm and height 38 cm is full of ice cream. The ice cream is to be filled in cones of height 12 cm and diameter 7 cm having a hemispherical shape on the top. The number of such cones to be filled with ice cream is
 (1) 54 (2) 44
 (3) 36 (4) 24

(SSC CGL Tier-II Online Exam.01.12.2016)

221. The sides of a rectangle with dimension $7 \text{ cm} \times 11 \text{ cm}$ are joined to form a cylinder with height 11 cm. What is the volume of this cylinder?

(1) 85.75 cm^3 (2) 86.92 cm^3
 (3) 54.25 cm^3 (4) 42.875 cm^3
 (SSC CPO SI, ASI Online Exam.05.06.2016) (IIInd Sitting)

222. A spherical aquarium can accommodate 11 fishes, and each fish requires 1.54 cu. metre of water. What is the volume of the aquarium?

(1) 11.14 cu. metre
 (2) 16.94 cu. metre
 (3) 10.25 cu. metre
 (4) 17.84 cu. metre
 (SSC CPO Exam. 06.06.2016) (Ist Sitting)

223. The volume of a right rectangular pyramid is 220 m^3 . What is the height of the pyramid, if the area of its base is 55 m^2 ?

(1) 8 metre (2) 13.5 metre
 (3) 12 metre (4) 9 metre
 (SSC CPO Exam. 06.06.2016) (Ist Sitting)

224. The radius of a wire is decreased to one third. If volume remains the same, length will increase by :

(1) 6 times (2) 1 time
 (3) 3 times (4) 9 times
 (SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 20.03.2016) (IIInd Sitting)

225. A prism with a right triangular base is 25 cm high. If the shorter sides of the triangle are in the ratio of 1 : 2 and the volume of the prism is 100 cm^3 , what is the

length of the longest side of the triangle?

(1) $\sqrt{5} \text{ cm}$ (2) $2\sqrt{5} \text{ cm}$
 (3) $5\sqrt{2} \text{ cm}$ (4) 5 cm
 (SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016)
 (Ist Sitting)

226. The ratio of the volume of a cube to that of a sphere which will fit inside the cube is

(1) $4 : \pi$ (2) $4 : 3\pi$
 (3) $6 : \pi$ (4) $2 : \pi$
 (SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016)
 (Ist Sitting)

227. On a rainy day, 60 cm of rain is recorded in a region. What is the volume of water collected in an open and empty rectangular water tank that measures 12 m (length) \times 10 m (width) and 50 cm (depth)?

(1) 120 m^3 (2) 72 m^3
 (3) 60 m^3 (4) 48 m^3
 (SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016)
 (Ist Sitting)

228. How many hemispherical balls can be made from a cylinder 56 cm high and 12 cm diameter, when every ball being 0.75 cm in radius?

(1) 1792 (2) 3584
 (3) 4824 (4) 7168
 (SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016)
 (Ist Sitting)

229. The number of coins of radius 0.75 cm and thickness 0.2cm required to be melted to make a right circular cylinder of height 8 cm and base radius 3 cm is :

(1) 500 (2) 600
 (3) 460 (4) 640
 (SSC CGL Tier-I (CBE) Exam. 27.08.2016) (IIInd Sitting)

230. A sphere of radius 5 cm is melted to form a cone with base of same radius. The height (in cm) of the cone is

(1) 5 (2) 10
 (3) 20 (4) 22
 (SSC CGL Tier-I (CBE) Exam. 28.08.2016) (IIInd Sitting)

231. The diameters of two cylinders are in the ratio 3:2 and their volumes are equal. The ratio of their heights is

(1) 2 : 3 (2) 3 : 2
 (3) 9 : 4 (4) 4 : 9
 (SSC CGL Tier-I (CBE) Exam. 31.08.2016) (Ist Sitting)

232. A cylindrical container of 32 cm height and 18 cm radius is filled with sand. Now all this sand is used to form a conical heap of sand. If the height of the conical heap is 24 cm, what is the radius of its base ?

(1) 12 cm (2) 24 cm
 (3) 36 cm (4) 48 cm

(SSC CGL Tier-I (CBE) Exam. 31.08.2016) (Ist Sitting)

233. A cylindrical vessel of radius 4 cm. contains water. A solid sphere of radius 3 cm. is dipped into the water until it is completely immersed. The water level in the vessel will rise by

(1) 3.5 cm. (2) 2.25 cm.
 (3) 2 cm. (4) 3.8 cm.

(SSC CGL Tier-I (CBE) Exam. 01.09.2016) (IIInd Sitting)

234. A hollow hemispherical bowl is made of silver with its outer radius 8 cm and inner radius 4 cm respectively. The bowl is melted to form a solid right circular cone of radius 8 cm. The height of the cone formed is

(1) 7 cm. (2) 9 cm.
 (3) 12 cm. (4) 14 cm.

(SSC CGL Tier-I (CBE) Exam. 02.09.2016) (IIInd Sitting)

235. If the sum of radius and height of a solid cylinder is 20 cm and its total surface area is 880 cm^2 then its volume is

(1) 1760 cm^3 (2) 8800 cm^3
 (3) 2002 cm^3 (4) 4804 cm^3

(SSC CGL Tier-II (CBE) Exam. 30.11.2016)

236. A solid sphere and a solid hemisphere have the same total surface area. The ratio of their vol-

umes is $\left(\text{Take, } \pi = \frac{22}{7} \right)$

(1) $3\sqrt{3} : 4$ (2) $4 : 3\sqrt{3}$

(3) $3 : 4\sqrt{3}$ (4) $1 : 12\sqrt{3}$

(SSC CGL Tier-II (CBE) Exam. 30.11.2016)

237. The base of a right prism is a trapezium whose lengths of parallel sides are 25 cm. and 11 cm. and the perpendicular distance between the parallel sides is 16 cm. If the height of the prism is 10 cm., then the volume of the prism is

(1) 1440 cu. cm.
 (2) 1540 cu. cm.
 (3) 2880 cu. cm.
 (4) 960 cu. cm.

(SSC CGL Tier-II (CBE) Exam. 30.11.2016)

MENSURATION

238. The external and the internal radii of a hollow right circular cylinder of height 15 cm. are 6.75 cm. and 5.25 cm. respectively. If it is melted to form a solid cylinder of height half of the original cylinder, then the radius of the solid cylinder is

- (1) 6 cm. (2) 6.5 cm.
(3) 7 cm. (4) 7.25 cm.

(SSC CGL Tier-II (CBE)
Exam. 30.11.2016)

239. If a cone is divided into two parts by drawing a plane through the midpoints of its axis, then the ratio of the volume of the two parts of the cone is

- (1) 1 : 2 (2) 1 : 4
(3) 1 : 7 (4) 1 : 8

(SSC CGL Tier-II (CBE)
Exam. 30.11.2016)

240. A right circular cylinder is partially filled with water. Two iron spherical balls are completely immersed in the water so that the height of the water in the cylinder rises by 4 cm. If the radius of one ball is half of the other and the diameter of the cylinder is 18 cm., then the radii of the spherical balls are

- (1) 6 cm. and 12 cm.
(2) 4 cm. and 8 cm.
(3) 3 cm. and 6 cm.
(4) 2 cm. and 4 cm.

(SSC CGL Tier-II (CBE)
Exam. 30.11.2016)

241. The radii of two cylinders are in the ratio of 3 : 2 and their heights are in the ratio 3 : 7. The ratio of their volumes is :

- (1) 4 : 7 (2) 7 : 4
(3) 28 : 27 (4) 27 : 28

(SSC CGL Tier-I (CBE)
Exam. 31.08.2016 (IIInd Sitting)

242. If the volumes of two right circular cones are in the ratio 1 : 4 and their diameters of bases are in the ratio 4 : 5, then their heights will be in the ratio :

- (1) 1 : 5 (2) 4 : 25
(3) 16 : 25 (4) 25 : 64

(SSC CGL Tier-I (CBE)
Exam. 30.08.2016 (IIInd Sitting)

243. The volume of metallic cylindrical (hollow) pipe of uniform thickness is 748 c.c. Its length is 14 cm and its external radius is 9 cm. The thickness of the pipe is

- (1) 0.5 cm (2) 1.5 cm
(3) 1 cm (4) 2 cm

(SSC CGL Tier-I (CBE)
Exam. 29.08.2016 (Ist Sitting)

244. The diagonal of a cube is $\sqrt{192}$ cm. Its volume (in cm^3) will be

- (1) 216 (2) 432
(3) 512 (4) 624

(SSC CGL Tier-I (CBE)

Exam. 02.09.2016 (IIInd Sitting)

245. The radius of the base of a right circular cone is 6 cm and its slant height is 10 cm. Then its volume

is $\left(\text{Use } \pi = \frac{22}{7} \right)$

- (1) 301.71 cm^3
(2) 310.71 cm^3
(3) 301.17 cm^3
(4) 310.17 cm^3

(SSC CGL Tier-I (CBE)

Exam. 03.09.2016 (IIIrd Sitting)

246. Three solid spheres have their radii r_1 , r_2 and r_3 . The spheres are melted to form a solid sphere of bigger radius. Then the radius of the new sphere is :

- (1) $(r_1 + r_2 + r_3)$
(2) $(r_1^2 + r_2^2 + r_3^2)^{\frac{1}{2}}$
(3) $(r_1^3 + r_2^3 + r_3^3)^{\frac{1}{3}}$
(4) $(r_1^4 + r_2^4 + r_3^4)^{\frac{1}{4}}$

(SSC CGL Tier-I (CBE)

Exam. 04.09.2016 (IIInd Sitting)

247. The ratio of the weights of two spheres is 8 : 27 and the ratio of weights per 1 cc of materials of two is 8 : 1. The ratio of the radii of the spheres is

- (1) 2 : 3 (2) 1 : 3
(3) 3 : 1 (4) 3 : 2

(SSC CGL Tier-I (CBE)

Exam. 04.09.2016 (IIIrd Sitting)

248. A spherical lead ball of radius 6 cm is melted and small lead balls of radius 3 mm are made. The total number of possible small lead balls is :

- (1) 4250 (2) 4000
(3) 8005 (4) 8000

(SSC CGL Tier-I (CBE)

Exam. 07.09.2016 (IIInd Sitting)

249. The heights of a cone and a cylinder are equal. The radii of their bases are in the ratio 2 : 1. The ratio of their volumes is :

- (1) 4 : 3 (2) 3 : 4
(3) 2 : 1 (4) 1 : 2

(SSC CGL Tier-I (CBE)

Exam. 07.09.2016 (IIIrd Sitting)

250. The base area of a right pyramid is 57 sq. units and height is 10 units. Then the volume of the pyramid is

- (1) 190 cubic units
(2) 380 cubic units
(3) 540 cubic units
(4) 570 cubic units

(SSC CGL Tier-I (CBE)

Exam. 09.09.2016 (IIInd Sitting)

251. The radius of a sphere and right circular cylinder is 'r' units. Their volumes are equal. The ratio of the height and radius of the cylinder is :

- (1) 3 : 1 (2) 2 : 1
(3) 3 : 2 (4) 4 : 3

(SSC CGL Tier-I (CBE)

Exam. 09.09.2016 (IIIrd Sitting)

252. The radius of cross section of a solid right circular cylindrical rod is 3.2 dm. The rod is melted and 44 equal solid cubes of side 8 cm are formed. The length of the rod is :

$\left(\text{Take } \pi = \frac{22}{7} \right)$

- (1) 56 cm. (2) 7 cm.
(3) 5.6 cm. (4) 0.7 cm.

(SSC CGL Tier-I (CBE)

Exam. 10.09.2016 (IIIrd Sitting)

253. A cylindrical vessel of height 5 cm and radius 4 cm is completely filled with sand. When this sand is poured out it forms a right circular cone of radius 6 cm. What will be the height of this cone?

$\left(\text{Take } ? = \frac{22}{7} \right)$

- (1) 6.67 cm (2) 2.22 cm
(3) 3.33 cm (4) 1.67 cm

(SSC CHSL (10+2) Tier-I (CBE)

Exam. 16.01.2017 (IIInd Sitting)

254. The radii of two cylinders are in the ratio 2 : 3 and their heights are in the ratio 5 : 3. The ratio of their volumes is

- (1) 27 : 20 (2) 20 : 27
(3) 4 : 9 (4) 9 : 4

(SSC CGL Tier-II (CBE)

Exam. 12.01.2017)

255. Three cubes of iron whose edges are 6 cm, 8 cm and 10 cm respectively are melted and formed into a single cube. The edge of the new cube formed is

- (1) 12 cm. (2) 14 cm.
(3) 16 cm. (4) 18 cm.

(SSC CGL Tier-II (CBE)

Exam. 12.01.2017)

MENSURATION

256. The radius of a sphere is 6 cm. It is melted and drawn into a wire of radius 0.2 cm. The length of the wire is

- (1) 81 metre (2) 80 metre

- (3) 75 metre (4) 72 metre

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

257. The radius of a wire is decreased to one-third. If volume remains the same, length will increase by

- (1) 1.5 times (2) 3 times

- (3) 6 times (4) 9 times

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

258. From each of the four corners of a rectangular sheet of dimensions $25 \text{ cm} \times 20 \text{ cm}$, a square of side 2 cm is cut off and a box is made. The volume of the box is

- (1) 828 cm^3 (2) 672 cm^3

- (3) 500 cm^3 (4) 1000 cm^3

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

259. A solid sphere of radius 3 cm is melted to form a hollow right circular cylindrical tube of length 4 cm and external radius 5 cm. The thickness of the tube is

- (1) 1 cm. (2) 9 cm.

- (3) 0.6 cm. (4) 1.5 cm.

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

260. Three small lead spheres of radii 3 cm, 4 cm and 5 cm respectively, are melted into a single sphere. The diameter of the new sphere is

- (1) 6 cm (2) 7 cm

- (3) 8 cm (4) 12 cm

(SSC Multi-Tasking Staff
Exam. 30.04.2017)

261. The height of a right circular cylinder is three times the radius of the base. If the height were four times the radius, the volume would be 1078 cubic centimetre more than it was previously. Find the radius of the base.

- (1) 6 cm (2) 5 cm

- (3) 7.5 cm (4) 7 cm

(SSC Multi-Tasking Staff
Exam. 30.04.2017)

TYPE-V

1. A cistern 6 m long and 4 m wide, contains water up to a depth of 1 m 25 cm. The total area of the wet surface is
(1) 55 m^2 (2) 53.5 m^2
(3) 50 m^2 (4) 49 m^2

(SSC CGL Prelim Exam. 08.02.2004
(First Sitting)

2. If the height of a cylinder is increased by 15 per cent and the radius of its base is decreased by 10 per cent then by what percent will its curved surface area change?
(1) 3.5 per cent decrease
(2) 3.5 per cent increase
(3) 5 per cent increase
(4) 5 per cent decrease

(SSC Section Officer (Commercial Audit)
Exam. 26.11.2006 (Second
Sitting)

3. The radii of the base of two cylinders are in the ratio $3 : 5$ and their heights in the ratio $2 : 3$. The ratio of their curved surface will be :

- (1) $2 : 5$ (2) $2 : 3$
(3) $3 : 5$ (4) $5 : 3$

(SSC CPO S.I. Exam. 16.12.2007)

4. Water flows through a cylindrical pipe, whose radius is 7 cm, at 5 metre per second. The time, it takes to fill an empty water tank, with height 1.54 metres and area of the base (3×5) square metres,

$$\text{is } \left(\text{take } \pi = \frac{22}{7} \right)$$

- (1) 6 minutes (2) 5 minutes

- (3) 10 minutes (4) 9 minutes

(SSC CGL Prelim Exam. 27.07.2008
(Second Sitting)

5. A solid cylinder has total surface area of 462 sq.cm. Its curved surface area is $\frac{1}{3}$ rd of the total surface area. Then the radius of the cylinder is

- (1) 7 cm (2) 3.5 cm
(3) 9 cm (4) 11 cm

(SSC (CHSL DEO & LDC Exam.
04.12.2011 (1st Sitting (East Zone)

6. The diameter of a cylinder is 7 cm and its height is 16 cm. Using the value of $\pi = \frac{22}{7}$, the lateral surface area of the cylinder is

- (1) 352 cm^2 (2) 350 cm^2
(3) 355 cm^2 (4) 348 cm^2

(SSC CHSL DEO & LDC Exam.
04.12.2011 (IInd Sitting (East Zone)

7. The height of a solid right circular cylinder is 6 metres and three times the sum of the area of its two end faces is twice the area of its curved surface. The radius of its base (in metre) is
(1) 4 (2) 2
(3) 8 (4) 10

(SSC CHSL DEO & LDC Exam.
11.12.2011 (1st Sitting (East Zone)

8. The height of a circular cylinder is increased six times and the base area is decreased to one-ninth of its value. The factor by which the lateral surface of the cylinder increases is

- (1) 2 (2) $\frac{1}{2}$
(3) $\frac{2}{3}$ (4) $\frac{3}{2}$

(SSC Graduate Level Tier-II
Exam. 16.09.2012)

9. The radius and height of a cylinder are in the ratio $5 : 7$ and its volume is 550 cm^3 . Calculate its curved surface area in sq. cm.

- (1) 110 (2) 444
(3) 220 (4) 616

(SSC CHSL DEO & LDC Exam.
28.10.2012 (1st Sitting)

10. The area of the curved surface and the area of the base of a right circular cylinder are a square cm and b square cm respectively. The height of the cylinder is

$$(1) \frac{2a}{\sqrt{\pi b}} \text{ cm} \quad (2) \frac{a\sqrt{b}}{2\sqrt{\pi}} \text{ cm}$$

$$(3) \frac{a}{2\sqrt{\pi b}} \text{ cm} \quad (4) \frac{a\sqrt{\pi}}{2\sqrt{b}} \text{ cm}$$

(SSC CHSL DEO & LDC Exam.
28.10.2012 (1st Sitting)

11. Find the length of the largest rod that can be placed in a room 16m long, 12m broad and $10\frac{2}{3}$ m high.

- (1) 23 m. (2) 68 m.

- (3) $22\frac{2}{3}$ m. (4) $22\frac{1}{3}$ m.

(SSC CGL Prelim Exam. 04.07.1999
(Second Sitting)

MENSURATION

- 12.** If the volume of two cubes are in the ratio 27 : 64, then the ratio of their total surface area is :
- 27 : 64
 - 3 : 4
 - 9 : 16
 - 3 : 8
- (SSC CGL Prelim Exam. 24.02.2002
(First Sitting)
- 13.** Find the length of the longest rod that can be placed in a hall of 10 m length, 6 m breadth and 4 m height.
- $2\sqrt{38}$ m
 - $4\sqrt{38}$ m
 - $2\sqrt{19}$ m
 - 19 m
- (SSC CGL Prelim Exam. 24.02.2002
(Second Sitting)
- 14.** The volume of a cuboid is twice the volume of a cube. If the dimensions of the cuboid are 9 cm, 8 cm and 6 cm, the total surface area of the cube is :
- 72 cm²
 - 216 cm²
 - 432 cm²
 - 108 cm²
- (SSC CGL Prelim Exam. 24.02.2002 & 13.11.2005 (IInd Sitting)
- 15.** The length, breadth and height of a room is 5m, 4m and 3m respectively. Find the length of the largest bamboo that can be kept inside the room.
- 5 m
 - 60 m
 - 7 m
 - $5\sqrt{2}$ m
- (SSC CGL Prelim Exam. 24.02.2002
(Middle Zone)
- 16.** The length of the longest rod that can be placed in a room which is 12 m long, 9 m broad and 8 m high is
- 27 m
 - 19 m
 - 17 m
 - 13 m
- (SSC Section Officer (Commercial Audit) Exam. 16.11.2003) & (SSC CPO S.I. Exam. 06.09.2009) & (SSC CISF Constable (GD) Exam. 05.06.2011)
- 17.** A cube of edge 5 cm is cut into cubes each of edge of 1 cm. The ratio of the total surface area of one of the small cubes to that of the large cube is equal to :
- 1 : 125
 - 1 : 5
 - 1 : 625
 - 1 : 25
- (SSC CGL Prelim Exam. 08.02.2004
(First Sitting)
- 18.** The perimeter of the floor of a room is 18 m. What is the area of the walls of the room, if the height of the room is 3 m ?
- 21 m²
 - 42 m²
 - 54 m²
 - 108 m²
- (SSC CGL Prelim Exam. 04.02.2007
(First Sitting)
- 19.** The length (in metres) of the longest rod that can be put in a room of dimensions 10 m × 10 m × 5 m is
- $15\sqrt{3}$
 - 15
 - $10\sqrt{2}$
 - $5\sqrt{3}$
- (SSC CGL Tier-I Exam. 16.05.2010
(First Sitting)
- 20.** The floor of a room is of size 4 m × 3 m and its height is 3 m. The walls and ceiling of the room require painting. The area to be painted is
- 66 m²
 - 54 m²
 - 43 m²
 - 33 m²
- (SSC CGL Tier-1 Exam. 19.06.2011
(First Sitting)
- 21.** If the sum of three dimensions and the total surface area of a rectangular box are 12 cm and 94 cm² respectively, then the maximum length of a stick that can be placed inside the box is
- $5\sqrt{2}$ cm
 - 5 cm
 - 6 cm
 - $2\sqrt{5}$ cm
- (SSC CPO (SI, ASI & Intelligence Officer) Exam. 28.08.2011(Paper-I)
- 22.** If the length of the diagonal of a cube is $8\sqrt{3}$ cm, then its surface area is
- 192 cm²
 - 512 cm²
 - 768 cm²
 - 384 cm²
- FCI Assistant Grade-III Exam. 25.02.2012 (Paper-I)
North Zone (Ist Sitting)
- 23.** The area of the four walls of a room is 660 m² and its length is twice its breadth. If the height of the room is 11 m, then area of its floor (in m²) is
- 120
 - 150
 - 200
 - 330
- (SSC CHSL DEO & LDC Exam. 04.12.2011 (IInd Sitting (North Zone))
- 24.** The maximum length of a pencil that can be kept in a rectangular box of dimensions 8cm × 6cm × 2cm is
- $2\sqrt{13}$ cm
 - $2\sqrt{14}$ cm
 - $2\sqrt{26}$ cm
 - $10\sqrt{2}$ cm
- (SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting))
- 25.** The volume of a cubical box is 3.375 cubic metres. The length of edge of the box is
- 75 cm
 - 1.5 m
 - 1.125 m
 - 2.5 m
- (SSC CHSL DEO & LDC Exam. 04.11.2012, Ist Sitting)
- 26.** Diagonal of a cube is $6\sqrt{3}$ cm. Ratio of its total surface area and volume (numerically) is
- 2 : 1
 - 1 : 6
 - 1 : 1
 - 1 : 2
- (SSC CHSL DEO & LDC Exam. 04.11.2012, Ist Sitting)
- 27.** The length of the largest possible rod that can be placed in a cubical room is $35\sqrt{3}$ m. The surface area of the largest possible sphere that fit within the cubical room (assuming $\pi = \frac{22}{7}$) (in square m) is
- 3,500
 - 3,850
 - 2,450
 - 4,250
- (SSC Multi-Tasking Staff Exam. 10.03.2013)
- 28.** The volume of air in a room is 204 m³. The height of the room is 6 m. What is the floor area of the room ?
- 32 m²
 - 46 m²
 - 44 m²
 - 34 m²
- (SSC CHSL DEO & LDC Exam. 20.10.2013)
- 29.** The slant height of a conical mountain is 2.5 km and the area of its base is 1.54 km². Taking $\pi = \frac{22}{7}$, the height of the mountain is :
- 2.2 km
 - 2.4 km
 - 3 km
 - 3.11 km
- (SSC CGL Prelim Exam. 24.02.2002
(First Sitting)
- 30.** The base of a conical tent is 19.2 metres in diameter and the height of its vertex is 2.8 metres. The area of the canvas required to put up such a tent (in square metres) (taking $\pi = \frac{22}{7}$) is nearly.
- 3017.1
 - 3170
 - 301.7
 - 30.17
- (SSC CGL Prelim Exam. 24.02.2002 & 27.07.2008 (Second Sitting))

MENSURATION

- 31.** If S denotes the area of the curved surface of a right circular cone of height h and semivertical angle α then S equals
 (1) $\pi h^2 \tan^2 \alpha$
 (2) $\frac{1}{3} \pi h^2 \tan^2 \alpha$
 (3) $\pi h^2 \sec \alpha \tan \alpha$

(4) $\frac{1}{3} \pi h^2 \sec \alpha \tan \alpha$
 (SSC CGL Prelim Exam. 27.07.2008
 (First Sitting)

- 32.** The height and the radius of the base of a right circular cone are 12 cm and 6cm respectively. The radius of the circular cross-section of the cone cut by a plane parallel to its base at a distance of 3 cm from the base is
 (1) 4 cm (2) 5.5 cm
 (3) 4.5 cm (4) 3.5 cm

(SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting)

- 33.** The radius of base and slant height of a cone are in the ratio 4 : 7. If its curved surface area is 792 cm^2 , then the radius (in cm) of its base is [Use $\pi = 22/7$]
 (1) 8 (2) 12
 (3) 14 (4) 16

(SSC (South Zone) Investigator Exam. 12.09.2010)

- 34.** A semi-circular sheet of metal of diameter 28 cm is bent into an open conical cup. The depth of the cup is approximately
 (1) 11 cm (2) 12 cm
 (3) 13 cm (4) 14 cm
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (IInd Sitting
 (East Zone))

- 35.** The radius and the height of a cone are in the ratio 4 : 3. The ratio of the curved surface area and total surface area of the cone is
 (1) 5 : 9 (2) 3 : 7
 (3) 5 : 4 (4) 16 : 9
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (IInd Sitting (East Zone))

- 36.** A right angled sector of radius r cm is rolled up into a cone in such a way that the two binding radii are joined together. Then the curved surface area of the cone is
 (1) $\pi r^2 \text{ cm}^2$ (2) $4\pi r^2 \text{ cm}^2$

(3) $\frac{\pi r^2}{4} \text{ cm}^2$ (4) $2\pi r^2 \text{ cm}^2$
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (East Zone))

- 37.** The radius of the base of a conical tent is 16 metre. If $427 \frac{3}{7}$ sq.

metre canvas is required to construct the tent, then the slant height of the tent is :

$$\left(\text{Take } \pi = \frac{22}{7} \right)$$

- (1) 17 metre (2) 15 metre
 (3) 19 metre (4) 8.5 metre
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (East Zone))

- 38.** The volume of a right circular cone is 1232 cm^3 and its vertical height is 24 cm. Its curved surface area is

- (1) 154 cm^2 (2) 550 cm^2
 (3) 604 cm^2 (4) 704 cm^2

(SSC CGL Prelim Exam. 11.05.2003
 (Ist Sitting) & (SSC Graduate Level Tier-II Exam. 16.09.2012 & 29.09.2013)

- 39.** If h , c , v are respectively the height, curved surface area and volume of a right circular cone, then the value of $3\pi vh^3 - c^2 h^2 + 9v^2$ is

- (1) 2 (2) -1
 (3) 1 (4) 0

(SSC Graduate Level Tier-II Exam. 29.09.2013)

- 40.** If the radius of a sphere is increased by 2 cm, its surface area increased by 352 cm^2 . The radius of sphere before change is :

$$\left(\text{use } \pi = \frac{22}{7} \right)$$

- (1) 3 cm (2) 4 cm
 (3) 5 cm (4) 6 cm

(SSC CGL Prelim Exam. 04.07.1999
 (Ist Sitting) & (SSC CPO S.I. Exam. 12.01.2003)

- 41.** Spheres A and B have their radii 40 cm and 10 cm respectively. Ratio of surface area of A to the surface area of B is :

- (1) 1 : 16 (2) 4 : 1
 (3) 1 : 4 (4) 16 : 1

(SSC CGL Prelim Exam. 11.05.2003
 (First Sitting))

- 42.** The volume of a sphere is $\frac{88}{21} \times (14)^3 \text{ cm}^3$. The curved surface of the sphere is (Take $\pi = \frac{22}{7}$)

(1) 1232 cm^2 (2) 154 cm^2
 (3) 604 cm^2 (4) 704 cm^2

(SSC CGL Prelim Exam. 11.05.2003
 (Second Sitting))

- 43.** The surface area of a sphere is $64\pi \text{ cm}^2$. Its diameter is equal to

- (1) 16 cm (2) 8 cm
 (3) 4 cm (4) 2 cm

(SSC CPO S.I. Exam. 07.09.2003)

- 44.** The diameter of two hollow spheres made from the same metal sheet are 21 cm and 17.5 cm respectively. The ratio of the area of metal sheets required for making the two spheres is
 (1) 6 : 5 (2) 36 : 25
 (3) 3 : 2 (4) 18 : 25

(SSC CPO S.I. Exam. 05.09.2004)

- 45.** When the circumference of a toy balloon is increased from 20 cm to 25 cm, its radius (in cm) is increased by :

- (1) 5 (2) $\frac{5}{\pi}$

- (3) $\frac{5}{2\pi}$ (4) $\frac{\pi}{5}$

(SSC CPO S.I. Exam. 26.05.2005)

- 46.** If the volume and surface area of a sphere are numerically the same, then its radius is :
 (1) 1 unit (2) 2 units
 (3) 3 units (4) 4 units

(SSC CPO S.I. Exam. 26.05.2005)

- 47.** The ratio of the surface area of a sphere and the curved surface area of the cylinder circumscribing the sphere is
 (1) 1 : 2 (2) 1 : 1
 (3) 2 : 1 (4) 2 : 3

(SSC CPO S.I. Exam. 03.09.2006)

- 48.** The total surface area of a metallic hemisphere is 1848 cm^2 . The hemisphere is melted to form a solid right circular cone. If the radius of the base of the cone is the same as the radius of the hemisphere, its height is
 (1) 42 cm (2) 26 cm
 (3) 28 cm (4) 30 cm
 (SSC Section Officer (Commercial Audit) Exam. 30.09.2007
 (Second Sitting))

- 49.** If the radii of two spheres are in the ratio 1 : 4, then their surface area are in the ratio :
 (1) 1 : 2 (2) 1 : 4
 (3) 1 : 8 (4) 1 : 16

(SSC CPO S.I. Exam. 16.12.2007)

MENSURATION

- 50.** A solid metallic sphere of radius 8 cm is melted to form 64 equal small solid spheres. The ratio of the surface area of this sphere to that of a small sphere is
 (1) 4 : 1 (2) 1 : 16
 (3) 16 : 1 (4) 1 : 4

(SSC CGL Prelim Exam. 27.07.2008
 (First Sitting)

- 51.** If S_1 and S_2 be the surface area of a sphere and the curved surface area of the circumscribed cylinder respectively, then S_1 is equal to

- (1) $\frac{3}{4} S_2$ (2) $\frac{1}{2} S_2$
 (3) $\frac{2}{3} S_2$ (4) S_2

(SSC CGL Prelim Exam. 27.07.2008
 (Second Sitting)

- 52.** The volume of two spheres are in the ratio 8 : 27. The ratio of their surface area is :

- (1) 4 : 9 (2) 2 : 3
 (3) 4 : 5 (4) 5 : 6
 (SSC CGL Prelim Exam. 27.02.2000
 (Second Sitting)

- 53.** The volume of a solid hemisphere is 19404 cm³. Its total surface area is

- (1) 4158 cm² (2) 2858 cm²
 (3) 1738 cm² (4) 2038 cm²
 (SSC Graduate Level Tier-II Exam. 16.09.2012)

- 54.** A sphere and a hemisphere have the same volume. The ratio of their curved surface area is :

- (1) $2^{\frac{3}{2}} : 1$ (2) $2^{\frac{2}{3}} : 1$
 (3) $4^{\frac{2}{3}} : 1$ (4) $2^{\frac{1}{3}} : 1$
 (SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting))

- 55.** If the radius of a sphere be doubled, the area of its surface will become

- (1) Double
 (2) Three times
 (3) Four times
 (4) None of the mentioned
 (SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting))

- 56.** A solid hemisphere is of radius 11 cm. The curved surface area in sq. cm is

- (1) 1140.85 (2) 1386.00
 (3) 760.57 (4) 860.57
 (SSC Graduate Level Tier-I Exam. 11.11.2012 (Ist Sitting))

- 57.** If the total surface area of a hemisphere is 27π square cm, then the radius of the base of the hemisphere is

- (1) $9\sqrt{3}$ cm (2) 3 cm
 (3) $3\sqrt{3}$ cm (4) 9 cm
 (SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

- 58.** The base of a solid right prism is a triangle whose sides are 9 cm, 12 cm and 15 cm. The height of the prism is 5 cm. Then, the total surface area of the prism is

- (1) 180 cm² (2) 234 cm²
 (3) 288 cm² (4) 270 cm²

(SSC CPO (SI, ASI & Intelligence Officer) Exam. 28.08.2011 (Paper-I))

- 59.** The base of a right prism is an equilateral triangle of area 173 cm² and the volume of the prism is 10380 cm³. The area of the lateral surface of the prism is (use $\sqrt{3} = 1.73$)

- (1) 1200 cm² (2) 2400 cm²
 (3) 3600 cm² (4) 4380 cm²
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone)))

- 60.** The base of a right pyramid is a square of side 16 cm long. If its height be 15 cm, then the area of the lateral surface in square centimetre is :

- (1) 136 (2) 544
 (3) 800 (4) 1280

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (East Zone)))

- 61.** If the slant height of a right pyramid with square base is 4 metre and the total slant surface of the pyramid is 12 square metre, then the ratio of total slant surface and area of the base is :

- (1) 16 : 3 (2) 24 : 5
 (3) 32 : 9 (4) 12 : 3

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting))

- 62.** The base of a right pyramid is an equilateral triangle of side $10\sqrt{3}$ cm. If the total surface area of the pyramid is $270\sqrt{3}$ sq. cm, its height is

- (1) $12\sqrt{3}$ cm (2) 10 cm
 (3) $10\sqrt{3}$ cm (4) 12 cm
 (SSC CHSL DEO & LDC Exam. 20.10.2013)

- 63.** A right prism stands on a base 6 cm equilateral triangle and its volume is $81\sqrt{3}$ cm³. The height (in cm) of the prism is

- (1) 9 (2) 10
 (3) 12 (4) 15

(SSC CHSL DEO & LDC Exam. 27.10.2013 IInd Sitting)

- 64.** A right pyramid stands on a square base of diagonal $10\sqrt{2}$ cm. If the height of the pyramid is 12 cm, the area (in cm²) of its slant surface is

- (1) 520 (2) 420
 (3) 360 (4) 260

(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

- 65.** If the altitude of a right prism is 10 cm and its base is an equilateral triangle of side 12 cm, then its total surface area (in cm²) is

- (1) $(5 + 3\sqrt{3})$ (2) $36\sqrt{3}$
 (3) 360 (4) $72(5 + \sqrt{3})$

(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

- 66.** A right pyramid stands on a base 16 cm square and its height is 15 cm. The area (in cm²) of its slant surface is

- (1) 514 (2) 544
 (3) 344 (4) 444

(SSC CHSL DEO & LDC Exam. 10.11.2013, IInd Sitting)

- 67.** The base of a right prism is a right-angled triangle whose sides are 5 cm, 12 cm and 13 cm. If the area of the total surface of the prism is 360 cm², then its height (in cm) is

- (1) 10 (2) 12
 (3) 9 (4) 11

(SSC CHSL DEO & LDC Exam. 10.11.2013, IIInd Sitting)

- 68.** A hemisphere and a cone have equal base. If their heights are also equal, the ratio of their curved surface will be :

- (1) $1 : \sqrt{2}$ (2) $\sqrt{2} : 1$
 (3) 1 : 2 (4) 2 : 1

(SSC CGL Prelim Exam. 24.02.2002 & 13.11.2005 (Ist Sitting))

- (SSC CGL Tier-I Exam. 26.06.2011 (IInd Sitting) & (SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting) (Delhi Zone))

MENSURATION

69. A right circular cylinder just encloses a sphere of radius r . The ratio of the surface area of the sphere and the curved surface area of the cylinder is

- (1) 2 : 1 (2) 1 : 2
 (3) 1 : 3 (4) 1 : 1
 (SSC SAS Exam. 26.06.2010
 (Paper-1)

70. A sphere and a cylinder have equal volume and equal radius. The ratio of the curved surface area of the cylinder to that of the sphere is

- (1) 4 : 3 (2) 2 : 3
 (3) 3 : 2 (4) 3 : 4
 (SSC Multi-Tasking (Non-Technical) Staff Exam. 27.02.2011) & (SSC CHSL DEO & LDC Exam. 04.11.2012 (IInd Sitting))

71. A circus tent is cylindrical up to a height of 3 m and conical above it. If its diameter is 105 m and the slant height of the conical part is 63 m, then the total area of the canvas required to make the

- tent is (take $\pi = \frac{22}{7}$)
 (1) 11385 m² (2) 10395 m²
 (3) 9900 m² (4) 990 m²

(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (Delhi Zone))

72. A right circular cylinder and a cone have equal base radius and equal height. If their curved surfaces are in the ratio 8 : 5, then the radius of the base to the height are in the ratio :

- (1) 2 : 3 (2) 4 : 3
 (3) 3 : 4 (4) 3 : 2
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (Delhi Zone)))

73. The base of a cone and a cylinder have the same radius 6 cm. They have also the same height 8 cm. The ratio of the curved surface of the cylinder to that of the cone is

- (1) 8 : 5 (2) 8 : 3
 (3) 4 : 3 (4) 5 : 3

(SSC CHSL DEO & LDC Exam. 21.10.2012 (Ist Sitting))

74. A solid right circular cylinder and a solid hemisphere stand on equal bases and have the same height. The ratio of their whole surface area is:

- (1) 3 : 2 (2) 3 : 4
 (3) 4 : 3 (4) 2 : 3

(SSC CAPFs SI & CISF ASI Exam. 23.06.2013)

75. A square of side 3 cm is cut off from each corner of a rectangular sheet of length 24 cm and breadth 18 cm and the remaining sheet is folded to form an open rectangular box. The surface area of the box is

- (1) 468 cm² (2) 396 cm²
 (3) 612 cm² (4) 423 cm²

(SSC CHSL DEO & LDC Exam. 20.10.2013)

76. Three solid iron cubes of edges 4 cm, 5 cm and 6 cm are melted together to make a new cube. 62 cm³ of the melted material is lost due to improper handling. The area (in cm²) of the whole surface of the newly formed cube is

- (1) 294 (2) 343
 (3) 125 (4) 216

(SSC CHSL DEO & LDC Exam. 10.11.2013, IInd Sitting)

77. If each edge of a cube is increased by 50%, the percentage increase in its surface area is

- (1) 150% (2) 75%
 (3) 100% (4) 125%

(SSC FCI Assistant Grade-III Main Exam. 07.04.2013) & (SSC GL Tier-II Exam. 29.09.2013)

78. The length of each edge of a regular tetrahedron is 12 cm. The area (in sq. cm) of the total surface of the tetrahedron is

- (1) $288\sqrt{3}$ (2) $144\sqrt{2}$
 (3) $108\sqrt{3}$ (4) $144\sqrt{3}$

(SSC Assistant Grade-III Exam. 11.11.2012 (IInd Sitting))

79. A toy is in the form of a cone mounted on a hemisphere. The radius of the hemisphere and that of the cone is 3 cm and height of the cone is 4 cm. The total surface area of the toy (taking $\pi =$

- $\frac{22}{7}$) is

- (1) 75.43 sq. cm.
 (2) 103.71 sq. cm.
 (3) 85.35 sq. cm.
 (4) 120.71 sq. cm.

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (North Zone))

80. Area of the floor of a cubical room is 48 sq.m. The length of the longest rod that can be kept in that room is

- (1) 9 metre (2) 12 metre
 (3) 18 metre (4) 6 metre

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

81. A sphere and a hemisphere have the same radius. Then the ratio of their respective total surface areas is

- (1) 2 : 1 (2) 1 : 2
 (3) 4 : 3 (4) 3 : 4

(SSC CGL Tier-I

Re-Exam. (2013) 27.04.2014)

82. If the surface area of a sphere is 346.5 cm², then its radius

- $\left[\text{taking } \pi = \frac{22}{7} \right]$ is

- (1) 7 cm (2) 3.25 cm
 (3) 5.25 cm (4) 9 cm

(SSC CGL Tier-II Exam. 21.09.2014)

83. The base of a prism is a right angled triangle with two sides 5 cm and 12 cm. The height of the prism is 10 cm. The total surface area of the prism is

- (1) 360 sq cm (2) 300 sq cm
 (3) 330 sq cm (4) 325 sq cm

(SSC CGL Tier-II Exam. 21.09.2014)

84. The ratio of the length and breadth of a rectangular parallelopiped is 5 : 3 and its height is 6 cm. If the total surface area of the parallelopiped be 558 sq. cm, then its length in dm is

- (1) 9 (2) 1.5
 (3) 10 (4) 15

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

85. Deepali makes a model of a cylindrical kaleidoscope for her science project. She uses a chart paper to make it. If the length of the kaleidoscope is 25 cm and radius 3.5 cm, the area of the paper she used, in square cm, is

$$\left(\pi = \frac{22}{7} \right)$$

- (1) 1100 (2) 550
 (3) 500 (4) 450

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

86. If the sum of the dimensions of a rectangular parallelopiped is 24 cm and the length of the diagonal is 15 cm, then the total surface area of it is

- (1) 420 cm² (2) 275 cm²
 (3) 351 cm² (4) 378 cm²

(SSC CHSL DEO & LDC Exam. 9.11.2014)

MENSURATION

87. The length, breadth and height of a cuboid are in the ratio 3 : 4 : 6 and its volume is 576 cm³. The whole surface of the cuboid is

- (1) 216 cm² (2) 324 cm²
(3) 432 cm² (4) 460 cm²

(SSC CHSL DEO Exam. 02.11.2014
(1st Sitting)

88. The radius of a right circular cone is 3 cm and its height is 4 cm. The total surface area of the cone is

- (1) 48.4 sq.cm (2) 64.4 sq.cm
(3) 96.4 sq.cm (4) 75.4 sq.cm

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014
TF No. 999 KPO)

89. There are two cones. The curved surface area of one is twice that of the other. The slant height of the latter is twice that of the former. The ratio of their radii is

- (1) 4 : 1 (2) 4 : 3
(3) 3 : 4 (4) 1 : 4

(SSC CGL Tier-I Exam. 19.10.2014
TF No. 022 MH 3)

90. From a solid right circular cylinder of length 4 cm and diameter 6 cm, a conical cavity of the same height and base is hollowed out. The whole surface of the remaining solid (in square cm.) is

- (1) 48π (2) 15π
(3) 63π (4) 24π

(SSC CGL Tier-II Exam. 12.04.2015
TF No. 567 TL 9)

91. The length, breadth and height of a wooden box with a lid are 10 cm, 9 cm and 7 cm, respectively. The total inner surface of the closed box is 262 cm². The thickness of the wood (in cm.) is

- (1) 2 (2) 3
(3) $\frac{23}{3}$ (4) 1

(SSC CGL Tier-II Exam.
2014 12.04.2015 (Kolkata Region)
TF No. 789 TH 7)

92. The total surface area of a regular triangular pyramid with each edge of length 1 cm is

- (1) $4\sqrt{3}$ cm² (2) $\frac{4}{3}\sqrt{3}$ cm²
(3) $\sqrt{3}$ cm² (4) 4 cm²

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 21.06.2015
(1st Sitting) TF No. 8037731)

93. The number of paving stones each measuring 2.5m × 2m required to pave a rectangular courtyard 30m long and 17.5 m wide, is

- (1) 80 (2) 33
(3) 99 (4) 105

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 21.06.2015
(1st Sitting) TF No. 8037731)

94. The length of canvas, 75 cm wide required to build a conical tent of height 14m and the floor area 346.5 m² is

- (1) 665 m (2) 860 m
(3) 490 m (4) 770 m

(SSC CGL Tier-I Exam. 09.08.2015
(1Ind Sitting) TF No. 4239378)

95. 5 persons will live in a tent. If each person requires 16m² of floor area and 100m³ space for air then the height of the cone of smallest size to accommodate these persons would be

- (1) 16 metre (2) 10.25 metre
(3) 20 metre (4) 18.75 metre

(SSC CGL Tier-I Exam. 16.08.2015
(1st Sitting) TF No. 3196279)

96. The paint in a certain container is sufficient to paint an area equal to 9.375 m². How many bricks measuring 22.5 cm by 10 cm by 7.5 cm can be painted out of this container?

- (1) 200 (2) 1000
(3) 10 (4) 100

(SSC CGL Tier-I
Re-Exam, 30.08.2015)

97. The ratio between the length and the breadth of a rectangular park is 3 : 2. If a man cycling along the boundary of the park at the speed of 12 kmph completes one round in 8 minutes, then the area of the park is equal to

- (1) 152600 m² (2) 153500 m²
(3) 153600 m² (4) 153800 m²

(SSC CGL Tier-I
Re-Exam, 30.08.2015)

98. The base of a right pyramid is a square of side 10 cm. If the height of the pyramid is 12 cm, then its total surface area is

- (1) 400 cm² (2) 460 cm²
(3) 260 cm² (4) 360 cm²

(SSC CGL Tier-II Exam.
25.10.2015, TF No. 1099685)

99. There is a wooden sphere of radius $6\sqrt{3}$ cm. The surface area of the largest possible cube cut out from the sphere will be

- (1) 864 cm² (2) $464\sqrt{3}$ cm²
(3) 462 cm² (4) $646\sqrt{3}$ cm²

(SSC CGL Tier-II Exam.
25.10.2015, TF No. 1099685)

100. A hemisphere and a cone have equal bases. If their heights are also equal, then the ratio of their curved surfaces will be

- (1) 1 : 2 (2) 2 : 1
(3) 1 : $\sqrt{2}$ (4) $\sqrt{2} : 1$

(SSC CHSL (10+2) LDC, DEO & PA/SA
Exam, 01.11.2015, IIInd Sitting)

101. The radius of base and curved surface area of a right cylinder is 'r' units and $4\pi rh$ square units respectively. The height of the cylinder is :

- (1) $\frac{h}{2}$ units (2) h units
(3) $2h$ units (4) $4h$ units

(SSC CHSL (10+2) LDC, DEO
& PA/SA Exam, 15.11.2015
(1st Sitting) TF No. 6636838)

102. A hemispherical bowl has 3.5 cm radius. It is to be painted inside as well as outside. The cost of painting it at the rate of Rs. 5 per 10 sq. cm will be:

- (1) Rs. 77 (2) Rs. 100
(3) Rs. 175 (4) Rs. 50

(SSC CHSL (10+2) LDC, DEO
& PA/SA Exam, 15.11.2015
(1st Sitting) TF No. 6636838)

103. The total surface area of a right circular cylinder with radius of the base 7 cm and height 20 cm, is:

- (1) 900 cm² (2) 140 cm²
(3) 1000 cm² (4) 1188 cm²

(SSC CHSL (10+2) LDC, DEO
& PA/SA Exam, 15.11.2015
(1st Sitting) TF No. 6636838)

104. If the radius of a sphere is increased by 2 cm, then its surface area increases by 352 cm². The radius of the sphere initially was :

$$\left(\text{use } \pi = \frac{22}{7} \right)$$

- (1) 4 cm (2) 5 cm
(3) 3 cm (4) 6 cm

(SSC CHSL (10+2) LDC, DEO
& PA/SA Exam, 06.12.2015
(1st Sitting) TF No. 1375232)

MENSURATION

- 105.** The diameter of a 120 cm long roller is 84 cm. It takes 500 complete revolutions of the roller to level a ground. The cost of levelling the ground at Rs. 1.50 per sq. m. is :
- (1) Rs. 6000 (2) Rs. 3762
 (3) Rs. 2376 (4) Rs. 5750
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)
- 106.** A hemispherical bowl has internal radius of 6 cm. The internal surface area would be : (Take $\pi = 3.14$)
- (1) 225 cm^2 (2) 400 cm^2
 (3) 289.75 cm^2 (4) 226.08 cm^2
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IInd Sitting) TF No. 3441135)
- 107.** The surface area of a sphere is 616 cm^2 . The volume of the sphere would be :
- (1) $1437 \frac{1}{3} \text{ cm}^3$ (2) 2100 cm^3
 (3) 2500 cm^3 (4) $1225 \frac{3}{5} \text{ cm}^3$
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IInd Sitting) TF No. 3441135)
- 108.** Thousand solid metallic spheres of diameter 6 cm each are melted and recast into a new solid sphere. The diameter of the new sphere (in cm) is
- (1) 30 (2) 90
 (3) 45 (4) 60
 (SSC CGL Tier-I (CBE) Exam. 11.09.2016) (Ist Sitting)
- 109.** The lateral surface area of frustum of a right circular cone, if the area of its base is $16\pi \text{ cm}^2$ and the diameter of circular upper surface is 4 cm and slant height is 6 cm, will be
- (1) $30\pi \text{ cm}^2$ (2) $48\pi \text{ cm}^2$
 (3) $36\pi \text{ cm}^2$ (4) $60\pi \text{ cm}^2$
 (SSC CGL Tier-II Online Exam. 01.12.2016)
- 110.** The diameter of a sphere is twice the diameter of another sphere. The surface area of the first sphere is equal to the volume of the second sphere. The magnitude of the radius of the first sphere is
- (1) 12 (2) 24
 (3) 16 (4) 48
 (SSC CGL Tier-II Online Exam. 01.12.2016)
- 111.** The area of the largest sphere (in cm^2) that can be drawn inside a square of side 18 cm is
- (1) 972π (2) 1166π
 (3) 36π (4) 288π
 (SSC CHSL (10+2) Tier-I (CBE) Exam. 08.09.2016) (Ist Sitting)
- 112.** The total surface area of a right pyramid on a square base of side 10 cm with height 12 cm is :
- (1) 260 square cm
 (2) 360 square cm
 (3) 330 square cm
 (4) 300 square cm
 (SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 20.03.2016) (IInd Sitting)
- 113.** The base of a right prism, whose height is 2 cm, is a square. If the total surface area of the prism is 10 cm^2 , then its volume is :
- (1) 3 cm^3 (2) 1 cm^3
 (3) 2 cm^3 (4) 4 cm^3
 (SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 20.03.2016) (IInd Sitting)
- 114.** Let ABCDEF be a prism whose base is a right angled triangle, where sides adjacent to 90° are 9 cm and 12 cm. If the cost of painting the prism is Rs. 151.20, at the rate of 20 paise per sq cm then the height of the prism is :
- (1) 17 cm (2) 18 cm
 (3) 15 cm (4) 16 cm
 (SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 20.03.2016) (IInd Sitting)
- 115.** A right circular cylindrical tunnel of diameter 5m and length 10m is to be constructed from a sheet of iron. The area of iron sheet required will be :
- (1) 52π (2) 50π
 (3) 51π (4) 49π
 (SSC CPO SI & ASI, Online Exam. 06.06.2016) (IInd Sitting)
- 116.** If h, C, V are respectively the height, the curved surface and the volume of a cone, then
- $$3\pi Vh^3 - C^2h^2 + 9V^2 = ?$$
- (1) 0 (2) 3
 (3) $\frac{1}{2}$ (4) 11
 (SSC CPO SI & ASI, Online Exam. 06.06.2016) (IInd Sitting)
- 117.** The length of the two parallel sides of a trapezium are 16m and 20m respectively. If its height is 10m, its area in square metre is
- (1) 360 (2) 260
 (3) 240 (4) 180
 (SSC CGL Tier-I (CBE) Exam. 27.08.2016) (Ist Sitting)
- 118.** Three medians AD, BE and CF of $\triangle ABC$ intersect at G. The area of $\triangle ABC$ is 36 sq. cm. Then the area of $\triangle CGE$ is
- (1) 12 sq. cm. (2) 6 sq. cm.
 (3) 9 sq. cm. (4) 18 sq. cm.
 (SSC CGL Tier-I (CBE) Exam. 27.08.2016) (Ist Sitting)
- 119.** The diagonal of a cuboid of length 5 cm, width 4 cm and height 3 cm is
- (1) $5\sqrt{2}$ cm. (2) $2\sqrt{5}$ cm.
 (3) 12 cm. (4) 10 cm.
 (SSC CGL Tier-I (CBE) Exam. 30.08.2016) (Ist Sitting)
- 120.** A well of diameter 3m is dug 14m deep. The earth taken out of it has been spread evenly all around it in the shape of a circular ring of width 4m to form an embankment. Find the height of the embankment.
- (1) 4.25m (2) 2.25m
 (3) 1.125m (4) 1.75m
 (SSC CGL Tier-I (CBE) Exam. 02.09.2016) (IInd Sitting)
- 121.** The diameter of a sphere is twice the diameter of another sphere. The curved surface area of the first and the volume of the second are numerically equal. The numerical value of the radius of the first sphere is
- (1) 3 (2) 24
 (3) 8 (4) 16
 (SSC CGL Tier-I (CBE) Exam. 03.09.2016) (IInd Sitting)
- 122.** A sphere has the same curved surface area as a cone of vertical height 40 cm and radius 30 cm. The radius of the sphere is
- (1) $5\sqrt{5}$ cm (2) $5\sqrt{3}$ cm
 (3) $5\sqrt{15}$ cm (4) $5\sqrt{10}$ cm
 (SSC CGL Tier-I (CBE) Exam. 04.09.2016) (Ist Sitting)

MENSURATION

- 123.** The whole surface area of a pyramid whose base is a regular polygon is 340 cm^2 and area of its base is 100 cm^2 . Area of each lateral face is 30 cm^2 . Then the number of lateral faces is
 (1) 8 (2) 9
 (3) 7 (4) 10

(SSC CGL Tier-II (CBE)
Exam. 30.11.2016)

- 124.** A right circular conical structure stands on a circular base of 21 metre diameter and is 14 metre in height. The total cost of colour washing for its curved surface at Rs. 6 per square metre is

$$\left(\text{Take } \pi = \frac{22}{7} \right)$$

- (1) Rs. 4365 (2) Rs. 4465
 (3) Rs. 3465 (4) Rs. 3365

(SSC CGL Tier-I (CBE)
Exam. 10.09.2016 (IInd Sitting)

- 125.** If curved surface area of a cylinder is 1386 sq cm and height is 21 cm, what will be its radius?

$$\left(\text{Take } \pi = \frac{22}{7} \right)$$

- (1) 21 cm. (2) 5.25 cm.
 (3) 10.5 cm. (4) 15.75 cm.

(SSC CHSL (10+2) Tier-I (CBE)
Exam. 15.01.2017) (IInd Sitting)

- 126.** The height and the total surface area of a right circular cylinder are 4 cm and $8\pi \text{ sq.cm.}$ respectively. The radius of the base of cylinder is

- (1) $(2\sqrt{2} - 2)$ cm.
 (2) $(2 - \sqrt{2})$ cm.
 (3) 2 cm.
 (4) $\sqrt{2}$ cm.

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

- 127.** The radius of a cylindrical milk container is half its height and surface area of the inner part is 616 sq. cm. The amount of milk that the container can hold, approximately, is

$$\left[\text{Use : } \sqrt{5} = 2.23 \text{ and } \pi = \frac{22}{7} \right]$$

- (1) 1.42 litres (2) 1.53 litres
 (3) 1.71 litres (4) 1.82 litres

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

- 128.** A solid brass sphere of radius 2.1 dm is converted into a right circular cylindrical rod of length 7 cm. The ratio of total surface areas of the rod to the sphere is
 (1) 3 : 1 (2) 1 : 3
 (3) 7 : 3 (4) 3 : 7

(SSC CGL Tier-II (CBE)
Exam. 12.01.2017)

TYPE-VI

- 1.** The circumference of the base of a circular cylinder is $6\pi \text{ cm}$. The height of the cylinder is equal to the diameter of the base. How many litres of water can it hold?

- (1) $54\pi \text{ cc}$ (2) $36\pi \text{ cc}$
 (3) $0.054\pi \text{ cc}$ (4) $0.54\pi \text{ cc}$

(SSC CGL Prelim Exam. 27.02.2000
(First Sitting)

- 2.** The diameter of the base of a cylindrical drum is 35 dm. and the height is 24 dm. It is full of kerosene. How many tins each of size $25 \text{ cm} \times 22 \text{ cm} \times 35 \text{ cm}$ can be filled with kerosene from the drum?

$$\left(\text{Use } \pi = \frac{22}{7} \right)$$

- (1) 1200 (2) 1020
 (3) 600 (4) 120

(SSC CPO S.I. Exam. 07.09.2003)

- 3.** Marbles of diameter 1.4 cm are dropped into a cylindrical beaker containing some water and are fully submerged. The diameter of the beaker is 7 cm. Find how many marbles have been dropped in it if the water rises by 5.6 cm ?

- (1) 50 (2) 150
 (3) 250 (4) 350

(SSC CGL Tier-I Exam. 26.06.2011
(Second Sitting)

- 4.** A right cylindrical vessel is full with water. How many right cones having the same diameter and height as that of the right cylinder will be needed to store

that water ? (Take $\pi = \frac{22}{7}$).

- (1) 4 (2) 2
 (3) 3 (4) 5

(SSC Delhi Police S.I. (SI)
Exam. 19.08.2012)

- 5.** How many cubes, each of edge 3 cm, can be cut from a cube of edge 15 cm?

- (1) 25 (2) 27
 (3) 125 (4) 144

(SSC CGL Prelim Exam. 27.02.2000
(Second Sitting)

- 6.** A cuboidal block of $6 \text{ cm} \times 9 \text{ cm} \times 12 \text{ cm}$ is cut up into exact number of equal cubes. The least possible number of cubes will be

- (1) 6 (2) 9
 (3) 24 (4) 30

(SSC Section Officer (Commercial
Audit) Exam. 16.11.2003)

- 7.** A soap cake is of size $8 \text{ cm} \times 5 \text{ cm} \times 4 \text{ cm}$. The number of such soap cakes that can be packed in a box measuring $56 \text{ cm} \times 35 \text{ cm} \times 28 \text{ cm}$ is :

- (1) 49 (2) 196
 (3) 243 (4) 343

(SSC CGL Prelim Exam. 08.02.2004
(Second Sitting)

- 8.** The cost of carpeting a room is ₹ 120. If the width had been 4 metres less, the cost of the Carpet would have been ₹ 20 less. The width of the room is :

- (1) 24 m (2) 20 m
 (3) 25 m (4) 18.5 m

(SSC CPO S.I. Exam. 26.05.2005)

- 9.** A hall 25 metres long and 15 metres broad is surrounded by a verandah of uniform width of 3.5 metres. The cost of flooring the verandah, at ₹ 27.50 per square metre is

- (1) ₹ 9149.50 (2) ₹ 8146.50
 (3) ₹ 9047.50 (4) ₹ 4186.50

(SSC Graduate Level Tier-I
Exam. 11.11.2012 (1st Sitting)

- 10.** A cube of edge 6 cm is painted on all sides and then cut into unit cubes. The number of unit cubes with no sides painted is

- (1) 0 (2) 64
 (3) 186 (4) 108

(SSC Delhi Police S.I. (SI)
Exam. 19.08.2012)

- 11.** The height of a conical tank is 60 cm and the diameter of its base is 64cm. The cost of painting it from outside at the rate of ₹ 35 per sq. m. is :

- (1) ₹ 52.00 approx.
 (2) ₹ 39.20 approx.
 (3) ₹ 35.20 approx.
 (4) ₹ 23.94 approx.

(SSC CGL Prelim Exam. 04.07.1999
(Second Sitting)

- 12.** Some solid metallic right circular cones, each with radius of the base 3 cm and height 4 cm, are melted to form a solid sphere of radius 6 cm. The number of right circular cones is

- (1) 12 (2) 24
 (3) 48 (4) 6

(SSC CPO S.I. Exam. 03.09.2006)

MENSURATION

- 13.** The diameter of a circular wheel is 7 m. How many revolutions will it make in travelling 22 km ?
 (1) 100 (2) 400
 (3) 500 (4) 1000
 (SSC Graduate Level Tier-II Exam. 29.09.2013)
- 14.** A spherical lead ball of radius 10cm is melted and small lead balls of radius 5mm are made. The total number of possible small lead balls is (Take $\pi = \frac{22}{7}$)
 (1) 8000 (2) 400
 (3) 800 (4) 125
 (SSC Delhi Police S.I. (SI) Exam. 19.08.2012)
- 15.** The total number of spherical bullets, each of diameter 5 decimeter, that can be made by utilizing the maximum of a rectangular block of lead with 11 metre length, 10 metre breadth and 5 metre width is (assume that $\pi > 3$)
 (1) equal to 8800
 (2) less than 8800
 (3) equal to 8400
 (4) greater than 9000
 (SSC Graduate Level Tier-II Exam. 29.09.2013)
- 16.** A solid metallic cone of height 10 cm, radius of base 20 cm is melted to make spherical balls each of 4 cm diameter. How many such balls can be made ?
 (1) 25 (2) 75
 (3) 50 (4) 125
 (SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))
- 17.** A cylindrical rod of iron whose height is eight times its radius is melted and cast into spherical balls each of half the radius of the cylinder. The number of such spherical balls is
 (1) 12 (2) 16
 (3) 24 (4) 48
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (IInd Sitting (North Zone)))
- 18.** The number of spherical bullets that can be made out of a solid cube of lead whose edge measures 44 cm, each bullet being of 4 cm diameter, is (take $\pi = \frac{22}{7}$)
 (1) 2541 (2) 2451
 (3) 2514 (4) 2415
 (SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (Ist Sitting))
- 19.** The radius of a metallic cylinder is 3 cm and its height is 5 cm. It is melted and moulded into small cones, each of height 1 cm and base radius 1 mm. The number of such cones formed, is
 (1) 450 (2) 1350
 (3) 8500 (4) 13500
 (SSC Assistant Grade-III Exam. 11.11.2012 (IInd Sitting))
- 20.** If a metallic cone of radius 30 cm and height 45 cm is melted and recast into metallic spheres of radius 5 cm, find the number of spheres.
 (1) 81 (2) 41
 (3) 80 (4) 40
 (SSC Graduate Level Tier-I Exam. 21.04.2013 IInd Sitting))
- 21.** Water flows at the rate of 10 metres per minute from a cylindrical pipe 5 mm in diameter. How long it take to fill up a conical vessel whose diameter at the base is 30 cm and depth 24 cm ?
 (1) 28 minutes 48 seconds
 (2) 51 minutes 12 seconds
 (3) 51 minutes 24 seconds
 (4) 28 minutes 36 seconds
 (SSC CAPFs SI & CISF ASI Exam. 23.06.2013)
- 22.** A metallic sphere of radius 10.5 cm is melted and then recast into small cones each of radius 3.5 cm and height 3 cm. The number of cones thus formed is
 (1) 140 (2) 132
 (3) 112 (4) 126
 (SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting))
- 23.** The radius of the base of a Conical tent is 12 m. The tent is 9 m high. Find the cost of canvas required to make the tent, if one square metre of canvas costs ₹ 120
 (Take $\pi = 3.14$)
 (1) ₹ 67, 830 (2) ₹ 67, 800
 (3) ₹ 67, 820 (4) ₹ 67, 824
 (SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting))
- 24.** If the radius of a cylinder is decreased by 50 % and the height is increased by 50 %, then the change in volume is
 (1) 52.5 % (2) 67.5 %
 (3) 57.5 % (4) 62.5 %
 (SSC CHSL DEO & LDC Exam. 02.11.2014 (IInd Sitting))
- 25.** The base of a triangle is increased by 10%. To keep the area unchanged the height of the triangle is to be decreased by
 (1) $9\frac{1}{11}\%$ (2) $11\frac{1}{9}\%$
 (3) 11% (4) 9%
 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IInd Sitting TF No. 545 QP 6)
- 26.** If the area of the base of a cone is increased by 100%, then the volume increases by
 (1) 200% (2) 182%
 (3) 141% (4) 100%
 (SSC CGL Tier-II Exam. 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)
- 27.** The percentage increase in the surface area of a cube when each side is doubled is
 (1) 50% (2) 200%
 (3) 150% (4) 300%
 (SSC CGL Tier-I Exam, 09.08.2015 (IInd Sitting) TF No. 4239378)
- 28.** Each side of a cube is decreased by 25%. Find the ratio of the volumes of the original cube and the resulting cube.
 (1) 8 : 1 (2) 27 : 64
 (3) 64 : 1 (4) 64 : 27
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IInd Sitting))
- 29.** If water is freezed to become ice, its volume is increased by 10%, then if the ice is melted to water again, its volume will be decreased by :
 (1) 9% (2) $9\frac{1}{11}\%$
 (3) 8% (4) $9\frac{1}{2}\%$
 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IInd Sitting) TF No. 3441135)
- 30.** If the radius of a right circular cylinder open at both the ends, is decreased by 25% and the height of the cylinder is increased by 25%. Then the curved surface area of the cylinder thus formed
 (1) remains unaltered
 (2) is increased by 25%
 (3) is increased by 6.25%
 (4) is decreased by 6.25%
 (SSC CGL Tier-II Online Exam.01.12.2016)

MENSURATION

- 31.** The amount of concrete required to build a concrete cylindrical pillar whose base has a perimeter 8.8 metre and curved surface area 17.6 square metre, is

$$\left(\text{Take } \pi = \frac{22}{7} \right)$$

- (1) 8.325 m^3 (2) 9.725 m^3
 (3) 10.5 m^3 (4) 12.32 m^3
 (SSC CGL Tier-II Online Exam. 01.12.2016)

- 32.** A big cube is formed by arranging the 160 coloured and 56 non-coloured similar cubes in such a way that the exposure of the coloured cubes to the outside is minimum. The percentage of exposed area that is coloured is
 (1) 25.9% (2) 44.44%
 (3) 35% (4) 46%
 (SSC CPO Exam. 06.06.2016)

(Ist Sitting)

- 33.** If the radius of the base, and the height of a right circular cone are increased by 20%, what is the approximate percentage increase in volume?
 (1) 60 (2) 68.8
 (3) 72.8 (4) 75

(SSC CPO Exam. 06.06.2016)
 (Ist Sitting)

- 34.** Which of the following statements is not correct?
 (1) For a given radius and height, a right circular cone has the lesser volume among a right circular cone and a right circular cylinder.
 (2) If side of a cube is increased by 10%, the volume will increase by 33.1%.
 (3) If the radius of a sphere is increased by 20%, the surface area will increase by 40%.
 (4) Cutting a sphere into 2 parts does not change the total volume.

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016)
 (Ist Sitting)

- 35.** There is a 4% increase in volume when a liquid freezes to its solid state. The percentage decrease when solid melts to liquid again, is

- (1) $3\frac{3}{13}\%$ (2) 4%
 (3) $4\frac{1}{13}\%$ (4) $3\frac{11}{13}\%$
 (SSC CGL Tier-I (CBE) Exam. 11.09.2016 (IIInd Sitting))

- 36.** An inverted conical shaped vessel is filled with water to its brim. The height of the vessel is 8 cm and radius of the open end is 5 cm. When a few solid spherical

metallic balls each of radius $\frac{1}{2}$

cm are dropped in the vessel, 25% water is overflowed. The number of balls is :

- (1) 100 (2) 400
 (3) 200 (4) 150
 (SSC CGL Tier-I (CBE) Exam. 11.09.2016 (IIInd Sitting))

- 37.** The radius and the height of a cone are each increased by 20%. Then the volume of the cone increases by

- (1) 20% (2) 20.5%
 (3) 62% (4) 72.8%

(SSC CGL Tier-I (CBE) Exam. 11.09.2016 (IIIrd Sitting))

TYPE - VII

- 1.** If the arcs of square length in two circles subtend angles of 60° and 75° at their centres, the ratio of their radii is

- (1) 3 : 4 (2) 4 : 5
 (3) 5 : 4 (4) 3 : 5

(SSC Graduate Level Tier-I Exam. 21.04.2013)

- 2.** The length of the perpendiculars drawn from any point in the interior of an equilateral triangle to the respective sides are p_1 , p_2 and p_3 . The length of each side of the triangle is

$$(1) \frac{2}{\sqrt{3}}(p_1 + p_2 + p_3)$$

$$(2) \frac{1}{3}(p_1 + p_2 + p_3)$$

$$(3) \frac{1}{\sqrt{3}}(p_1 + p_2 + p_3)$$

$$(4) \frac{4}{\sqrt{3}}(p_1 + p_2 + p_3)$$

(SSC CGL Prelim Exam. 08.02.2004 (First Sitting))

- 3.** The sides of a triangle are in the ratio 3 : 4 : 5. The measure of the largest angle of the triangle is

- (1) 60° (2) 90°
 (3) 120° (4) 150°

(SSC CPO S.I. Exam. 05.09.2004)

- 4.** From a point within an equilateral triangle, perpendiculars drawn to the three sides, are 6 cm, 7 cm and 8 cm respectively. the length of the side of the triangle is :

- (1) 7 cm (2) 10.5 cm

$$(3) 14\sqrt{3} \text{ cm} (4) \frac{14\sqrt{3}}{3} \text{ cm}$$

(SSC CPO S.I. Exam. 26.05.2005)

- 5.** The base and altitude of a right angled triangle are 12 cm and 5 cm respectively. The perpendicular distance of its hypotenuse from the opposite vertex is

$$(1) 4\frac{4}{13} \text{ cm} (2) 4\frac{8}{13} \text{ cm}$$

- (3) 5 cm (4) 7 cm

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006 (Second Sitting))

- 6.** One acute angle of a right angled triangle is double the other. If the length of its hypotenuse is 10 cm, then its area is

$$(1) \frac{25}{2}\sqrt{3} \text{ cm}^2 (2) 25 \text{ cm}^2$$

$$(3) 25\sqrt{3} \text{ cm}^2 (4) \frac{75}{2} \text{ cm}^2$$

(SSC CPO S.I. Exam. 09.11.2008)

- 7.** In an equilateral triangle ABC of side 10cm, the side BC is trisected at D. Then the length (in cm) of AD is

$$(1) 3\sqrt{7} (2) 7\sqrt{3}$$

$$(3) \frac{10\sqrt{7}}{3} (4) \frac{7\sqrt{10}}{3}$$

(SSC CGL Tier-1 Exam. 19.06.2011 (First Sitting))

- 8.** The perimeter of a triangle is 40cm and its area is 60 cm^2 . If the largest side measures 17cm, then the length (in cm) of the smallest side of the triangle is

- (1) 4 (2) 6

- (3) 8 (4) 15

(SSC CGL Tier-1 Exam. 26.06.2011 (First Sitting))

MENSURATION

- 9.** The ratio of the area of two isosceles triangles having the same vertical angle (i.e. angle between equal sides) is 1 : 4. The ratio of their heights is
 (1) 1 : 4 (2) 2 : 5
 (3) 1 : 2 (4) 3 : 4
 (SSC CPO (SI, ASI & Intelligence Officer) Exam. 28.08.2011 (Paper-I))
- 10.** The length of one side of a rhombus is 6.5 cm and its altitude is 10 cm. If the length of its diagonal be 26 cm, the length of the other diagonal will be :
 (1) 5 cm (2) 10 cm
 (3) 6.5 cm (4) 26 cm
 (SSC CPO S.I. Exam. 26.05.2005)
- 11.** The measure of each of two opposite angles of a rhombus is 60° and the measure of one of its sides is 10cm. The length of its smaller diagonal is :
 (1) 10 cm (2) $10\sqrt{3}$ cm
 (3) $10\sqrt{2}$ cm (4) $\frac{5}{2}\sqrt{2}$ cm
 (SSC CPO S.I. Exam. 16.12.2007)
- 12.** Two adjacent sides of a parallelogram are of length 15 cm and 18 cm. If the distance between two smaller sides is 12 cm, then the distance between two bigger sides is
 (1) 8 cm (2) 10 cm
 (3) 12 cm (4) 15 cm
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (1st Sitting (North Zone)))
- 13.** A parallelogram ABCD has sides AB = 24 cm and AD = 16 cm. The distance between the sides AB and DC is 10 cm. Find the distance between the sides AD and BC.
 (1) 16 cm. (2) 18 cm.
 (3) 15 cm. (4) 26 cm.
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting (East Zone)))
- 14.** The adjacent sides of a parallelogram are 36 cm and 27 cm in length. If the distance between the shorter sides is 12 cm, then the distance between the longer sides is
 (1) 10 cm (2) 12 cm
 (3) 16 cm (4) 9 cm
 (SSC CHSL DEO & LDC Exam. 11.12.2011 (1st Sitting (East Zone)))
- 15.** If the diagonals of a rhombus are 8 and 6, then the square of its size is
 (1) 25 (2) 55
 (3) 64 (4) 36
 (SSC Graduate Level Tier-II Exam. 16.09.2012)
- 16.** One of the four angles of a rhombus is 60°. If the length of each side of the rhombus is 8 cm, then the length of the longer diagonal is
 (1) $8\sqrt{3}$ cm (2) 8 cm
 (3) $4\sqrt{3}$ cm (4) $\frac{8}{\sqrt{3}}$ cm
 (SSC Graduate Level Tier-I Exam. 21.04.2013)
- 17.** The diagonals of a rhombus are 12 cm and 16 cm respectively. The length of one side is
 (1) 8 cm (2) 6 cm
 (3) 10 cm (4) 12 cm
 (SSC Graduate Level Tier-II Exam. 29.09.2013)
- 18.** Each interior angle of a regular polygon is 18° more than eight times an exterior angle. The number of sides of the polygon is
 (1) 10 (2) 15
 (3) 20 (4) 25
 (SSC CPO (SI, ASI & Intelligence Officer) Exam. 28.08.2011 (Paper-I))
- 19.** An exterior angle of a regular polygon is 72°. The sum of all the interior angles is
 (1) 360° (2) 480°
 (3) 520° (4) 540°
 (SSC Graduate Level Tier-I Exam. 11.11.2012, 1st Sitting)
- 20.** A cylindrical tank of diameter 35 cm is full of water. If 11 litres of water is drawn off, the water level in the tank will drop by :
 (use $\pi = \frac{22}{7}$)
 (1) $10\frac{1}{2}$ cm. (2) $12\frac{6}{7}$ cm.
 (3) 14 cm. (4) $11\frac{3}{7}$ cm.
 (SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))
- 21.** A right circular cylinder is formed by rolling a rectangular paper 12 cm long and 3 cm wide along its length. The radius of the base of the cylinder will be
 (1) $\frac{3}{2\pi}$ cm (2) $\frac{6}{\pi}$ cm
 (3) $\frac{9}{2\pi}$ cm (4) 2π cm
 (SSC CGL Prelim Exam. 04.02.2007 (Second Sitting))
- 22.** The diameter of the base of a right circular cone is 4 cm and its height $2\sqrt{3}$ cm. The slant height of the cone is
 (1) 5 cm (2) 4 cm
 (3) $2\sqrt{3}$ cm (4) 3 cm
 (SSC CHSL DEO & LDC Exam. 28.11.2010 (IIInd Sitting))
- 23.** A sector is formed by opening out a cone of base radius 8 cm and height 6 cm. Then the radius of the sector is (in cm)
 (1) 4 (2) 8
 (3) 10 (4) 6
 (SSC Delhi Police S.I. (SI) Exam. 19.08.2012)
- 24.** A right circular cone is 3.6 cm high and radius of its base is 1.6 cm. It is melted and recast into a right circular cone with radius of its base as 1.2 cm. Then the height of the cone (in cm) is
 (1) 3.6 (2) 4.8
 (3) 6.4 (4) 7.2
 (SSC Graduate Level Tier-II Exam. 29.09.2013)
- 25.** A copper sphere of radius 3 cm is beaten and drawn into a wire of diameter 0.2 cm. The length of the wire is :
 (1) 9 m (2) 12 m
 (3) 18 m (4) 36 m
 (SSC CPO S.I. Exam. 26.05.2005)
- 26.** If surface area and volume of a sphere are S and V respectively, then value of $\frac{S^3}{V^2}$ is
 (1) 36 units (2) 9 units
 (3) 18 units (4) 27 units
 (SSC FCI Assistant Grade-III Main Exam. 07.04.2013)

MENSURATION

- 27.** Assume that a drop of water is spherical and its diameter is one-tenth of a cm. A conical glass has a height equal to the diameter of its rim. If 32,000 drops of water fill the glass completely, then the height of the glass (in cm) is
 (1) 1 (2) 2
 (3) 3 (4) 4
 (SSC Graduate Level Tier-II Exam. 29.09.2013)
- 28.** A cistern of capacity 8000 litres measures externally 3.3 m by 2.6 m by 1.1 m and its walls are 5 cm thick. The thickness of the bottom is :
 (1) 1 m (2) 1.1 m
 (3) 1 dm (4) 90 cm
 (SSC CGL Prelim Exam. 11.05.2003 (First Sitting))
- 29.** A cone is cut at mid point of its height by a frustum parallel to its base. The ratio between the two parts of cone would be
 (1) 1 : 1 (2) 1 : 8
 (3) 1 : 4 (4) 1 : 7
 (SSC Section Officer (Commercial Audit) Exam. 25.09.2005)
- 30.** The area of a circle of radius 5 is numerically what percent of its circumference?
 (1) 200% (2) 225%
 (3) 240% (4) 250%
 (SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))
- 31.** If the circumference and area of a circle are numerically equal, then the diameter is equal to :
 (1) area of the circle
 (2) $\frac{\pi}{2}$
 (3) 2π (4) 4
 (SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))
- 32.** A chord of length 30 cm is at a distance of 8 cm from the centre of a circle. The radius of the circle is:
 (1) 17 cm (2) 23 cm
 (3) 21 cm (4) 19 cm
 (SSC Graduate Level Tier-I Exam. 21.04.2013, 1st Sitting)
- 33.** The circum-radius of an equilateral triangle is 8 cm. The in-radius of the triangle is
 (1) 3.25 cm (2) 3.50 cm
 (3) 4 cm (4) 4.25 cm
 (SSC CPO S.I. Exam. 07.09.2003)
- 34.** A circle is inscribed in a square. An equilateral triangle of side $4\sqrt{3}$ cm is inscribed in that circle. The length of the diagonal of the square (in centimetres) is
 (1) $4\sqrt{2}$ (2) 8
 (3) $8\sqrt{2}$ (4) 16
 (SSC CPO S.I. Exam. 05.09.2004)
- 35.** The height of an equilateral triangle is $4\sqrt{3}$ cm. The ratio of the area of its circumcircle to that of its in-circle is
 (1) 2 : 1 (2) 4 : 1
 (3) 4 : 3 (4) 3 : 2
 (SSC CGL Prelim Exam. 27.07.2008 (Second Sitting))
- 36.** A circle is inscribed in a square whose length of the diagonal is $12\sqrt{2}$ cm. An equilateral triangle is inscribed in that circle. The length of the side of the triangle is
 (1) $4\sqrt{3}$ cm (2) $8\sqrt{3}$ cm
 (3) $6\sqrt{3}$ cm (4) $11\sqrt{3}$ cm
 (SSC Assistant Grade-III Exam. 11.11.2012 (IIInd Sitting))
- 37.** The radius of the incircle of a triangle whose sides are 9 cm, 12 cm and 15 cm is
 (1) 9 cm (2) 13 cm
 (3) 3 cm (4) 6 cm
 (SSC Multi-Tasking Staff Exam. 17.03.2013, 1st Sitting)
- 38.** The ratio of inradius and circumradius of a square is :
 (1) $1 : \sqrt{2}$ (2) $\sqrt{2} : \sqrt{3}$
 (3) $1 : 3$ (4) $1 : 2$
 (SSC Graduate Level Tier-I Exam. 21.04.2013, 1st Sitting)
- 39.** The perimeter of a rectangle and a square are 160 m each. The area of the rectangle is less than that of the square by 100 sq m. The length of the rectangle is
 (1) 30 m (2) 60 m
 (3) 40 m (4) 50 m
 (SSC CGL Prelim Exam. 13.11.2005 (Second Sitting))
- 40.** The volume of a right circular cylinder and that of a sphere are equal and their radii are also equal. If the height of the cylinder be h and the diameter of the sphere d , then which of the following relation is correct ?
 (1) $h = d$ (2) $2h = d$
 (3) $2h = 3d$ (4) $3h = 2d$
 (SSC CPO S.I. Exam. 09.11.2008)
- 41.** A solid cone of height 9 cm with diameter of its base 18 cm is cut out from a wooden solid sphere of radius 9 cm. The percentage of wood wasted is :
 (1) 25% (2) 30%
 (3) 50% (4) 75%
 (FCI Assistant Grade-III Exam. 05.02.2012 (Paper-I) East Zone (IIInd Sitting))
- 42.** Two circles with centres A and B and radius 2 units touch each other externally at 'C'. A third circle with centre 'C' and radius '2' units meets other two at D and E. Then the area of the quadrilateral ABDE is
 (1) $2\sqrt{2}$ sq. units
 (2) $3\sqrt{3}$ sq. units
 (3) $3\sqrt{2}$ sq. units
 (4) $2\sqrt{3}$ sq. units
 (SSC CHSL DEO & LDC Exam. 04.11.2012 (IIInd Sitting))
- 43.** Two cubes of sides 6 cm each are kept side by side to form a rectangular parallelopiped. The area (in sq. cm) of the whole surface of the rectangular parallelopiped is
 (1) 432 (2) 360
 (3) 396 (4) 340
 (SSC Graduate Level Tier-I Exam. 11.11.2012, 1st Sitting))
- 44.** The diameter of a copper sphere is 18 cm. The sphere is melted and is drawn into a long wire of uniform circular cross-section. If the length of the wire is 108 m, the diameter of the wire is
 (1) 1 cm (2) 0.9 cm
 (3) 0.3 cm (4) 0.6 cm
 (SSC FCI Assistant Grade-III Main Exam. 07.04.2013)
- 45.** A river 3 m deep and 40 m wide is flowing at the rate of 2 km per hour. How much water (in litres) will fall into the sea in a minute?
 (1) 4,00,000 (2) 40,00,000
 (3) 40,000 (4) 4,000
 (SSC CGL Tier-1 Exam. 26.06.2011 (First Sitting))

MENSURATION

46. Water is flowing at the rate of 3 km/hr through a circular pipe of 20 cm internal diameter into a circular cistern of diameter 10m and depth 2m. In how much time will the cistern be filled ?

- (1) 1 hour
- (2) 1 hour 40 minutes
- (3) 1 hour 20 minutes
- (4) 2 hours 40 minutes

(SSC CGL Tier-1 Exam. 26.06.2011
(Second Sitting)

47. The rain water from a roof 22 m \times 20 m drains into a cylindrical vessel having a diameter of 2 m and height 3.5 m. If the vessel is just full, then the rainfall (in cm) is :

- (1) 2 (2) 2.5
- (3) 3 (4) 4.5

(SSC CHSL DEO & LDC Exam. 27.11.2010)

48. 2 cm of rain has fallen on a square km of land. Assuming that 50% of the raindrops could have been collected and contained in a pool having a 100 m \times 10 m base, by what level would the water level in the pool have increased ?

- (1) 1 km (2) 10 m
- (3) 10 cm (4) 1 m

(SSC Graduate Level Tier-II Exam. 16.09.2012)

49. A parallelopiped whose sides are in ratio 2 : 4 : 8 have the same volume as a cube. The ratio of their surface area is :

- (1) 7 : 5 (2) 4 : 3
- (3) 8 : 5 (4) 7 : 6

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting))

50. If two adjacent sides of a rectangular parallelopiped are 1 cm and 2 cm and the total surface area of the parallelopiped is 22 square cm, then the diagonal of the parallelopiped is

- (1) $\sqrt{10}$ cm (2) $2\sqrt{3}$ cm
- (3) $\sqrt{14}$ cm (4) 4cm

(SSC CHSL DEO & LDC Exam. 04.11.2012 (IInd Sitting))

51. What part of a ditch, 48 metres long, 16.5 metres broad and 4 metres deep can be filled by the earth got by digging a cylindrical tunnel of diameter 4 metres and length 56 metres ? (Use $\pi = \frac{22}{7}$)

- | | |
|-------------------|-------------------|
| (1) $\frac{1}{9}$ | (2) $\frac{2}{9}$ |
|-------------------|-------------------|

- | | |
|-------------------|-------------------|
| (3) $\frac{7}{9}$ | (4) $\frac{8}{9}$ |
|-------------------|-------------------|

(SSC CGL Prelim Exam. 04.02.2007
(First Sitting))

52. The perimeters of a circle, a square and an equilateral triangle are same and their areas are C, S and T respectively. Which of the following statement is true ?

- (1) C = S = T (2) C > S > T
- (3) C < S < T (4) S < C < T

(SSC CGL Tier-I Exam. 19.10.2014 (Ist Sitting))

53. The base of a right prism is a quadrilateral ABCD. Given that AB = 9 cm, BC = 14 cm, CD = 13 cm, DA = 12 cm and $\angle DAB = 90^\circ$. If the volume of the prism be 2070 cm^3 , then the area of the lateral surface is

- (1) 720 cm^2 (2) 810 cm^2
- (3) 1260 cm^2 (4) 2070 cm^2

(SSC CGL Tier-I Exam. 19.10.2014)

54. An elephant of length 4 m is at one corner of a rectangular cage of size (16 m \times 30 m) and faces towards the diagonally opposite corner. If the elephant starts moving towards the diagonally opposite corner it takes 15 seconds to reach this corner. Find the speed of the elephant.

- (1) 1 m/sec (2) 2 m/sec
- (3) 1.87 m/sec (4) 1.5 m/sec

(SSC CHSL DEO & LDC Exam. 02.11.2014 (IInd Sitting))

55. A horse takes $2\frac{1}{2}$ seconds to complete a round around a circular field. If the speed of the horse was 66 m/sec, then the radius of the field is,

[Given $\pi = \frac{22}{7}$]

- (1) 25.62 m (2) 26.52 m
- (3) 25.26 m (4) 26.25 m

(SSC CHSL DEO & LDC Exam. 9.11.2014)

56. The diameter of the front wheel of an engine is $2x$ cm and that of rear wheel is $2y$ cm. To cover the same distance, find the number of times the rear wheel will revolve when the front wheel revolves 'n' times.

- (1) $\frac{n}{xy}$ times (2) $\frac{yn}{x}$ times

- (3) $\frac{nx}{y}$ times (4) $\frac{xy}{n}$ times

(SSC CHSL DEO Exam. 02.11.2014
(Ist Sitting))

57. A bicycle wheel has a diameter (including the tyre) of 56 cm. The number of times the wheel will rotate to cover a distance of 2.2

km is (Assume $\pi = \frac{22}{7}$)

- (1) 625 (2) 1250
- (3) 1875 (4) 2500

(SSC CHSL DEO Exam. 16.11.2014
(Ist Sitting))

58. If one diagonal of a rhombus of side 13 cm is 10 cm, then the other diagonal is

- (1) 24 cm (2) 20 cm
- (3) 16 cm (4) 28 cm

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, Ist Sitting
TF No. 333 LO 2)

59. A brick 2" thick is placed against a wheel to act for a stop. The horizontal distance of the face of the brick from the point where the wheel touches the ground is 6". The radius of the wheel in inches is

- (1) 10 (2) 5
- (3) 12 (4) 6

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IInd Sitting
TF No. 545 QP 6)

60. A solid has 12 vertices and 30 edges. How many faces does it have?

- (1) 22 (2) 24
- (3) 26 (4) 20

(SSC CHSL (10+2) Tier-I (CBE)
Exam. 15.01.2017) (IInd Sitting))

STATISTICS AND DATA INTERPRETATION

Data Interpretation (DI) is an important section today in all competitive examinations especially in objective type examinations. In most examinations a large number of questions are asked on Data Interpretation/Data Analysis. A good score in DI consolidates performance altogether. Sound knowledge of quantitative techniques and skills are pre-requisites for a good performance. It tests one's ability to analyse and interpret data presented numerically in various forms. Questions are asked on the data given/shown in the diagram. The *thumb rules* are to read the problem fast but carefully, comprehend and interpret it simultaneously. Once the data are well grasped, the questions that follow in the set take very little time for solution.

Data may be presented in the form of tables, graphs or diagrams. Tables consist of precise numerical figures whereas diagrams give only an approximate idea. However, diagrams and graphs have the advantage of showing trends in the data. While there is no clear line of demarcation between diagrams and graphs, we may note the following distinction between them :

- (a) A graph represents a mathematical relationship whereas a diagram does not.
- (b) Diagrams do not add anything to the data while graphs are useful in statistical analysis.
- (c) Graphs are considered more appropriate than diagrams for presenting frequency distribution and time series.

In our everyday life we come across graphs, tables and other types of numerical data in newspapers, magazines, periodicals, journals, information bulletins etc. These data may relate to the cost of living, cricket average, profits of a company, temperature of cities, expenditure in various sectors of a five-year plan and so on.

The term "data" means "information". However, the dictionary meaning of the term "data" is "given facts." Data may be of two types : Primary data and Secondary data.

PRESENTATION OF DATA

As soon as the work related to collection of data is over, the investigator has to find ways to condense them in a tabular form in order to study their salient features and utilise them in a convenient way to serve the purpose for which they were collected. Such an arrangement of data collected is called **Presentation of Data**.

The raw data can be arranged in any one of the following ways :

- (a) Serial order or alphabetical order
- (b) Ascending order
- (c) Descending order

Marks	No. of Students
10	1
20	1
32	2
36	2
40	3
50	4
56	1
60	5
70	2
80	2
88	1
92	1
Total	25

The table given above shows the number of students securing a particular number of marks. For example, 5 students secured 60 marks each, 4 students secured 50 marks each and so on. The quantity that we measure from observation to observation is called a **Variate**. For example, in this illustration, the marks obtained are called **variates**. The number of students securing a particular marks is called the **Frequency** of the **variate**. The table given above is, thus, called the **Frequency Distribution Table for ungrouped data**.

The presentation of data can be further condensed into **Classes** or **Groups**, to bring out certain salient features of the data. In this type of presentation of data all observations are divided into groups. These groups are called **Classes** or **Class Intervals**.

Let us present the above data into classes as follows :

Marks	No. of Students (Frequency)
1 - 10	1
11 - 20	1
21 - 30	—
31 - 40	7
41 - 50	4
51 - 60	6
61 - 70	2
71 - 80	2
81 - 90	1
91 - 100	1
Total	25

This is called the **Frequency Distribution Table** or **Frequency Table for grouped data**. The class 1-10 means the marks obtained between 1 and 10 including both 1 and 10. The number of observations falling in a particular class is called the **Frequency of that Class** or **Class Frequency**. Thus, the class 31-40 has frequency 7 and the class 51-60 has 6 as class frequency. Frequency Table

STATISTICS AND DATA INTERPRETATION

is a better way of presentation of data as compared to the earlier ones since simply by looking at it we can draw the conclusion that majority of the students obtained marks in the range 31-60. In other words, the group of students under consideration is an average group.

The above table shows the number of students obtaining marks between the **lower limit** and the **upper limit** of the various class intervals. The lower limit of the first class interval is 1 and the upper limit is 10. The number of students who have secured marks in this class interval, i.e., from 1 to 10, is 1. Similarly, the number of students securing marks from 31 to 40 is 7.

While classifying according to class-interval like this, we use the following technical terms :

(i) **Class limits** : The limiting values of the boundary of the classes into which the given data are classified are called class-limits. The smaller limit of every class is called the lower limit and the higher limit is called the upper limit.

(ii) **Class-interval** : The group constituted by the two limits is called class-interval.

(iii) **Width of the class-interval** : The difference between the lower and upper limits of any class is called the class interval.

(iv) **Mid-value** : The mean of upper and lower limits is called the mid-value of the class-interval.

$$\text{Mid-value} = \frac{\left(\begin{array}{l} \text{Upper class limit} + \\ \text{Lower class limit} \end{array} \right)}{2} \text{ or, } \frac{\left(\begin{array}{l} \text{True upper limit} + \\ \text{True lower limit} \end{array} \right)}{2}$$

(v) **Frequency of the class-interval** : The number of observations falling within a particular class-interval is called its frequency.

Methods of Classification according to Class Intervals :

(i) **Exclusive Method** : In this method the upper limit of one class is equal to the lower limit of the next class. Any item equal to the upper limit of any class is excluded from that class but included in the subsequent class. For example, if a student has secured 40 marks in the above example, then his marks have been taken in the class-interval 40-50 and not in the class-interval 30-40.

(ii) **Inclusive Method** : In this method any item equal to the upper limit of any class is included in that particular class and therefore it is known as inclusive method.

TABLES

Table is often used to present a set of numerical data. It helps the person to make comparisons and draw quick conclusions. It provides the reader greater objectivity in the data. Tabular presentation makes complicated information easier to understand. Its another advantage is that one can see all the information at a glance.

Tabular presentation usually consists of a table title followed by, columns and rows containing data. While look-

ing at the table, carefully read the table title and headings/nomenclature of the columns and the rows. The table title gives a general idea of the type and objective of the data presented. The column and row nomenclatures indicate the specific kind of information contained in them respectively.

We present below an example of tabular presentation of annual expenditure of 5 families during the last 4 years.

Annual Expenditure of 5 families (in Rs. Thousands)

Years → Families ↓	2005	2006	2007	2008
A	35	50	55	60
B	50	55	60	70
C	40	60	65	75
D	30	40	45	50
E	45	50	70	80

MEANING OF TABULATION

Tabulation is one of the most important devices for the presentation of the data in a condensed and comprehensive form. It attempts to furnish the maximum information contained in the data in a minimum possible space without minimising the quality and usefulness of the data.

A statistical table is the logical listing of related quantitative data in vertical columns and horizontal rows of numbers with sufficient explanatory and qualifying words, phrases and statements in the form of titles, headings and notes to make clear the full meaning of data and their origin. Thus, a table is a systematic presentation of statistical data in horizontal rows and vertical columns according to some salient features.

MERITS OF TABULATION

- (i) Tabulation is the next stage after collection and compilation of the data.
- (ii) It simplifies the data.
- (iii) It gives a general idea of trend and pattern within the data
- (vi) It provides a gateway for further statistical analysis and interpretation.
- (v) In tabulation comparable data are kept close, so that a comparable study of these data becomes easy.
- (vi) It makes the data suitable for further Diagrammatic and Graphic representation.
- (vii) It saves time and space, as maximum information is expressed in a small space without repetition.

PARTS OF A TABLE

Though the various parts of a table depend on the nature of the data and purpose of the investigation, the following features generally, form the parts of a statistical table :

(i) **Table Number** : Usually placed at the top of the table either in the centre above the title or on the side of the title, it serves to identify the table for future reference.

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(ii) Heading or Title : Every table is provided with a suitable title, which usually appears at the top of the table. It is brief, simple, unambiguous, complete and self-explanatory, so that a first hand idea of the data set can be obtained from it.

A title describes the nature of the data, the place of relation, the time period and the source of the data.

(iii) Head Note : It is a sort of a supplement to the title. If required, it is given just below the title to provide additional information regarding the contents of the table. The head note is usually enclosed in brackets. For example, the units of measurement are usually expressed as head note as 'in kilometres', 'in crores', 'in Rupees'; etc.

(iv) Columns and Rows : Columns are vertical arrangements, whereas rows are horizontal arrangements. The number of rows and columns is suitably taken keeping in view the data under consideration.

(v) Captions : Captions are the designations for vertical columns. They are placed in the middle of the columns. They briefly express the contents of the columns.

(vi) Stubs : Stubs are the designations for horizontal rows. They are placed to the left of the rows. They briefly express the contents of the rows.

(vii) Body : The data when arranged according to the designations given in the rows and columns, form the body of the table. It contains the numerical data to be presented to the readers. In order to increase the utility of the table, totals are generally given for each separate category either against the rows or below the columns.

(viii) Foot Note : If some additional information regarding the data is required for their complete description, foot notes are used for this purpose. As the name suggests, they are placed at the bottom of the table.

(ix) Source Note : The source of collection of data is mentioned below the foot note so that it must be known from where these have been taken. The source note is used if the data are of secondary nature.

TYPES OF TABLES

Statistical tables are formed on the basis of purpose, originality and construction. Keeping in view the present pattern of questions asked in competitive exams of today, we will limit ourselves to the study of tabulation on the basis of construction.

This type of tabulation can be divided into two categories, namely :

- (i) Simple Tables
- (ii) Complex Tables

(i) Simple Tables : In a simple table, only one attribute (quality) or speciality of the data is presented.

(ii) Complex Tables : In a complex table, more than one attribute or characteristic of the data are presented.

The complex tables are of three types :

- (a) Two-way Tables
- (b) Three-way Tables
- (c) Manifold Tables

(a) Two-Way Tables : They furnish information about two inter-related characteristics of a particular phenomenon. In these tables, caption or stub is classified into two sub-headings.

(b) Three-Way Tables : They furnish information regarding three-inter-related characteristics of a particular phenomenon.

(c) Manifold Tables : A manifold table gives the information of a large number of inter-related characteristics of a given phenomenon. For example, the distribution of employees in State Bank according to gender (sex) age-group, year and grades of salary is a manifold table.

Now we are fully acquainted with various types of tables and their contents. While interpreting the data given in tabular form we come across different mathematical tools of analysis namely, percentage, ratio and average etc. Now we will briefly introduce to each of these tools.

Percentage : It is a fraction whose denominator is 100 and the numerator of such a fraction is termed as rate per cent. Thus the term per cent means for every hundred. It should be noted that in common parlance, per cent and percentage are used interchangeably.

Percentage as an Operator

1. Let us discuss $x\%$ of y .

This operation can be broken into two parts :

$$(i) x\% = \frac{x}{100}$$

(ii) 'of' means multiplication and hence can be replaced by multiplication sign 'x'.

$$\therefore x\% \text{ of } y \text{ means } \frac{x}{100} \times y = \frac{xy}{100}$$

Let $x\% \text{ of } y = z$

$$\frac{xy}{100} = z$$

This equality involves 3 variables x , y , and z . If the value of any two variables out of the three are known, the value of the third variable can be easily determined.

2. Per cent change (Increase or Decrease)

$$\text{Per cent change} = \frac{\text{Final value} - \text{Initial value}}{\text{Initial value}} \times 100$$

or,

$$\text{Per cent change} = \left(\frac{\text{Final value}}{\text{Initial value}} - 1 \right) \times 100$$

It is to be remembered that change per cent is always calculated with respect to the initial value. Hence, it is the initial value which is taken as reference value for finding % change.

$$\therefore \% \text{ change} = \frac{\text{Difference between two quantities}}{\text{Reference Value}} \times 100$$

Further, change involves both increase as well as decrease. Therefore, we should follow the sign convention given below :

Sign convention : + for increase and - for decrease

Ratio : A ratio is a comparison of two quantities by division. In other words, ratio of two quantities represents the number of times one quantity contains another quantity of the same kind. Since ratio is an abstract number, the two quantities that are being compared must be expressed in the same unit. Thus, production of rice in tonnes can be compared with consumption of rice in tonnes. We cannot compare the production of rice in tonnes and production of cotton in bales.

Averages : The inherent inability of the human mind to grasp in its entirety a large body of numerical data compel us to seek relatively few constants that will adequately describe the data. Average is one such constant. These are the typical values around which other items of the distribution congregate. They give us the gist of huge numerical data. Here, we will describe only arithmetic average or mean.

The average or mean of a number of quantities of the same kind is their sum divided by the number of those quantities.

Let $x_1, x_2, x_3, \dots, x_n$ be the n values of x . Their average is denoted by \bar{x} and is given by

$$\bar{x} = \frac{\text{Sum of observations}}{\text{Total number of observations}}$$

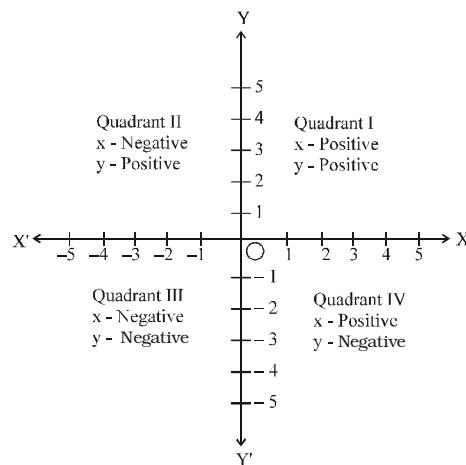
$$\text{or, } \bar{x} = \frac{x_1 + x_2 + x_3 + \dots + x_n}{x_n}$$

LINE GRAPHS

Line Graphs are more obvious, precise and accurate than the diagrams and can be effectively used for further statistical analysis, viz., to study slopes, rates of change and for future inference. They can be used to study the relationship between the variates under study. Line Graphs are drawn on 'graph-paper'.

Construction of Line Graphs : Line Graphs are drawn on a special paper called 'graph paper' which has a net work of horizontal and vertical lines forming squares. In the graph paper two straight lines are drawn at right angles, intersecting each other at a point O (say) known as origin. The horizontal line is known as X-axis and is usually denoted by XOX' . The vertical line is known as the Y-axis and is usually denoted by YOY' . In this way the graph is divided into four parts called quadrants. In practice, only the first quadrant is used unless negative quantities are to be displayed. The distances measured to the right of

origin along X-axis are taken as positive where as the distances measured to the left of origin along X-axis are taken as negative. Along the Y-axis, the distances measured above the origin are taken as positive where as the distances measured below the origin are taken as negative. Any pair of the values of variables is represented by an ordered pair (x, y) where x generally represents the value of independent variable (x -coordinate) and y represents the value of dependent variable (y -coordinate).



Line graphs are used to show how a quantity i.e., dependent variable changes with change in independent variables. Very often the quantity is measured as time changes.

ADVANTAGES OF GRAPHS

1. Graphs are visual aids that give a bird's eye view of numerical data.
2. Graphs, being attractive, leave a much lasting impression on mind.
3. In the construction of graph, generally, a graph paper is used which helps us to learn the mathematical relationship between the two variables.
4. Graphs are clear, precise and accurate and help statisticians in the study of slopes, rates of change and estimation.
5. Graphs reveal the trends and also exhibit the way in which the trends change.

BAR DIAGRAM

BAR DIAGRAMS are one of the simplest and the most common devices used for the presentation of statistical data. They consist of a number of equidistant rectangular bars, one for each category of the data in which the magnitudes are represented by the length or height of the rectangles, whereas width of rectangles are arbitrary and immaterial. The following points should be taken into consideration while drawing bar diagrams :

- (i) All the bars drawn in a diagram are generally of uniform width which depends on the number of bars to be constructed and the availability of space.

STATISTICS AND DATA INTERPRETATION

(ii) To make the bar diagram attractive and graceful, uniform space is given between different bars.

(iii) As the height of the rectangles are taken proportional to the magnitude of observations the scale is selected keeping in view the magnitude of the greatest observation.

(iv) All the bars are constructed on the same base line.

(v) Bars drawn may be vertical or horizontal.

(vi) Vertical bars are generally arranged from left to right.

(vii) Horizontal bars are generally arranged from top to bottom.

(viii) Generally, the figures represented by the bars are written at the top in case of vertical bars and at the right end in case of horizontal bars. It facilitates a reader to draw a precise idea of the value.

(ix) A suitable title is given at the top of the diagram which indicates the subject matter and various other facts depicted in the bar diagram.

(x) Sometimes, footnotes are given at the left hand bottom of bar diagram to explain certain facts, not mentioned in the title.

(xi) A brief index is also given at the right hand top of bar diagram which explains the various types of shades, colours or designs used while constructing bar diagrams.

TYPES OF BAR DIAGRAM

The various types of bar diagrams which are most commonly used are mentioned below :

1. Simple Bar Diagram

2. Sub-divided Bar Diagram

3. Percentage Bar Diagram

4. Multiple Bar Diagram

1. SIMPLE BAR DIAGRAM

Simple bar diagram is the simplest and the easiest of the bar diagrams. It is used to represent only one dependent variable. The values of observations are shown by means of bars which are of equal width but of varying heights. As discussed earlier the magnitudes of variables are represented by the heights of the rectangles.

2. SUB-DIVIDED BAR DIAGRAM

A simple bar diagram can represent only one characteristic at a time. For example, the total number of students studying in a University for the last ten years can easily be expressed by simple bar diagram, but it cannot show the faculty wise distribution of students. This limitation of bar diagram is overcome by subdivided bar diagrams. These are used to represent the breakdown of the total into its component parts. First of all, a bar representing a total is drawn. Then it is divided into different segments, each segment representing a given component of the total. Different colours, shades, designs etc. are used to distinguish the various components. An index is given to represent the various components. To facilitate comparisons, the order of the various components in the different bars is same.

3. PERCENTAGE BAR DIAGRAM

Sub-divided bar diagram presented graphically on percentage basis is termed percentage bar diagram. They are specially useful for the diagrammatic representation of the relative changes in the data. A percentage bar diagram is used to highlight the relative importance of the different component parts to the whole. Here all totals are taken as 100 and are represented by bars of same length. The component parts are expressed as percentages of totals. The other rules regarding index, shade or colour, thickness are the same as in simple or multiple bar diagrams. The absolute changes in the component parts or total are not shown in the diagram.

4. MULTIPLE BAR DIAGRAM

When a combination of inter-related variables are to be presented graphically, multiple bar diagrams are used. These are extended forms of simple bar diagrams. Here, many aspects of the given data are presented simultaneously and as such are very useful for direct comparison between two or more phenomena by representing them with separate bars of different shades or colours. Here an index is given to explain the shades and colours used. The bars for different characteristics/phenomena for a particular year are drawn adjacent to each other. Proper and equal spacing is given between different sets of the bars.

HISTOGRAM

It consists of a set of continuous bars drawn adjacent to each other. It is generally used to represent frequency distribution among different class intervals of the data presented in tabular form. Areas of bars are proportional to the corresponding class frequencies.

Cumulative graphs : These are usually bar or line graphs where the height or length of the bar or line is divided proportionately among various quantities represented in the graph. The representation of quantities may be done in terms of either percentage of the total or in absolute figures. Thus, a cumulative graph may be conveniently used for making comparisons. These are also called sub-divided graphs.

CIRCLE GRAPHS OR PIE-CHART

A pie-diagram is a pictorial representation of the numerical data by non-intersecting adjacent sectors of the circle such that area of each sector is proportional to the magnitude of the data represented by the sector.

Just as sub-divided and percentage bars are used to represent the total magnitude and its different components, the circle representing the total may be divided into different segments representing certain proportion or percentage of the different components/parts to the total. Such a sub-divided circle diagram is called pie-diagram because the entire graph looks like a pie and the components resemble slices cut from a pie.

Some Important Points

- (i) Different sectors of a pie-chart represent various component parts.
- (ii) Each of the component values is expressed either as a percentage or fractional ratio of the respective total or as sectoral angle of the respective total.
- (iii) Since the total angle at the centre of the circle is 360° , the total magnitude of the various components is taken to be equal to 360° . In other words, 360° is taken as 100% and vice versa.
- (iv) Since 1 per cent of the total value is equal to $\frac{360}{100}$ $= 3.6^\circ$, the percentage of the component parts can be converted to degrees by multiplying each of the them by 3.6.
- (v) The degrees represented by the various component parts of a given magnitude can be obtained without computing their percentage to the total value as follows :

Degree of the any component part

$$= \frac{\text{Component value}}{\text{Total value}} \times 360^\circ$$

In DI section of the question paper, the target should be to attempt all questions as skipping them would amount to losing precious scoring opportunities. There are two approaches to arrive at the solution. One is to work on the data to arrive at the correct answer. The other one is the Elimination method which requires working backwards by eliminating the wrong choices. Though the elimination method is more time consuming, it may still be preferred where direct solution involves enormous calculation.

At times, examiners pose rather difficult data sets at the beginning of the sections. These are intended to be 'SPEED BRAKERS' which take away much of precious time. Therefore, as a rule, scan the whole section quickly before actually attempting the questions and start with easier part of the section.

In some exams, data are presented in more than one table or graph. The objective is to test not only quantitative skills but also corelational and analytical ability. Recently, in some exams the questions in this section are being framed in caselet (paragraph) form, beginning with probability and reasoning questions. It is left to the reader to study the case, sort out requisite data and arrange it in a suitable form for meaningful interpretation. It is best to arrange data with rough sketch to hasten comprehension.

Important Tips : These will help in saving time, reducing mistakes and finding solution easily.

1. Read the table title, nomenclatures of columns and rows.
2. Get a general picture of the information by looking at the entire table or graph.
3. Simplify the questions being asked. Break down lengthy questions into smaller parts.
4. Use only the information given for finding solutions. Select the appropriate data for answering a question.
5. Eliminate impossible choices.
6. Avoid lengthy calculations.
7. Try to interpret through trends of the data in the graph. Whenever possible, try to answer the questions by visualizing rather than by computing.
8. Don't go for exact calculation, unless necessarily required.
9. Approximate evaluation and comparision greatly simplifies solution.
10. Where calculation is required, prefer approximate values at the first stage.
Go for exact calculation where values are close and require exact answer.
11. Be careful to use proper units.
12. Make correct use of your knowledge of basic mathematical rules, principles and formulae.
13. Don't confuse in decimals and percentages. For example, $0.5\% = 0.005$.
14. Use pencil or straight edge of the answer sheet to read the graph and find approximate values.
15. Focus your answer on the question actually asked and not on what the question should be in your opinion.
16. Never do anything that is unnecessary.
17. Last, but not the least, make sure that the answer is sensible and reasonable.

Thumb Rules for Simplification :

1. Round off the figures atleast at first stage of calculation or elimination.
2. Remembers, $50\% = \frac{1}{2}$, $25\% = \frac{1}{4}$, $75\% = \frac{3}{4}$
 $20\% = \frac{1}{5}$, $40\% = \frac{2}{5}$, $60\% = \frac{3}{5}$
 $80\% = \frac{4}{5}$
3. To get 10% value, leave the unit digit of the number or round it off.
Similarly, to get 1% value, leave the two extreme right digits followed by suitable rounding off.
4. 5% is taken either as half of 10%. or five times of 1%.
5. Similarly, 2 %, 3%, 4%, 6% etc. are evaluated in terms of 1%.

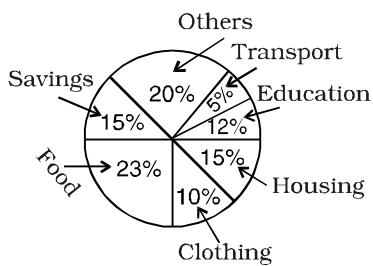


QUESTIONS ASKED IN PREVIOUS SSC EXAMS

TYPE-I

Directions (1-5) : Read the following pie-chart to answer the questions given below it.

(SSC CGL Prelim Exam. 27.02.2000 (First Sitting)



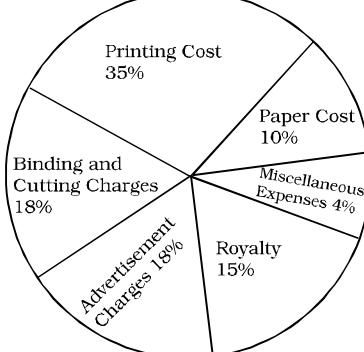
Per cent of money spent by a family on various items during 1998

1. If the total amount spent during the year 1998 was ₹ 46000/-, the amount spent on food, was :
 (1) ₹ 2000/-
 (2) ₹ 10580/-
 (3) ₹ 23000/-
 (4) ₹ 2300/-
2. If the total amount spent was ₹ 46000/-, how much was spent on clothing and housing together?
 (1) ₹ 11500/- (2) ₹ 1150/-
 (3) ₹ 10000/- (4) ₹ 15000/-
3. The ratio of the total amount of money spent on housing to that spent on education was :
 (1) 5 : 2 (2) 2 : 5
 (3) 4 : 5 (4) 5 : 4
4. Graph shows that the maximum amount was spent on:
 (1) Food (2) Housing
 (3) Clothing (4) Others
5. If the total expenditure of the family for the year 1998 was ₹ 46000/-, the family saved during the year.
 (1) ₹ 1500/-
 (2) ₹ 15000/-
 (3) ₹ 6900/-
 (4) ₹ 3067/- approx.

Directions (6-10) : The following questions are based on the pie-chart given below. Study the pie-chart and answer the questions.

(SSC CGL Prelim Exam. 11.05.2003 (First Sitting)

The percentage expenses on various items during book production and sale.



6. The central angle for the sector on "Paper-Cost" is

- (1) $22\frac{1}{2}^\circ$ (2) 16°
 (3) 54.8° (4) 36°

7. If the 'Printing-Cost' is ₹ 17500, the royalty paid is
 (1) ₹ 8750 (2) ₹ 7500
 (3) ₹ 3150 (4) ₹ 6300

8. If the "miscellaneous expenses" are ₹ 6000. How much more are "binding and cutting charges" than "Royalty" ?
 (1) ₹ 6000
 (2) ₹ 5500
 (3) ₹ 4500
 (4) ₹ 10500

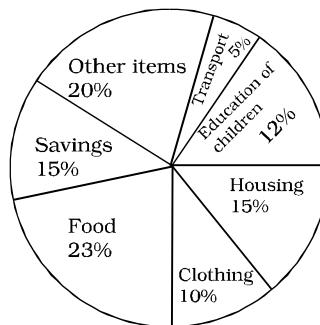
9. The central angle corresponding to the sector on "Printing Cost" is more than that of "Advertisement Charges" by :
 (1) 72° (2) 61.2°
 (3) 60° (4) 54.8°

10. The "Paper Cost" is approximately what per cent of "Printing Cost" ?
 (1) 20.3% (2) 28.6%
 (3) 30% (4) 32.5%

Directions (11-15) : The pie chart drawn below shows the expenses of a family on various items and its savings during the year 2001. Study the graph and answer the questions.

(SSC CGL Prelim Exam. 11.05.2003 (Second Sitting)

Percent of money spent on various items and savings by a family during 2001



11. Maximum expenditure of the family was on

- (1) Food
 (2) Housing
 (3) Education of children
 (4) Other items

12. The total savings of the family for the year were equal to the expenditure on

- (1) Food
 (2) Clothing
 (3) Housing
 (4) Other items including transport

13. What per cent of the income was spent on transport and other items together ?

- (1) 25% (2) 20%
 (3) 30% (4) 32%

14. If the total income of the family was ₹ 1,00,000, how much money was spent on the education of the children?

- (1) ₹ 10000 (2) ₹ 12000
 (3) ₹ 15000 (4) ₹ 23000

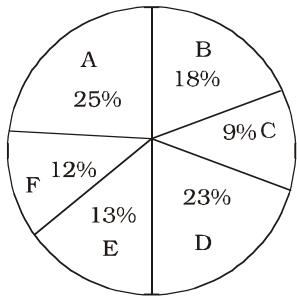
STATISTICS AND DATA INTERPRETATION

- 15.** If the total income for the year was ₹ 1,00,000, the difference of the expenses (in rupees) between housing and transport was

- (1) ₹ 15000 (2) ₹ 12000
(3) ₹ 7000 (4) ₹ 10000

Directions (16-20) : The Pie chart given here represents the domestic expenditure of a family in per cent. Study the chart and answer the following questions if the total monthly income of the family is ₹ 33,650.

(SSC CGL Prelim Exam. 08.02.2004
(Second Sitting)



- A : Expenditure on food
B : Expenditure on house-rent
C: Expenditure on entertainment
D : Expenditure on education and maintenance of children
E: Medical and miscellaneous expenditure
F : Deductions towards provident fund

16. The house rent per month is :
(1) ₹ 6000 (2) ₹ 6152
(3) ₹ 6057 (4) ₹ 6048

17. The annual savings in the form of provident fund would be
(1) ₹ 48,456 (2) ₹ 48,540
(3) ₹ 44,856 (4) ₹ 45,480

18. After provident fund deductions and payment of house rent, the total monthly income of the family remains
(1) ₹ 23,545 (2) ₹ 24,435
(3) ₹ 23,555 (4) ₹ 25,355

19. The total amount per month, the family spends on food and entertainment combined together, is :
(1) ₹ 11,432 (2) ₹ 11,441
(3) ₹ 12,315 (4) ₹ 12,443

- 20.** Had there been no children in the family what would have been the total savings of the family including that provident fund ?

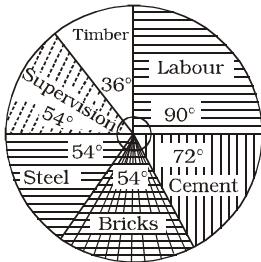
- (1) ₹ 12,667.50
(2) ₹ 12,625.50
(3) ₹ 11,727.50
(4) ₹ 11,777.50

Directions (21-24) : The pie graph given here shows the break-up of the cost of construction of a house.

Assuming that the total cost of construction is ₹ 6,00,000, answer the questions.

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006
(Second Sitting)

Break-up of the cost of construction of a house



- 21.** The amount spent on cement is
(1) ₹ 2,00,000 (2) ₹ 1,60,000
(3) ₹ 1,20,000 (4) ₹ 1,00,000

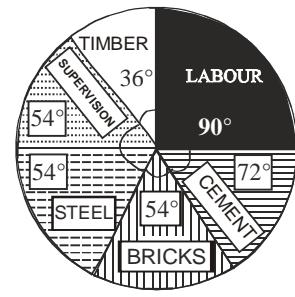
22. The amount spent on labour exceeds the amount spent on steel by
(1) 5 per cent of the total cost.
(2) 10 per cent of the total cost.
(3) 12 per cent of the total cost.
(4) 15 per cent of the total cost.

23. The amount spent on cement, steel and supervision is what per cent of the total cost of construction?
(1) 40% (2) 45%
(3) 50% (4) 55%

24. The amount spent on labour exceeds the amount spent on supervision by
(1) ₹ 2,00,000 (2) ₹ 1,60,000
(3) ₹ 1,20,000 (4) ₹ 60,000

(SSC CHSL S.I. Exam: 05.11.2008)

BREAK-UP OF THE COST OF CONSTRUCTION OF A HOUSE



- 25.** If the total cost of construction of the house is ₹ 15,00,000, how much amount of money was spent on labour ?

- (1) ₹ 90,000 (2) ₹ 2,50,000
 (3) ₹ 3,60,000 (4) ₹ 3,75,000

26. The total expenditure incurred on bricks, steel and cement is what per cent of the total cost of construction?

- (1) 50% (2) 54%
(3) 72% (4) 75%

27. Expenditure incurred on timber is what per cent of the expenditure on cement ?

- (1) 36% (2) 50%
(3) 72% (4) 18%

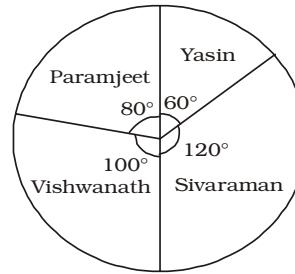
28. Out of the total cost (₹ 15,00,000) of construction how much amount of money was spent on labour and supervision combined together ?

- (1) ₹ 1,44,000 (2) ₹ 3,00,000
 (3) ₹ 6,00,000 (4) ₹ 7,50,000

Directions (29-31) : The pie chart, given here, represents the number of valid votes obtained by four students who contested election for school leadership. The total number of valid votes polled was 720.

Observe the chart and answer the questions based on it.

**(SSC CGL Tier-I Exam. 16.05.2010
(First Sitting)**



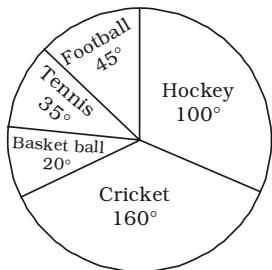
STATISTICS AND DATA INTERPRETATION

- 29.** What was the minimum number of votes obtained by any candidate?
 (1) 100 (2) 110
 (3) 120 (4) 130
- 30.** Who was the winner?
 (1) Sivaraman (2) Paramjeet
 (3) Yasin (4) Vishwanath
- 31.** By how many votes did the winner defeat his nearest rival?
 (1) 40 (2) 45
 (3) 48 (4) 50

Directions (32-34) : The pie chart, given here, shows the amount of money spent on various sports by a school administration in a particular year.

(SSC CGL Tier-I Exam. 16.05.2010
(Second Sitting)

Observe the pie chart and answer the questions based on this graph.



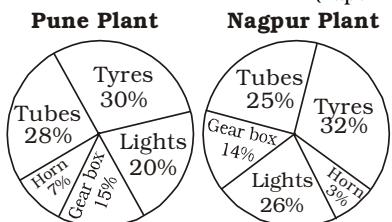
- 32.** If the money spent on football was ₹ 9,000 how much more money was spent on hockey than on football?
 (1) ₹ 11,000 (2) ₹ 11,500
 (3) ₹ 12,000 (4) ₹ 12,500

- 33.** If the money spent on football was ₹ 9,000, what amount was spent on Cricket?
 (1) ₹ 31,000 (2) ₹ 31,500
 (3) ₹ 32,000 (4) ₹ 32,500

- 34.** If the money spent on football is ₹ 9,000, then what was the total amount spent on all sports?
 (1) ₹ 73,000 (2) ₹ 72,800
 (3) ₹ 72,500 (4) ₹ 72,000

Directions (35-37) : The pie charts, given here show some automobile parts manufactured by an automobile company at its Pune and Nagpur plants in the year 2009.

Study the pie charts and answer the questions
(SSC CISF ASI Exam. 29.08.2010
(Paper-1)



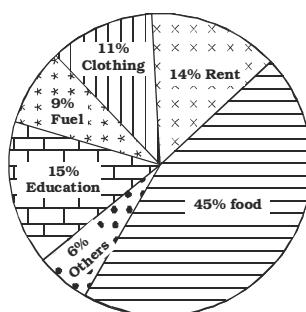
- 35.** If the Nagpur plant produced 8,00,000 tyres, then the number of horns produced by it was
 (1) 12,000 (2) 18,500
 (3) 75,000 (4) 60,000

- 36.** How many percent more tubes were produced at the Pune plant than those produced at the Nagpur plant?
 (1) 14% (2) 12%
 (3) 8% (4) 3%

- 37.** The ratio of number of horns produced at Nagpur plant to that produced at Pune plant is
 (1) 3 : 7 (2) 10 : 3
 (3) 7 : 3 (4) 7 : 10

Directions (38-41) : The pie chart given below shows the spendings of a family on various heads during a month. Study the graph and answer the following questions.

(SSC CGL Tier-I Exam. 19.06.2011
(First Sitting)



- 38.** If the total income of the family is ₹ 25,000, then the amount spent on Rent and Food together is
 (1) ₹ 17,250 (2) ₹ 14,750
 (3) ₹ 11,250 (4) ₹ 8,500

- 39.** What is the ratio of the expenses on Education to the expenses on Food?
 (1) 1 : 3 (2) 3 : 1
 (3) 3 : 5 (4) 5 : 3

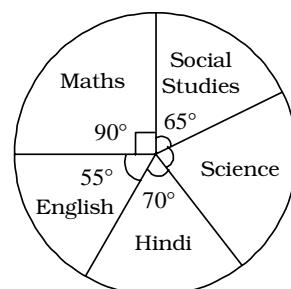
- 40.** Expenditure on Rent is what percent of expenditure on Fuel?
 (1) 135% (2) 156%
 (3) 167% (4) 172%

- 41.** Which three expenditures together have a central angle of 108°?
 (1) Fuel, Clothing and Others
 (2) Fuel, Education and Others
 (3) Clothing, Rent and Others
 (4) Education, Rent and Others

Directions (42-45) : The pie chart given below shows the marks obtained by a student in an examination.

If the total marks obtained by him in the examination were 540, answer the questions given below based on this pie chart.

(SSC Data Entry Operator Exam. 31.08.2008)



- 42.** In which subject, did the student obtain 105 marks?
 (1) Maths (2) Social studies
 (3) Science (4) Hindi

- 43.** What is the central angle corresponding of Science?
 (1) 40° (2) 80°
 (3) 75° (4) 60°

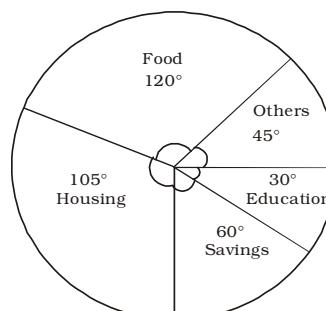
- 44.** How many more marks were obtained by the student in Maths than those in Hindi?
 (1) 30 (2) 20
 (3) 10 (4) 40

- 45.** How many marks were obtained by the student in Science?
 (1) 130 (2) 120
 (3) 125 (4) 140

Directions (46-49) : The pie chart given here shows expenditures incurred by a family on various items and their savings, which amounts to ₹ 8,000 in a month.

Study the chart and answer the questions based on the pie-chart

(SSC Data Entry Operator Exam. 02.08.2009)



STATISTICS AND DATA INTERPRETATION

46. How much expenditure is incurred on education ?

- (1) ₹ 3,000 (2) ₹ 5,000
 (3) ₹ 4,000 (4) ₹ 7,000

47. The ratio of the expenditure on food to the savings is

- (1) 3 : 2 (2) 2 : 1
 (3) 4 : 3 (4) 3 : 4

48. What is the total expenditure of the family for the month ?

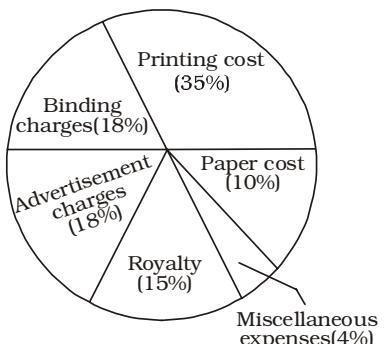
- (1) ₹ 40,000 (2) ₹ 48,000
 (3) ₹ 45,000 (4) ₹ 50,000

49. How much more amount is spent on food than on housing ?

- (1) ₹ 1,000 (2) ₹ 3,000
 (3) ₹ 2,000 (4) ₹ 2,500

Directions (50–53) : The pie-chart, given here, shows various expenses of a publisher in the production and sale of a book. Study the chart and answer questions based on it.

(SSC CHSL DEO & LDC Exam. 27.11.2010)



50. If the printing cost is ₹ 17,500, the 'Royalty' paid is :

- (1) ₹ 8,750 (2) ₹ 7,500
 (3) ₹ 6,300 (4) ₹ 3,130

51. The measure of central angle for the section 'printing cost' is :

- (1) 126° (2) 70°
 (3) 63° (4) 35°

52. Miscellaneous expenses are what percent of paper cost ?

- (1) 4% (2) 10%
 (3) 40% (4) 44%

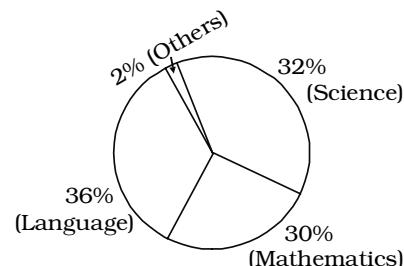
53. The difference between the measure of central angles of sector for binding charges and advertisement charges is :

- (1) 180° (2) 90°
 (3) 18° (4) 0°

Directions (54–57) : The pie-chart, given here, shows the land distribution of a village.

Study the pie-chart and answer the questions based on it.

(SSC CHSL DEO & LDC Exam. 28.11.2010 (IIInd Sitting))



58. The number of students failed in science is less than the number of students failed in all other subjects by :

- (1) 170 (2) 140
 (3) 180 (4) 160

59. The central angle of the sector for the students who have failed in mathematics is :

- (1) 30° (2) 100°
 (3) 105.2° (4) 108°

60. Total number of students who did not qualify in Mathematics and Language and Science, is :

- (1) 460 (2) 490
 (3) 480 (4) 470

61. Number of students who failed in mathematics is less than the students who did not qualify in languages by :

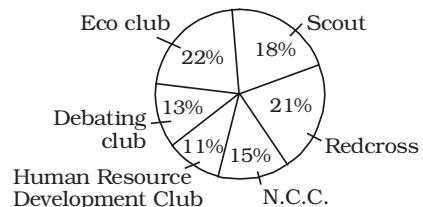
- (1) 20 (2) 40
 (3) 30 (4) 50

62. The percentage of students who have failed in mathematics and language is :

- (1) 65.5% (2) 60%
 (3) 66% (4) 62%

Directions (63–67) : The pie-chart given below shows the number of students enrolled in a school in different activities. Total number of students in the school is 1200. Study the chart and answer the questions.

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IIInd Sitting))



63. How many students are enrolled in N.C.C. activities ?

- (1) 180 (2) 120
 (3) 72 (4) 240

STATISTICS AND DATA INTERPRETATION

64. What is the total number of students enrolled in Debating Club and HRD Club ?

- (1) 144 (2) 216
 (3) 288 (4) 72

65. The number of students enrolled in Eco-club is what per cent of those enrolled in Redcross activities ?

- (1) 94.24% (2) 95.45%
 (3) 82.45% (4) 104.76%

66. What is the ratio of number of students enrolled in Scout and Redcross activities together to those enrolled in Debating Club activities ?

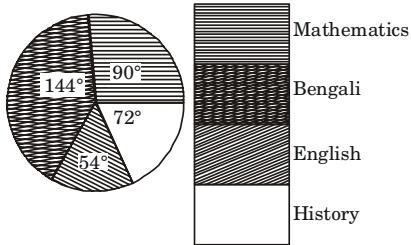
- (1) 3 : 1 (2) 4 : 1
 (3) 1 : 4 (4) 1 : 3

67. Which two clubs have the enrolment in the ratio of 2 : 1 ?

- (1) Eco club, HRD club
 (2) Eco club, N.C.C.
 (3) HRD club, Eco club
 (4) Debating club, Eco club

Directions (68-72) : The following pie-chart represents the result of 600 successful students in various subjects at an examination. Study the chart and answer question

(SSC CHSL DEO & LDC Exam.
 28.10.2012 (Ist Sitting)



68. The ratio of students who passed in Bengali, to the students who passed in History is

- (1) 1 : 2 (2) 2 : 1
 (3) 3 : 4 (4) 3 : 5

69. The number of students passed in Bengali is greater than the number of students passed in History by

- (1) 150 (2) 60
 (3) 120 (4) 100

70. The percentage of students who passed in English is

- (1) 15% (2) 20%
 (3) 5% (4) 12%

71. The number of students passed in English is less than the number of students passed in Mathematics by

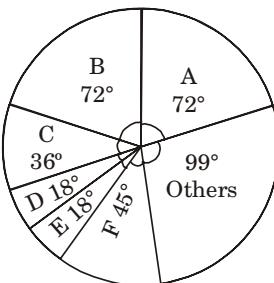
- (1) 50 (2) 60
 (3) 90 (4) 75

72. The highest number of students passed in a subject in percentage

- (1) 20% (2) 25%
 (3) 40% (4) 35%

Directions (73-77) : The following Pie Chart shows the export of different foodgrains from India in 2010. Study the chart and answer the questions :

(SSC CHSL DEO & LDC Exam.
 04.11.2012 (IIInd Sitting)



73. Of the total export of foodgrains, the percentage of crop B exported is

- (1) 15% (2) 20%
 (3) 18% (4) 10%

74. If a total of 1.5 million quintals of crop F was exported, the amount of total foodgrains exported (in million) quintals was

- (1) 8.7 (2) 12
 (3) 10.8 (4) 9.6

75. The three crops which combine to contribute to exactly 50% of the total export of foodgrains are

- (1) A, F and others
 (2) B, C and F
 (3) A, B and C
 (4) C, F and others

76. If a total of 1.5 million quintals of crop F was exported, then the total quantity of D and E that was exported (in million quintals) was

- (1) 1.2 (2) 1.5

- (3) 4.5 (4) 6.5

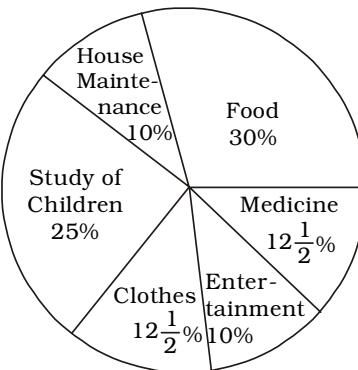
77. If the revenue from 1 quintal of crop A is thrice that from 1 quintal of crop C, then the ratio of the total revenues of A and C is

- (1) 1 : 6 (2) 2 : 3
 (3) 3 : 2 (4) 6 : 1

Directions (78-82) : Following is the pie-chart showing the spendings of a family on various items in a particular year

Study the pie chart and answer questions.

(SSC Graduate Level Tier-I
 Exam. 11.11.2012 (Ist Sitting)



78. The ratio of the total amount spent for food and medicine is

- (1) 1 : 2 (2) 3 : 1
 (3) 12 : 5 (4) 11 : 5

79. If the total amount spent on the family during the year was ₹50,000, how much they spent for buying clothes ?

- (1) ₹6,250 (2) ₹6,500
 (3) ₹7,250 (4) ₹7,500

80. If the total amount spent on the family during the year was ₹35,000, the amount spent for study of children and food together was

- (1) ₹19,250 (2) ₹19,500
 (3) ₹19,750 (4) ₹19,850

81. Angle of the pie chart representing the expenditure on entertainment is

- (1) 15° (2) 10°
 (3) 36° (4) 12 1/2°

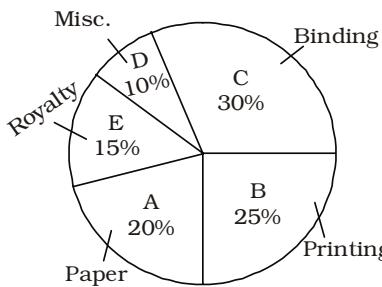
82. If the difference in the amount spent for buying clothes and house maintenance was ₹1,500, how much they spent for house maintenance ?

- (1) ₹5,000 (2) ₹6,000
 (3) ₹7,000 (4) ₹8,000

Directions (83-87) : The following pie-diagram shows the expenditure incurred on the preparation of a book by a publisher, under different heads. Study the pie-diagram and answer the following questions.

(SSC Assistant Grade-III
 Exam. 11.11.2012 (IIInd Sitting)

STATISTICS AND DATA INTERPRETATION



83. Angle of the pie-chart representing expenditure incurred on paying royalty is

- (1) 27° (2) 36°
(3) 15° (4) 54°

84. If the expenditure on printing and binding of one book is ₹110, then the cost of production of the book is (in ₹)

- (1) 250 (2) 200
(3) 110 (4) 550

85. If cost of publishing a book is ₹200, then printing cost is (in ₹)

- (1) 40 (2) 60
(3) 20 (4) 50

86. Which two expenditures together will form an angle of 108° at the centre of the pie-diagram?

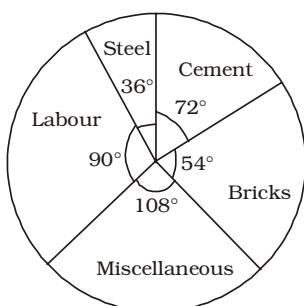
- (1) A and D (2) A and C
(3) A and B (4) A and E

87. The number of heads on which the expenditure on a book is more than the average is

- (1) 3 (2) 2
(3) 4 (4) None of these

Directions (88-92) : The following pie-chart shows the expenditure incurred on the construction of a house in a city. Study the chart and answer the following questions.

(SSC CHSL DEO & LDC Exam.
28.10.2012, 1st Sitting)



88. The mean of the expenditure is on

- (1) Brick (2) Cement
(3) Steel (4) Labour

89. The ratio of expenditure on Steel, Cement and Bricks is

- (1) $2 : 4 : 3$ (2) $4 : 2 : 3$
(3) $3 : 2 : 4$ (4) $4 : 3 : 2$

90. The highest expenditure in percentage is

- (1) 40% (2) 30%
(3) 45% (4) 60%

91. What part of expenditure on labour is in respect of total expenditure?

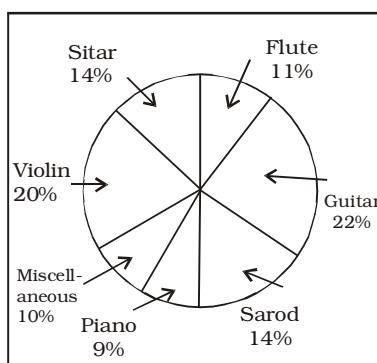
- (1) $\frac{3}{10}$ part (2) $\frac{5}{8}$ part
(3) $\frac{1}{4}$ part (4) $\frac{7}{18}$ part

92. Of the total expenditure the percentage of expenditure on steel and bricks together is

- (1) 90% (2) 20%
(3) 25% (4) 30%

Directions (93-97) : The following pie-chart shows the preference of musical instruments of 60,000 people surveyed over whole India. Examine the chart and answer the questions.

(SSC CHSL DEO & LDC Exam.
04.11.2012, 1st Sitting)



93. If 2100 people less from the number of people who prefer Flute, the percentage of people who prefer Flute would have been :

- (1) 9.5% (2) 6.5%
(3) 7.5% (4) 8.5%

94. The total number of people who prefer either Sarod or Guitar, is greater than the total number of people who prefer either Violin or Sitar by :

- (1) 1200 (2) 1600
(3) 1100 (4) 1400

95. The number of people who prefer the musical instrument Sarod is :

- (1) 7400 (2) 8400
(3) 6400 (4) 8600

96. If $16\frac{2}{3}\%$ of the people who pre-

fer Piano, would go with the people who prefer Flute, the percentage of people who prefer Flute would have been

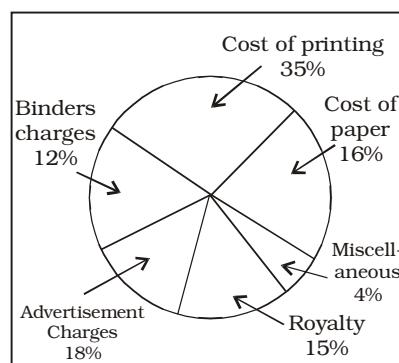
- (1) 13.5% (2) 14.5%
(3) 15.5% (4) 12.5%

97. The number of people who prefer Guitar is greater than the total number of people who prefer either Flute or Piano by :

- (1) 1200 (2) 1100
(3) 1300 (4) 1400

Directions (98-102) : Circle graph given below shows the expenditure incurred in bringing out a book by a publisher. Study the graph and answer the question.

(SSC CHSL DEO & LDC Exam.
04.11.2012, 1st Sitting)



98. The central angle of the sector for the cost of the paper is :

- (1) 22.5° (2) 16°
(3) 54.8° (4) 57.6°

99. Royalty on the book is less than the Advertisement charges by :

- (1) 3% (2) 25%
(3) 20% (4) $16\frac{2}{3}\%$

100. If 5500 copies are published, Miscellaneous expenditures amounts to ₹1848 and publisher's profit is 25%, then marked price of each copy is

- (1) ₹ 12.50 (2) ₹ 10.50
(3) ₹ 10 (4) ₹ 8.40

STATISTICS AND DATA INTERPRETATION

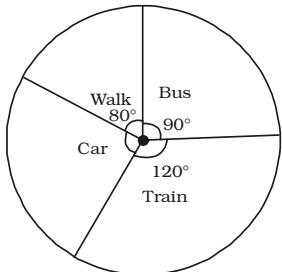
- 101.** If the cost of printing is ₹ 17,500, the Royalty is :
 (1) ₹ 8750 (2) ₹ 6300
 (3) ₹ 7500 (4) ₹ 3150

- 102.** If the Miscellaneous charges is ₹ 6,000, the Advertisement charges are :
 (1) ₹ 27,000 (2) ₹ 90,000
 (3) ₹ 12,000 (4) ₹ 1,333.33

Directions (103–107) : The pie-chart given below represents the number of students using different transport to a school in which total number of students is 2160.

Answer the questions based on the following diagram.

(SSC FCI Assistant Grade-III Main Exam. 07.04.2013)



- 103.** The number of students who come to school by car is
 (1) 70 (2) 290
 (3) 420 (4) 480

- 104.** The ratio of the number of students who come to school by car to the number of students who come to school by bus is
 (1) 21 : 24 (2) 21 : 27
 (3) 36 : 27 (4) 36 : 21

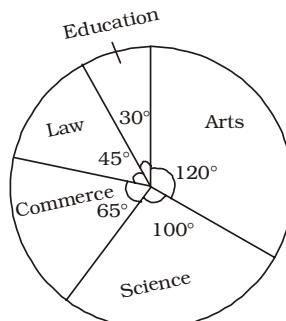
- 105.** The total number of students coming to school either by walking or by bus is
 (1) 480 (2) 540
 (3) 1020 (4) 170

- 106.** The number of students who don't come to school by train is
 (1) 720 (2) 1020
 (3) 2040 (4) 1440

- 107.** The number of students coming to school by bus exceeds the number of students coming to school walking, by
 (1) 10% (2) 12.5%
 (3) 11% (4) 11.5%

Directions (108–110) : In the following questions, the pie-chart shows the number of students admitted in different faculties of a college. Study the chart and answer the questions.

(SSC Graduate Level Tier-I Exam. 21.04.2013, 1st Sitting)



- 108.** How many students are more in commerce than in law if 1000 students are in science?
 (1) 200 (2) 2000
 (3) 500 (4) 20

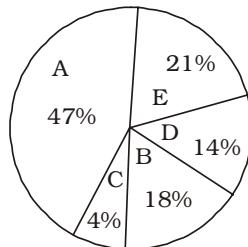
- 109.** If 1000 students are admitted in science, what is the ratio of students in science and arts?
 (1) 6 : 5 (2) 7 : 5
 (3) 7 : 6 (4) 5 : 6

- 110.** If 1000 students are admitted in science, what is the total number of students?
 (1) 180 (2) 1800
 (3) 3600 (4) 360

Directions (111–114) : In the following questions, study the two pie-charts and answer the questions.

(SSC Graduate Level Tier-I Exam. 21.04.2013, 1st Sitting)

April month's salary : ₹ 24000



A – Education

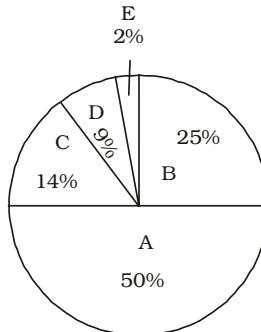
B – Savings

C – Grocery

D – Electricity and Phone Bills

E – Miscellaneous

May month's salary : ₹ 25000



- 111.** What is the percent increase in Education in May month than April month ?

- (1) 9.56% (2) 12.35%
 (3) 20% (4) 10.82%

- 112.** The ratio of amount spent for savings in April month's salary and miscellaneous in May month's salary is :
 (1) 216 : 25 (2) 217 : 26
 (3) 205 : 13 (4) 235 : 50

- 113.** From the salary of May, the amount spent on Grocery and Electricity are:

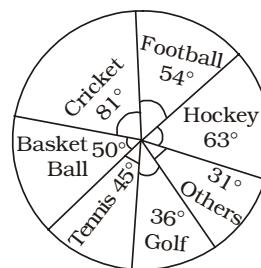
- (1) ₹ 6250, ₹ 3360
 (2) ₹ 960, ₹ 5040
 (3) ₹ 3500, ₹ 2250
 (4) ₹ 2160, ₹ 480

- 114.** The average amount spent on Education, Grocery and Savings from April month's salary is:

- (1) ₹ 5800 (2) ₹ 6000
 (3) ₹ 6325 (4) ₹ 5520

Directions (115–118) : The Pie Chart shows the expenditure of a country on various sports during a particular year. Study the graph and answer the questions.

(SSC Graduate Level Tier-I Exam. 21.04.2013 IInd Sitting)



- 115.** If the total amount spent on cricket and hockey together is ₹ 80,000, the total amount spent on sports is

- (1) ₹ 1,00,000
 (2) ₹ 2,00,000
 (3) ₹ 2,50,000
 (4) ₹ 3,00,000

- 116.** How much per cent more is spent on Hockey than that on Golf ?

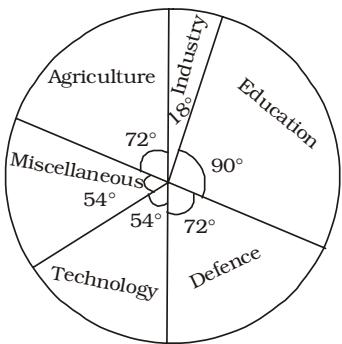
- (1) 27% (2) 35%
 (3) 37.5% (4) 75%

- 117.** How much per cent less is spent on football than that on cricket ?

- (1) $22\frac{2}{9}\%$ (2) 27%
 (3) $33\frac{1}{3}\%$ (4) $37\frac{1}{2}\%$

STATISTICS AND DATA INTERPRETATION

- 118.** Study the graph & answer the question

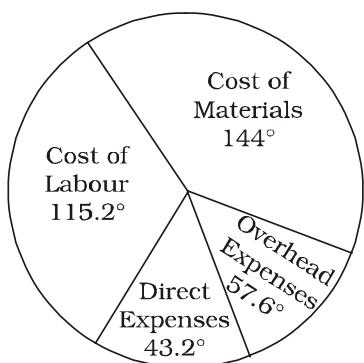


In a certain country, allocations to various sectors of the yearly budget per ₹ 1000 crores are represented by this pie-diagram. The expenditure (in ₹) on Agriculture is

- (1) 250 crores (2) 150 crores
 (3) 300 crores (4) 200 crores
 (SSC Graduate Level Tier-I Exam. 21.04.2013)

Directions (119-120) : Following figure is Pie-chart representing item-wise cost of manufacturing certain product. Study the chart and answer the questions.

(SSC Graduate Level Tier-I Exam. 19.05.2013)



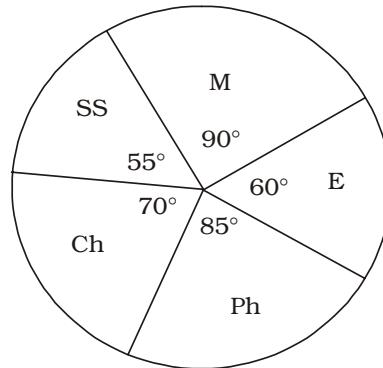
- 119.** Total manufacturing cost is ₹ 96,000. Then, cost of labour is
 (1) ₹ 30,720 (2) ₹ 38,400
 (3) ₹ 11,520 (4) ₹ 15,000

- 120.** The difference of cost of material and direct expenses is
 (1) ₹ 26,000 (2) ₹ 10,000
 (3) ₹ 26,500 (4) ₹ 26,880

Directions (121-124) : The following pie-chart shows the marks

scored by a student in different subjects - viz. Physics (Ph), Chemistry (Ch), Mathematics (M), Social Science (SS) and English (E) in an examination. Assuming that total marks obtained for the examination is 810. Answer the questions given below.

(SSC Graduate Level Tier-I Exam. 19.05.2013 1st Sitting)



- 121.** The difference of marks between Physics and Chemistry is same as that between

- (1) Chemistry and Social Science
 (2) Physics and English
 (3) Mathematics and English
 (4) English and Social Science

- 122.** The marks obtained in Mathematics and Chemistry exceed the marks obtained in Physics and Social Science by

- (1) 50 (2) 30
 (3) 40 (4) 45

- 123.** The subject in which the student obtained 135 marks is

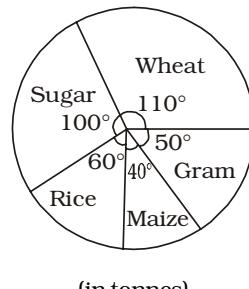
- (1) English
 (2) Physics
 (3) Chemistry
 (4) Mathematics

- 124.** The marks obtained in English, Physics and Social Science exceed the marks obtained in Mathematics and Chemistry by

- (1) $11\frac{1}{9}\%$ (2) 10%
 (3) $10\frac{1}{9}\%$ (4) 11%

Direction (125) : The annual agricultural production (in tonnes) of an Indian State is given in the pie chart. The total production is 9000 tonnes. Read the pie chart and answer the question.

(SSC Graduate Level Tier-II Exam. 29.09.2013)



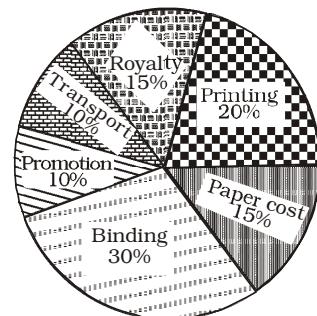
(in tonnes)

- 125.** What is the annual production of wheat?

- (1) 2750 tonnes
 (2) 3000 tonnes
 (3) 3540 tonnes
 (4) 3500 tonnes

Directions (126-127) : Various expenditures incurred by a publishing company for publishing a book in 2011 are given below. Study the chart and answer the questions.

(SSC CHSL DEO& LDC Exam. 20.10.2013)



- 126.** Price of a book is 20% above cost price. If the marked price is ₹ 180, then the cost of paper for a single copy (in ₹) is

- (1) 44.25 (2) 36
 (3) 22.50 (4) 42

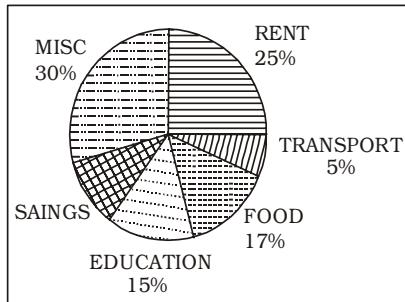
- 127.** Royalty of a book is less than the printing cost by

- (1) 25% (2) 5%
 (3) $33\frac{1}{3}\%$ (4) 20%

Directions (128-131) : The adjoining pie-chart shows the proportional expenditure on various items of Amar's family. If monthly income of Amar is ₹ 48,000, answer the questions.

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

STATISTICS AND DATA INTERPRETATION



128. Had his income be ₹ 40,000 how much would be spent on food ?

- (1) ₹ 14,960 (2) ₹ 1,360
 (3) ₹ 8,160 (4) ₹ 6,800

129. If 10% of miscellaneous expenditure is earmarked for clothing, how much amount is spent on clothes ?

- (1) ₹ 14,400 (2) ₹ 1,440
 (3) ₹ 2,880 (4) ₹ 15,840

130. How much does he save per month ?

- (1) ₹ 7,200 (2) ₹ 14,400
 (3) ₹ 3,840 (4) ₹ 2,400

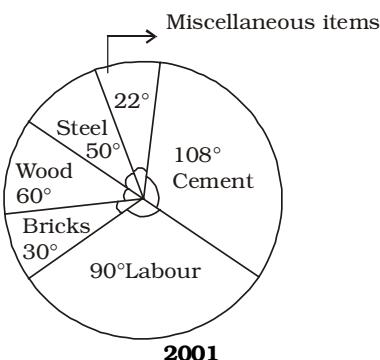
131. How much does he spend more on rent than on transport and education taken together ?

- (1) ₹ 2,400 (2) ₹ 9,600
 (3) ₹ 4,800 (4) ₹ 12,000

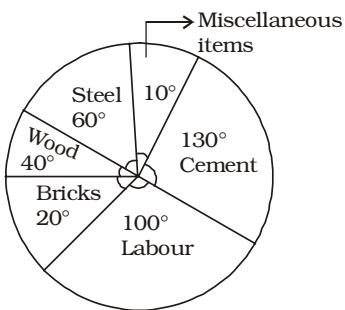
Directions (132-134) : Pie-charts show the expenses on various heads in construction of a house. Study the pie-chart.

(SSC CGL Tier-I Re-Exam. (2013)
 20.07.2014) (Ist Sitting)

1991



2001



132. What percentage of the total amount is being spent on cement in 1991 ?

- (1) 18% (2) 30%
 (3) 48% (4) 60%

133. The percentage increase in the amount spent on labour from 1991 to 2001, given that the total amount spent on the construction of the house is ₹3,60,000 in 1991 and ₹8,64,000, in 2001 is

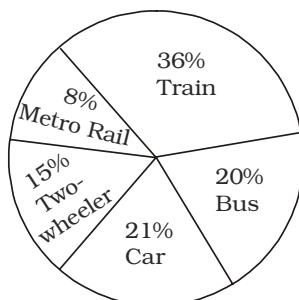
- (1) $3\frac{1}{9}\%$ (2) $43\frac{1}{3}\%$
 (3) $41\frac{2}{3}\%$ (4) $2\frac{2}{9}\%$

134. If the total cost of constructing the house is ₹3,60,000 in 1991 and ₹8,64,000, in 2001, what is the amount spent on Steel in 1991 and 2001 ?

- (1) ₹ 2,16,000, ₹ 4,32,000
 (2) ₹ 60,000, ₹ 84,000
 (3) ₹ 80,000, ₹ 2,10,000
 (4) ₹ 50,000, ₹ 1,44,000

Directions (135-138) : The pie chart given below represents the modes of transport for 1400 officers of the Staff Selection Commission, Kolkata. Study the chart and answer the following questions.

(SSC CGL Tier-I Re-Exam. (2013)
 20.07.2014) (IInd Sitting)



135. The ratio of two-wheelers and cars being used as modes of transport is

- (1) 4 : 7 (2) 7 : 5
 (3) 5 : 7 (4) 3 : 5

136. Write down the difference :

- (officers availing train – officers availaing car)
 (1) 210 (2) 462
 (3) 562 (4) 452

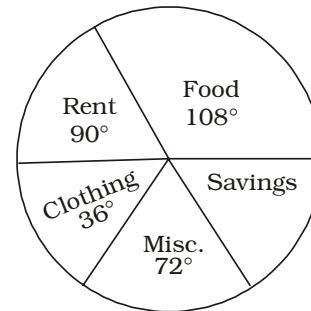
137. The number of officers who go to office by Metro Rail is

- (1) 142 (2) 132
 (3) 112 (4) 122

138. The number of officers who go to office by car is

- (1) 394 (2) 304
 (3) 214 (4) 294

139. The following pie - chart shows the monthly expenditure of a family on food, clothing, rent, miscellaneous expenses and savings. What is the central angle for savings ?

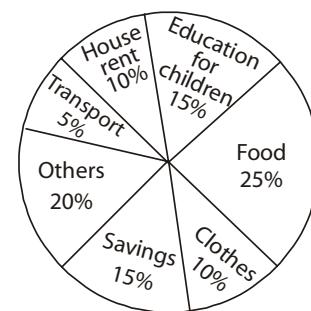


- (1) 54° (2) 56°

- (3) 50° (4) 52°

(SSC CGL Tier-I Exam. 26.10.2014)

140. The pie - chart gives the expenditure (in percentage) on various items and savings of a family during a month. Monthly savings of the family is ₹ 3, 000. On which item is the expenditure maximum and how much is it ?



- (1) Others, ₹ 2,000

- (2) Food, ₹ 3,000

- (3) Others, ₹ 5,000

- (4) Food, ₹ 5,000

(SSC CGL Tier-I Exam. 26.10.2014)

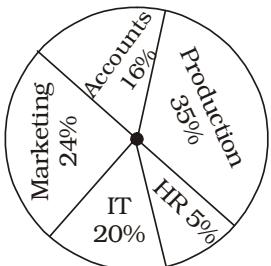
STATISTICS AND DATA INTERPRETATION

Directions (141-144) : Study the pie-chart and table given below and answer the questions.

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

Details of percentage of employees working in various departments in an organization and number of males among them.

Total number of employees = 800.



141. The respective ratio between the number of females working in HR department to the total number of employees working in the HR department is
 (1) 7 : 10 (2) 8 : 17
 (3) 8 : 19 (4) 5 : 7

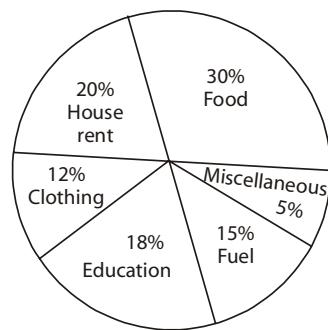
142. The percentage of the number of male employees working in Marketing department to the total number of employees in Marketing department is
 (1) 84% (2) 86%
 (3) 88% (4) 91%

143. The percentage of females working in IT department to the total number of employees working in the organization is
 (1) 10.25% (2) 10.75%
 (3) 15.25% (4) 15.75%

144. The ratio of number of males in Marketing department to the number of females working in that department is
 (1) 52 : 7 (2) 52 : 9
 (3) 55 : 7 (4) 55 : 9

Directions (145-149) : The following pie-chart shows the monthly expenditure of a family on food, house rent, clothing, education, fuel and miscellaneous. Study the pie-chart and answer the questions.

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014
 TF No. 999 KPO)



145. If the expenditure for food is ₹ 9000, then the expenditure for education is
 (1) ₹ 5000 (2) ₹ 5200
 (3) ₹ 5400 (4) ₹ 6000

146. The central angle of the sector for the expenditure on fuel (in degrees) is
 (1) 50.4 (2) 54
 (3) 57.6 (4) 72

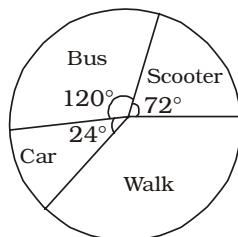
147. If the expenditure on fuel is ₹ 3000, the total expenditure excluding expenditure on house rent and education is
 (1) ₹ 11600 (2) ₹ 12000
 (3) ₹ 12400 (4) ₹ 12500

148. If the percentage of expenditure on food is $x\%$ of the total percentage of expenditure on clothing, education and fuel, then x equals
 (1) 66 (2) $66 \frac{1}{3}$
 (3) $66 \frac{2}{3}$ (4) 67

149. Total percentage of expenditure on house rent, clothing and fuel is greater than the percentage of expenditure on food by
 (1) 16 (2) 17
 (3) 18 (4) 20

Directions (150 – 153) : The following graph represents the transport used by children. Study the graph and answer the given questions.

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IIInd Sitting
 TF No. 545 QP 6)



150. What is the measure of the angle at the centre representing people walking ?
 (1) 144° (2) 48°
 (3) 36° (4) 72°

151. What is the percentage of children using scooter ?

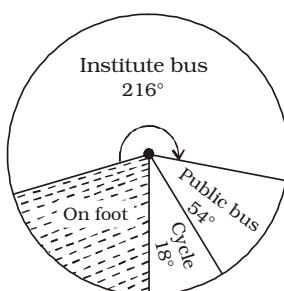
(1) 20% (2) $33 \frac{1}{3}\%$
 (3) 15% (4) 40%

152. If 10 students come by car, how many come by bus ?
 (1) 60 (2) 50
 (3) 30 (4) 100

153. If 180 students come walking to school what is the strength of the school ?
 (1) 540 (2) 450
 (3) 360 (4) 600

Directions (154 – 156) : In an Institution there are 800 students. Students use different modes of transport for going to the institution and return. The given pie diagram represents the requisite data. Study the diagram carefully and answer the questions.

(SSC CGL Tier-II Exam. 12.04.2015
 TF No. 567 TL 9)



154. The number of students who travel in public bus is
 (1) 150 (2) 120
 (3) 130 (4) 125

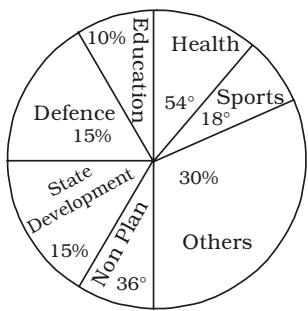
155. The number of students who do not use institute bus is
 (1) 330 (2) 350
 (3) 480 (4) 320

156. The number of students who go to institute on foot is
 (1) 160 (2) 170
 (3) 120 (4) 106

STATISTICS AND DATA INTERPRETATION

Directions (157–161) : The expenses of a country for a particular year is given in Pie-Chart. Read the Pie-Chart and answer the questions.

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
(Ist Sitting) (TF No. 8037731)



- 157.** If the total amount spent by the Government during the year was ₹ 1,00,000 crores, then the amount spent on Health and Education together was
 (1) ₹ 25,000 crore
 (2) ₹ 20,000 crore
 (3) ₹ 30,000 crore
 (4) ₹ 15,000 crore

- 158.** If the total amount spent by the Government during the year was ₹ 3,00,000 crores, the amount spent on state development exceeds that on sports by
 (1) ₹ 30,000 crore
 (2) ₹ 45,000 crore
 (3) ₹ 35,000 crore
 (4) ₹ 25,000 crore

- 159.** The percent of less money spent on non plan than that on defence is
 (1) 15% (2) 5%
 (3) 12% (4) 10%

- 160.** The percent of excess money spent on Others than that on Sports is
 (1) 26% (2) 25%
 (3) 27% (4) 28%

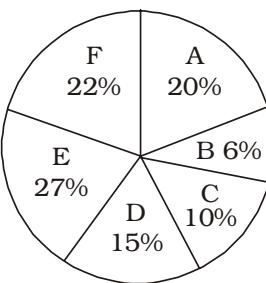
- 161.** The percent of the total spending that is spent on health is
 (1) 15% (2) 20%
 (3) 25% (4) 30%

Directions (162 – 166) : Study the following graph carefully and answer the given questions.

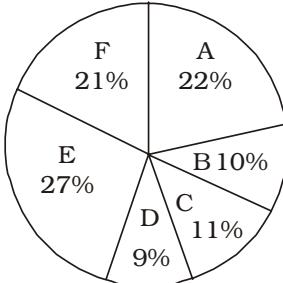
(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
(IInd Sitting)

Percentage of different types of employees in a company in two consecutive years.

Total Number of employees = 42980



1997
Total Number of employees = 48640



- 162.** In 1997 the total number of which of the following types of pairs of employees was approximately equal to A type of employees in 1998 ?
 (1) C and D (2) D and E
 (3) B and C (4) A and C

- 163.** From 1997 to 1998 in the case of which of the following types of employees the change was maximum ?

- (1) B (2) A
 (3) C (4) D

- 164.** What was the approximate difference in the number of B type of employees during 1997 and 1998 ?

- (1) 2285 (2) 2325
 (3) 2620 (4) 2085

- 165.** If the number of D type employees in 1998 was 5000, what would have been its approximate percentage in the company ?

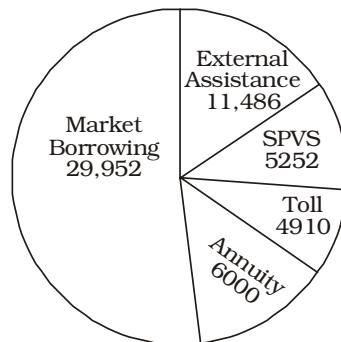
- (1) 10 (2) 14
 (3) 12 (4) 16

- 166.** The number of A type employees in 1998 was approximately what percent of the number of A type employees in 1997 ?

- (1) 140 (2) 115
 (3) 95 (4) 125

Directions (167 – 169) : The following pie-chart shows the sources of funds (In Rs. crores) to be collected by the National Highways Authority of India (NHAI) for its Phase II projects. Study the pie-chart and answer the following **Three** questions :

(SSC CGL Tier-I Exam, 09.08.2015
(Ist Sitting) TF No. 1443088)



- 167.** If the toll is to be collected through an outsourced agency by allowing a maximum 10% commission, how much amount should be permitted to be collected by the outsourced agency, so that the project is supported with Rs. 4,910 crores ?

- (1) Rs. 6,213 crores
 (2) Rs. 5,827 crores
 (3) Rs. 5,401 crores
 (4) Rs. 5,316 crores

- 168.** If NHAI could receive a total of Rs. 9,695 crores as External Assistance, by what percent (approximately) should it increase the Market Borrowing to arrange for the shortage of funds ?

- (1) 4.5% (2) 7.5%
 (3) 6% (4) 8%

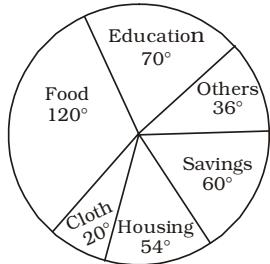
- 169.** The central angle corresponding to Market Borrowing is

- (1) 52° (2) 137.8°
 (3) 187.2° (4) 192.4°

STATISTICS AND DATA INTERPRETATION

Directions (170 – 172) : The pie-chart given below shows expenditure incurred by a family on various items and their savings. Study the chart and answer the questions based on the pie-chart

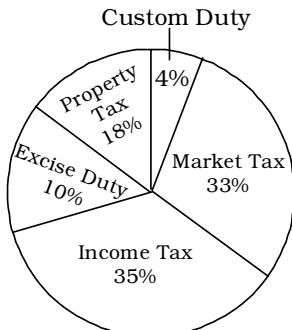
(SSC CGL Tier-I Exam, 16.08.2015
(1st Sitting) TF No. 3196279)



- 170.** The ratio of expenditure on food to savings is :
 (1) 3 : 2 (2) 10 : 9
 (3) 3 : 1 (4) 2 : 1
- 171.** If the expenditure on education is ₹1600 more than that on housing, then the expenditure on food is :
 (1) ₹ 12000 (2) ₹ 6000
 (3) ₹ 3333 (4) ₹ 7000
- 172.** If the monthly income is ₹ 36000, then the yearly savings is :
 (1) ₹ 70000 (2) ₹ 72000
 (3) ₹ 60000 (4) ₹ 74000

Directions (173–175) : The income of a state under different heads is given in the following pie-chart. Study the chart and answer the questions.

(SSC CGL Tier-I Exam, 16.08.2015
(IIInd Sitting) TF No. 2176783)



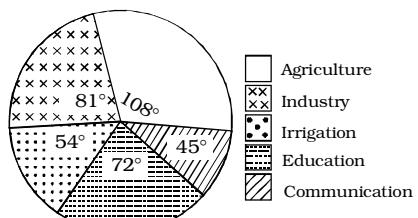
- 173.** If the income from the market tax in a year be ₹ 165 crores then the total income from other sources is (in ₹ crore)
 (1) 325 (2) 335
 (3) 365 (4) 345

- 174.** If the total income in a year be ₹ 733 crores then the income (in ₹ crores) from 'Income tax' and 'Excise duty' is :
 (1) 329.85 (2) 331.50
 (3) 331.45 (4) 329.80

- 175.** The central angle of the sector representing income tax is :
 (1) 126° (2) 135°
 (3) 150° (4) 119°

Directions (176–178) : The pie-chart shows the proposed outlay for different sectors during a Five-Year plan of Government of India. Total outlay is Rs. 40,000 crores. By reading the pie-chart answer the following three questions.

(SSC CGL Tier-I Re-Exam, 30.08.2015)



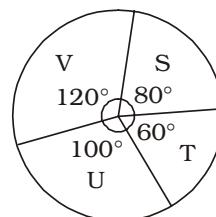
- 176.** What is the proposed outlay for Education?
 (1) Rs. 6000 crores
 (2) Rs. 8000 crores
 (3) Rs. 9000 crores
 (4) Rs. 7000 crores

- 177.** If the proposed outlay of Irrigation is $x\%$ of the proposed outlay of Agriculture, then x is equal to
 (1) 50% (2) 15%
 (3) 25% (4) 75%

- 178.** What is the ratio between the proposed outlay of Irrigation and Communication?
 (1) 9 : 8 (2) 3 : 2
 (3) 9 : 5 (4) 6 : 5

Directions (179–180) : The following pie-chart shows the market share of four companies S, T, U and V. Total market is worth Rs. 72 crores. Study the pie-chart and answer the questions.

(SSC Constable (GD) Exam, 04.10.2015, IIInd Sitting)

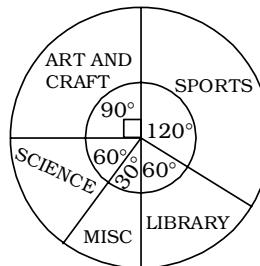


- 179.** The company having maximum market share is
 (1) T (2) U
 (3) S (4) V

- 180.** The difference of market shares of companies V and U is
 (1) Rs. 8 crores (2) Rs. 9 crores
 (3) Rs. 6 crores (4) Rs. 4 crores

Directions (181–185) : The pie chart shows how the school funds is spent under different heads in a certain school. Using the pie chart answer the questions.

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IIInd Sitting)



Misc. Miscellaneous

- 181.** What percentage of the total expense is spent on library?
 (1) 24.3 (2) 24
 (3) 20 (4) 16.6

- 182.** Which head uses 25% of the funds?
 (1) Sports
 (2) Misc
 (3) Library
 (3) Art and Craft

- 183.** Which heads have the same amount of expenditure?
 (1) Library and Science
 (2) Sports and Science
 (3) Science and Misc (4) Misc and Library

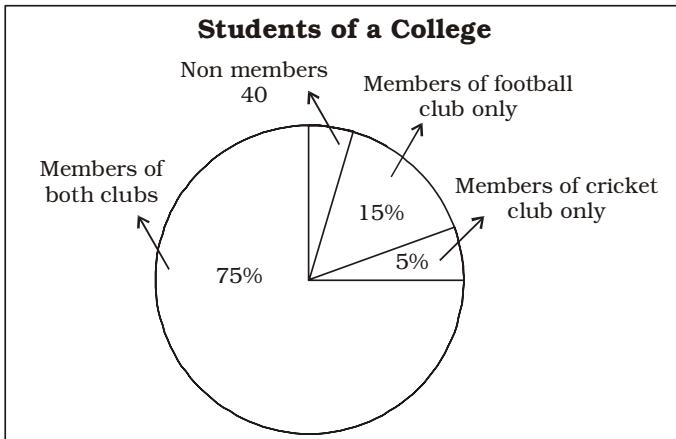
- 184.** Which head has the maximum expenditure?
 (1) Art and Craft
 (2) Sports
 (3) Library
 (4) Science

- 185.** What is the ratio of expenditure on sports to that on art and craft?
 (1) 1 : 1 (2) 4 : 3
 (3) 1 : 4 (4) 2 : 1

STATISTICS AND DATA INTERPRETATION

Directions (186 – 189) : Study the Pie chart carefully and answer the questions.

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (1st Sitting) TF No. 6636838)



- 186.** Percentage of students who are not members of any club is :
 (1) 5% (2) 8%
 (3) 10% (4) 6%

- 187.** Number of students who are members of cricket club only :
 (1) 35 (2) 40
 (3) 42 (4) 41

- 188.** Ratio of members of cricket club only and football club only respectively is :
 (1) 1 : 3 (2) 2 : 1
 (3) 1 : 2 (4) 3 : 1

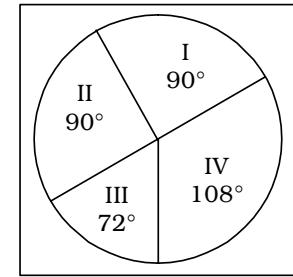
- 189.** The number of students who are members of both the clubs is :
 (1) 500 (2) 650
 (3) 550 (4) 600

Directions (190–193) : Study the pie chart and answer the given questions.

The total expenditure of a company for a particular month is Rs. 60000. The various heads of expenditure I to IV are indicated in a pie chart given below. These heads are :

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IInd Sitting) TF No. 7203752)

- I. Raw materials
- II. Conveyance
- III. Electricity
- IV. Overhead expenses



- 190.** Total expenditure on conveyance is :
 (1) Rs. 12,000 (2) Rs. 15,000
 (3) Rs. 20,000 (4) Rs. 10,000

- 191.** What percentage of total expenditure is on electricity?
 (1) 23% (2) 25%
 (3) 30% (4) 20%

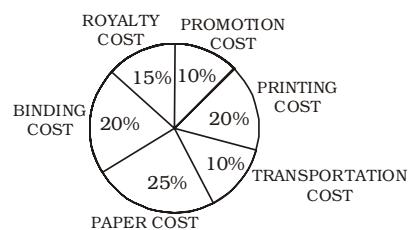
- 192.** What is the amount spent on overhead expenses?
 (1) Rs. 12,000 (2) Rs. 15,000
 (3) Rs. 18,000 (4) Rs. 10,000

- 193.** What percentage of total expenditure is on raw materials?
 (1) 25% (2) 30%
 (3) 60% (4) 23%

Directions (194–197) : The following pie-chart shows the percentage distribution of the expenditure incurred in publishing a book. Read the pie-chart and answer the questions.

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (1st Sitting) TF No. 1375232)

Various Expenditure (in percentage) incurred in publishing a book



- 194.** Royalty on the book is less than the printing cost by :
 (1) 20% (2) 5%

- (3) 25% (3) $33\frac{1}{3}\%$

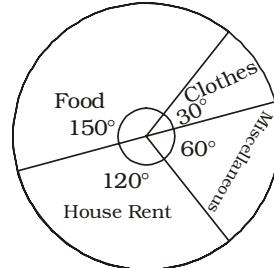
- 195.** The central angle of the sector corresponding to the expenditure incurred on Royalty is :
 (1) 15° (2) 48°
 (3) 54° (4) 24°

- 196.** If 5500 copies are published and the transportation cost on them amount to Rs. 82500 then the selling price of the book so that the publisher can earn a profit of 25% is :
 (1) Rs. 191.50 (2) Rs. 187.50
 (3) Rs. 180 (4) Rs. 175

- 197.** If for a certain quantity of books, the publisher has to pay Rs. 30600 as printing cost, then the amount of royalty cost to be paid for these books is :
 (1) Rs. 21200 (2) Rs. 19450
 (3) Rs. 22950 (4) Rs. 26150

Directions (198–201) : The Expenditure of a family in a month is represented by a Pie-chart. Read it carefully to answer the questions.

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IInd Sitting) TF No. 3441135)



- 198.** The total money spent on clothes and miscellaneous is :
 (1) None of the options

- (2) Rs. 900 (3) Rs. 3600
 (4) Rs. 2000

STATISTICS AND DATA INTERPRETATION

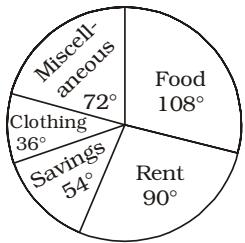
199. The percentage of money spent on food compared to house rent is
 (1) 25% (2) 12.5%
 (3) 50% (4) None of these

200. The ratio of the amount spent on food and clothes is
 (1) 4 : 1 (2) 4 : 5
 (3) 5 : 1 (4) 2 : 5

201. If the total amount spent is Rs. 7,200, find the amount spent on food :
 (1) Rs. 1500 (2) Rs. 6000
 (3) Rs. 4500 (4) Rs. 3000

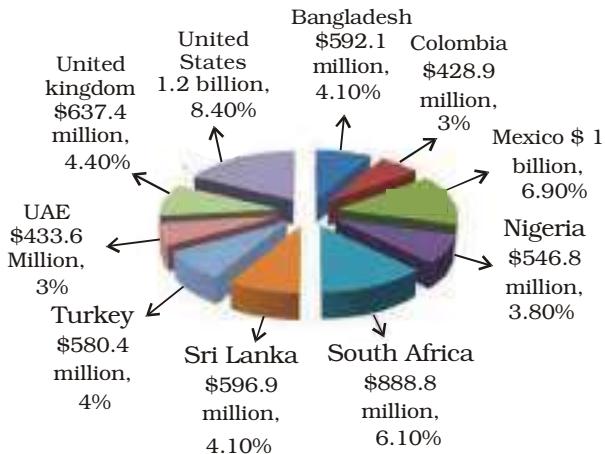
Directions (202-206) : The following pie-chart shows the monthly expenditure of a family on various items. If the family spends Rs. 825 on clothing, answer the questions.

(SSC CGL Tier-II Online Exam.01.12.2016)



Directions (207-211) : The following pie chart shows the export of automobiles of India to the 10 countries given below in 2014. The 10 countries imported 47.8% of the total export of India. Observe the chart given below and answer the following question :

(SSC CPO SI, ASI Online Exam.05.06.2016) (IIInd Sitting)



207. Which country is the fifth largest importer of Automobiles from India?
 (1) United Kingdom
 (2) Sri Lanka
 (3) Bangladesh
 (4) Turkey

208. The number of automobile exported to United States is roughly

202. What is the total monthly income of the family ?
 (1) Rs. 8025 (2) Rs. 8250
 (3) Rs. 8520 (4) Rs. 8052

203. What per cent of the total income does the family save ?
 (1) 15% (2) 50%
 (3) 20% (4) 25%

204. What is the ratio of expenses on food and miscellaneous ?
 (1) 3 : 4 (2) 2 : 3
 (3) 3 : 2 (4) 2 : 5

205. What is the average of expenses on clothing and rent?

- (1) Rs. 1443.75
- (2) Rs. 1344.57
- (3) Rs. 1574.34
- (4) Rs. 1734.45

206. The ratio of average of expenses on food, clothing and miscellaneous items to the average of expenses on savings and rent is

- (1) 3 : 2 (2) 1 : 3
- (3) 2 : 1 (4) 1 : 1

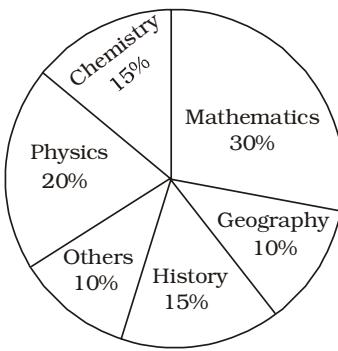
- (1) 419.6 million
- (2) 308.4 million
- (3) 57 million
- (4) 128.7 million

210. What is the average of imports of the countries UAE, Bangladesh, and Sri Lanka?
 (1) 580.5 million
 (2) 618.6 million
 (3) 473.7 million
 (4) 540.8 million

211. What is the corresponding angle to the exports for Turkey?
 (1) 14.4° (2) 15.2°
 (3) 12.5° (4) 17°

Directions (212-215) : The following pie-chart shows the study - time of different subjects of a student in a day. Study the pie-chart and answer the following questions

(SSC CHSL (10+2) Tier-I (CBE) Exam. 08.09.2016) (Ist Sitting)



212. The time spent to study history and chemistry is 4 hours 30 minutes, Then the student studied physics for

- (1) 1 hour 30 minutes
- (2) 2.9 hours (approx.)
- (3) 2 hours
- (4) 3 hours

213. If the student studied chemistry for 3 hours, then he/she studied geography for

- (1) 1 hour
- (2) 2 hours
- (3) 1 hour 30 minutes
- (4) 2 hours 30 minutes

214. If the student studied 10 hours in a day, then he/she studied mathematics for

- (1) 3 hours (2) $\frac{10}{3}$ hours
- (3) $\frac{1}{3}$ hour (4) $\frac{3}{10}$ hour

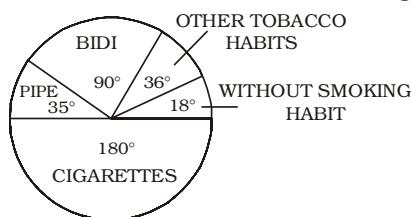
STATISTICS AND DATA INTERPRETATION

215. Instead of 10%, if the student spends 15% to study other subjects and the time is taken from the time scheduled to study mathematics and if he/she used to study 20 hours per day, then the difference of time for studying mathematics per day is :

- (1) 30 minutes
- (2) 45 minutes
- (3) 1 hour
- (4) 1 hour 30 minutes

Directions (216–220) : The Pie-chart shows the result of a survey among 119060 people concerning the use of tobacco. Study the Pie-chart and answer the questions.

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 20.03.2016)
(IInd Sitting)



216. Let P be the percentage of people using Cigarettes, Pipe and Bidi as their smoking means and Q be the percentage of people using other means as their smoking habits. Then P is more than Q by :

- (1) 25%
- (2) 10%
- (3) 85%
- (4) 75%

217. The number of people smoking Cigarettes is :

- (1) 53905
- (2) 59305
- (3) 59530
- (4) 11906

218. The number of people preferring Bidi is :

- (1) 29790
- (2) 29765
- (3) 35718
- (4) 37185

219. The number of Cigarette smoking people is greater than the number of Pipe smoking people by :

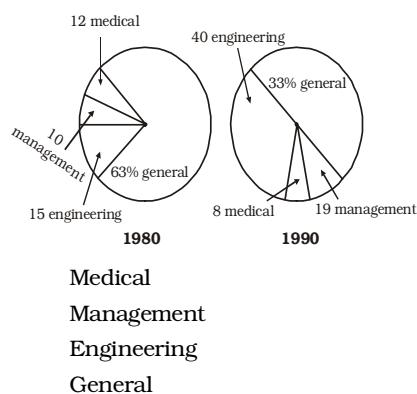
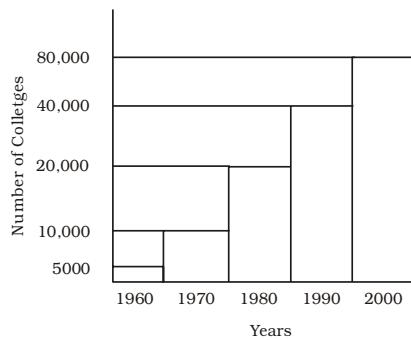
- (1) 29765
- (2) 47624
- (3) 11906
- (4) 59530

220. The percentage of people under survey, who do not have any smoking habit is :

- (1) 5.2%
- (2) 5%
- (3) 10%
- (4) 7.5%

Directions (221 – 225) : The numbers of different colleges in India in different years is given in the graph below. Percent distribution of different colleges in year 1980 and 1990 is shown in pie chart

(SSC CPO SI & ASI, Online
Exam. 06.06.2016) (IInd Sitting)



221. What is the difference in number of engineering colleges in 80's and 90's.

- (1) 13000
- (2) 10000
- (3) 15000
- (4) None of these

222. The difference in number of management colleges in 1980 to 1990 is :

- (1) 3600
- (2) 3000
- (3) 5600
- (4) 1500

223. What is the % increment in the number of colleges from 1960 to 1980 ?

- (1) 300%
- (2) 700%
- (3) 750%
- (4) 800%

224. By what percent is the number of medical colleges in 1980 less than that in 1980 ?

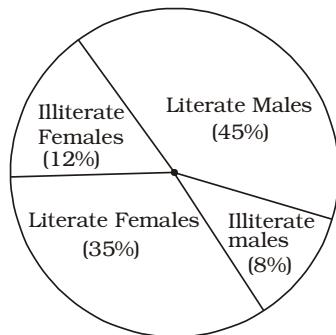
- (1) 25%
- (2) 30%
- (3) 32%
- (4) 20%

225. What is the average number of colleges for the given years ?

- (1) 30000
- (2) 31000
- (3) 29000
- (4) 32000

Directions (226–229) : The pie chart shows the percentage of literate and illiterate males and females in a state. Study the diagram and answer the following questions.

(SSC CGL Tier-I (CBE)
Exam. 31.08.2016) (Ist Sitting)



226. If the total number is 35000, then the difference between the number of literate males and that of literate females is

- (1) 3500
- (2) 3700
- (3) 400
- (4) 4500

227. The difference of central angles corresponding to illiterate male and illiterate female is

- (1) 12.2°
- (2) 13.4°
- (3) 11.2°
- (4) 14.4°

228. If the difference between the two categories of people are represented by 36° in the diagram, then these categories are

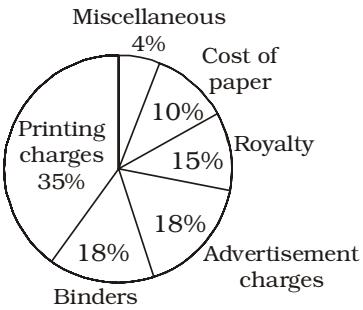
- (1) literate males and literate females
- (2) literate males and illiterate males
- (3) illiterate males and literate females
- (4) illiterate males and illiterate females

229. If two categories together have a central angle of 169.2° , then these categories are

- (1) literate females and illiterate females
- (2) literate males and illiterate females
- (3) illiterate males and illiterate females
- (4) illiterate males and literate females

Directions (230–233) : Study the pie chart given below and answer the following questions.

(SSC CGL Tier-I (CBE)
Exam. 01.09.2016) (Ist Sitting)



STATISTICS AND DATA INTERPRETATION

- 230.** If the miscellaneous charges are Rs. 6000, then the advertisement charges are
 (1) Rs. 12000
 (2) Rs. 27000
 (3) Rs. 90000
 (4) Rs. 25000

- 231.** The central angle of printing charge is x more than that of advertisement charges. Then the value of x is
 (1) 72° (2) 61.2°
 (3) 60° (4) 54.8°

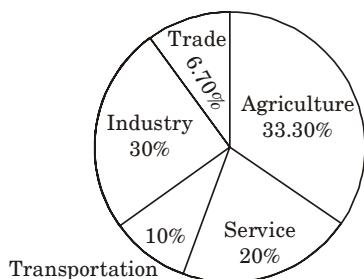
- 232.** What should be the central angle of the sector 'cost of paper'?
 (1) 22.5° (2) 54.8°
 (3) 36° (4) 16°

- 233.** The ratio between royalty and binders' charges is
 (1) $5 : 6$ (2) $5 : 8$
 (3) $6 : 5$ (4) $8 : 13$

Directions (234–237): Study the following pie chart carefully and answer the questions. The pie chart represents the percentage of people involved in various occupations.

(SSC CGL Tier-I (CBE)
Exam. 03.09.2016) (IInd Sitting)

Total number of people
= 20000



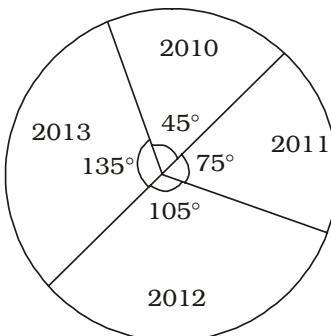
- 234.** How many more people are involved in service than in trade?
 (1) 3660 (2) 2660
 (3) 1660 (4) 660
- 235.** The ratio of the people involved in service to that in industry is
 (1) $1 : 2$ (2) $2 : 3$
 (3) $3 : 4$ (4) $3 : 2$

- 236.** The sectoral angle made by the people involved in service in the given pie-chart is
 (1) 36° (2) 90°
 (3) 72° (4) 108°

- 237.** The difference between the maximum number of people involved and minimum number of people involved in various professions is
 (1) 2640 (2) 3640
 (3) 6320 (4) 5320

Directions (238–241) : Given here is a pie chart showing the cost of gold in 2010, 2011, 2012 and 2013. Study the chart and answer the following questions.

(SSC CGL Tier-I (CBE)
Exam. 04.09.2016) (Ist Sitting)



- 238.** If the price of gold in 2013 is Rs. 31,500 per 10 gram, then the price of gold in 2011 per 10 gram is
 (1) Rs. 17000 (2) Rs. 17500
 (3) Rs. 18000 (4) Rs. 18500

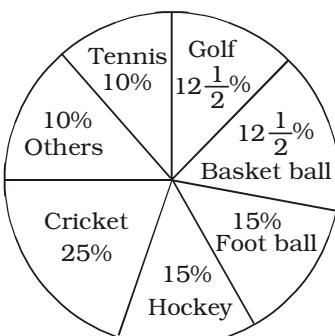
- 239.** The ratio of the price of gold in the two years 2010 and 2013 is
 (1) $1 : 2$ (2) $1 : 3$
 (3) $1 : 4$ (4) $1 : 5$

- 240.** The percentage increase in the price of gold from the year 2011 to 2013 is
 (1) 50% (2) 60%
 (3) 70% (4) 80%

- 241.** The ratio of percentage increases in price of gold from 2011 to 2012 and 2012 to 2013 is
 (1) $6 : 5$ (2) $7 : 5$
 (3) $8 : 5$ (4) $9 : 5$

Directions (242–245) : The pie chart drawn below shows the spendings of a country on various sports during a particular year. Study the pie chart and answer the questions.

(SSC CGL Tier-I (CBE)
Exam. 06.09.2016) (Ist Sitting)



- 242.** The ratio of the amount spent on football, basketball and cricket to that spent on tennis, hockey and golf is
 (1) 5:7 (2) 7:5
 (3) 15:1 (4) 3:20

- 243.** If the total amount spent on sports during the year was Rs. 1,20,00,000, how much was spent on basketball?

- (1) Rs. 950000
 (2) Rs. 10,00,000
 (3) Rs. 12,00,000
 (4) Rs. 15,00,000

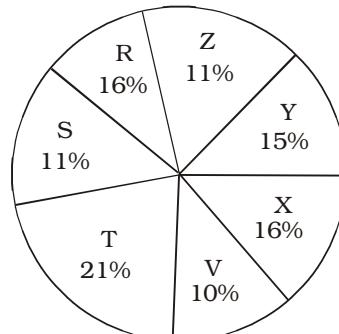
- 244.** Total central angle showing the money spent on hockey, football and other during the year was
 (1) 104° (2) 244°
 (3) 96° (4) 144°

- 245.** If the money spent on cricket during the year was Rs. 20,00,000, then the money spent on tennis was:

- (1) Rs. 8,00,000
 (2) Rs. 10,00,000
 (3) Rs. 80,00,000
 (4) Rs. 40,00,000

Directions (246–249) : The following pie chart shows proportion of population of seven villages in 2009. Study the pie chart and answer the questions that follow:

(SSC CGL Tier-I (CBE)
Exam. 07.09.2016) (Ist Sitting)



Village	% of population Below Poverty Line
X	38
Y	52
Z	42
R	51
S	49
T	46
V	58

- 246.** If the below poverty line population of the village 'X' is 12160, then the population of village 'S' is

- (1) 18500 (2) 20500
 (3) 22000 (4) 20000

STATISTICS AND DATA INTERPRETATION

- 247.** The ratio of the below poverty line population of village 'T' to that of the below poverty line population of village 'Z' is
 (1) 11:23 (2) 13:11
 (3) 23:11 (4) 11:13

- 248.** If the population of the village 'R' is 32000, then the below poverty line population of village 'Y' is
 (1) 14100 (2) 15600
 (3) 16500 (4) 17000

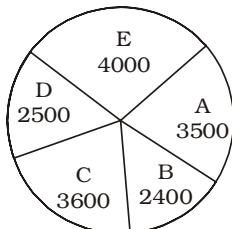
- 249.** In 2010, the population of 'Y' and 'V' increases by 10% each and the percentage of population below poverty line remains unchanged for all the villages. If in 2009, the population of village Y was 30,000, then the below poverty line population of village 'V' in 2010 is _____
 (1) 11250 (2) 12760
 (3) 13140 (4) 13780

Directions (250–254) : Read the following pie-charts carefully to answer the questions.

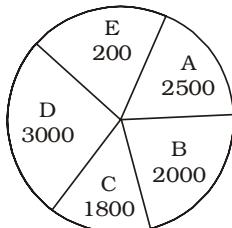
(SSC CGL Tier-II (CBE)
Exam. 30.11.2016)

Distribution of sales of Hindi and English news papers in five localities A, B, C, D and E.

Hindi News Papers



English News Papers



- 250.** What is the difference between the total sale of English newspapers and the total sale of Hindi newspapers in all the localities together?
 (1) 7500 (2) 5600
 (3) 6500 (4) 5700

- 251.** What is the central angle corresponding to the sale of Hindi newspapers in locality E?
 (1) 80° (2) 90°
 (3) 60° (4) 108°

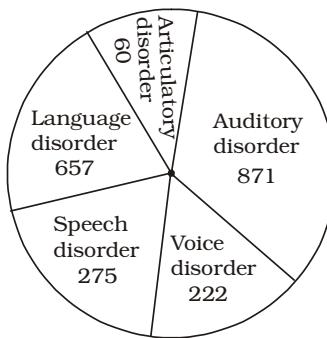
- 252.** What is the approximate sum of the ratios of sales of English and Hindi newspapers in all localities?
 (1) 51 (2) 50
 (3) 32 (4) 47

- 253.** What is the ratio of average number of English newspapers from the localities B, C and E to the average number of Hindi newspapers from the localities A and D?
 (1) 10 : 19 (2) 19 : 10
 (3) 16 : 33 (4) 9 : 11

- 254.** What is the ratio of the average number of sale of English newspapers in localities B and D together to the average sale of Hindi newspapers in all the localities?
 (1) 25 : 32 (2) 40 : 33
 (3) 33 : 40 (4) 43 : 33

Directions (255–258) : The pie-chart shows Distribution of Special Children Population during the year 1994-96. Study the pie-chart and answer the following questions.

(SSC CGL Tier-I (CBE)
Exam. 28.08.2016 (IIT Sitting)



- 255.** Find the approximate percentage distribution of children with auditory disorder.
 (1) 43.7% (2) 42.7%
 (3) 41.7% (4) 40.7%

- 256.** What is the average number of cases in different types of special children during the year 1994-96?
 (1) 417 (2) 413
 (3) 433 (4) 465

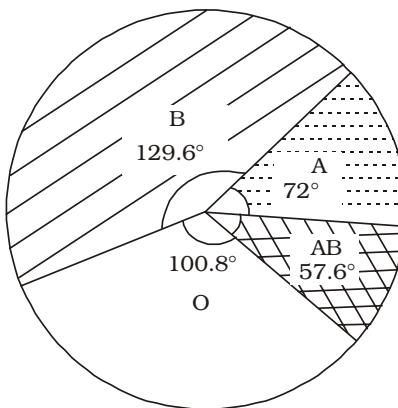
- 257.** Find the ratio between articulatory disorder and speech disorder cases.
 (1) 21 : 55 (2) 55 : 21
 (3) 55 : 12 (4) 12 : 55

- 258.** What is the respective ratio between language disorder and the average of the remaining disorder cases?

- (1) 219 : 119 (2) 119 : 219
 (3) 919 : 419 (4) 729 : 529

Directions (259–262) : This is a pie-chart for the data on A, B, O, AB blood groups of 150 donors. Observe the pie-chart and answer the questions.

(SSC CGL Tier-I (CBE)
Exam. 31.08.2016 (IIIrd Sitting)



- 259.** The number of donors having blood group 'O' is:
 (1) 50 (2) 42
 (3) 30 (4) 34

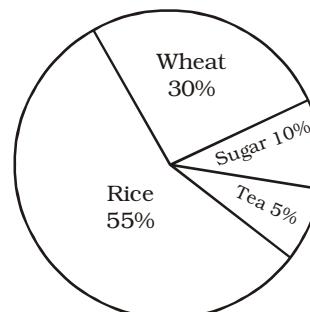
- 260.** The number of persons having either blood group 'A' or blood group 'B' is:
 (1) 84 (2) 96
 (3) 78 (4) 54

- 261.** What is the percentage of donors having blood group 'AB'?
 (1) 61% (2) 26%
 (3) 16% (4) 36%

- 262.** The ratio of donors having blood group 'A' to the average of the donors having blood group 'O', 'B' and 'AB' is:
 (1) 4 : 3 (2) 4 : 5
 (3) 5 : 4 (4) 3 : 4

Directions (263–266) : In the given pie-chart, the comparative study of the production of Rice, Wheat, Sugar and Tea of a country is given. Study the pie-chart and answer the following questions.

(SSC CGL Tier-I (CBE)
Exam. 01.09.2016 (IIIrd Sitting)



STATISTICS AND DATA INTERPRETATION

- 263.** From this diagram, the ratio of sum of wheat and sugar production to difference in production of rice and tea is
 (1) 4 : 5 (2) 5 : 4
 (3) 6 : 1 (4) 1 : 6

- 264.** The production of rice and tea is more/greater than production of wheat by
 (1) 50% (2) 100%
 (3) 75% (4) 66.6%

- 265.** The central angle of percentage of wheat is
 (1) 48° (2) 98°
 (3) 110° (4) 108°

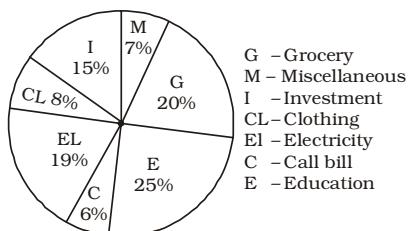
- 266.** The total production of rice, wheat, sugar and tea (in kgs) is 500000 kgs. The production of rice in the country is
 (1) 175000 kg (2) 395000 kg
 (3) 275000 kg (4) 27500 kg

Directions (267–210) : Study the following pie-chart and answer the questions.

(SSC CGL Tier-I (CBE)
Exam. 02.09.2016 (IIInd Sitting)

Budget estimated by a family for their monthly expenses.

Total salary
= Rs. 32000 per month



- 267.** The budget estimated by the family on clothing and grocery together is :
 (1) Rs. 8950 (2) Rs. 8960
 (3) Rs. 8850 (4) Rs. 8860

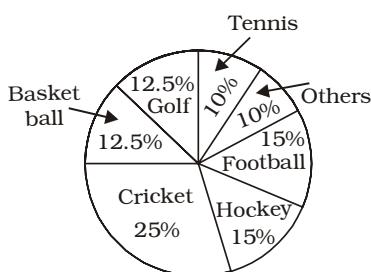
- 268.** Due to sudden marriage, the family incurs miscellaneous expenditure of Rs. 3040 in total. Then the increase in the amount under this head from that budgeted is :
 (1) Rs. 810 (2) Rs. 1738
 (3) Rs. 234 (4) Rs. 800

- 269.** The difference in the amount estimated by the family on electricity and call bill is :
 (1) Rs. 4560 (2) Rs. 4470
 (3) Rs. 4168 (4) Rs. 4160

- 270.** The family actually spent Rs. 4672 on grocery. Then the difference in the amount budgeted and spent on grocery is :
 (1) Rs. 1528 (2) Rs. 1728
 (3) Rs. 1278 (4) Rs. 1628

Directions (271–274) : The given pie-chart shows the spendings of a country on various sports during a year. Study the graph and answer the following questions.

(SSC CGL Tier-I (CBE)
Exam. 03.09.2016 (IIIrd Sitting)



- 271.** If the total amount spent on sports during the year was Rs. 15,00,000, the amount spent on cricket and hockey together was
 (1) Rs. 6000000
 (2) Rs. 5000000
 (3) Rs. 3750000
 (4) Rs. 7500000

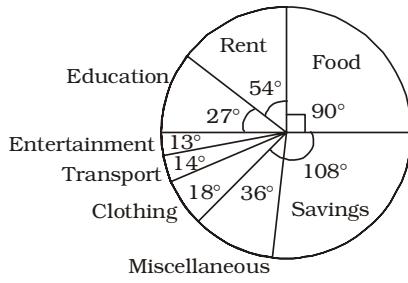
- 272.** If the total amount spent on sports during the year was Rs. 12,00,000, how much was spent on basket ball ?
 (1) Rs. 1250000
 (2) Rs. 1000000
 (3) Rs. 1200000
 (4) Rs. 1500000

- 273.** The respective ratio of the total amount spent on football to that spent on hockey was
 (1) 1 : 15 (2) 1 : 1
 (3) 15 : 1 (4) 3 : 2

- 274.** What is the central angle for the tennis?
 (1) 36° (2) 63°
 (3) 33° (4) 66°

Directions (275–278) : The pie-chart, given here shows monthly expenses on various heads and savings of the family of Mr. Rao. Study the chart and answer the questions based on it.

(SSC CGL Tier-I (CBE)
Exam. 06.09.2016 (IIInd Sitting)



- 275.** The amount spent on food exceeds the total amount spent on education and clothing by

(1) $12\frac{1}{2}\%$ (2) 25%

(3) $33\frac{1}{3}\%$ (4) 50%

- 276.** What per cent of his income does Mr. Rao save ?

(1) 25% (2) 30%
 (3) $33\frac{1}{3}\%$ (4) 36%

- 277.** If the total income of Mr. Rao is Rs.72000, how much house rent does he pay ?

(1) Rs.5400 (2) Rs. 9000
 (3) Rs.10800 (4) Rs.12000

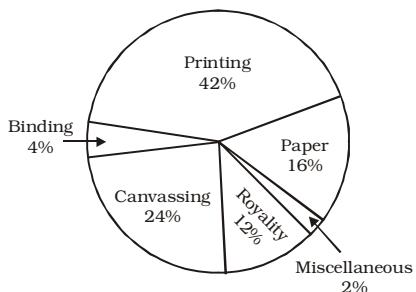
- 278.** What per cent of his income , does Mr. Rao spend on clothing , transport and entertainment combined together ?

(1) $33\frac{1}{2}\%$ (2) 27%

(3) 25% (4) $12\frac{1}{2}\%$

Directions (279–282) : Study the pie-chart and answer the questions. The pie-chart given below shows the expenditure incurred in bringing out a book by a publisher.

(SSC CGL Tier-I (CBE)
Exam. 07.09.2016 (IIIrd Sitting)



- 279.** What is the central angle showing the cost of paper?

(1) 16° (2) 32°
 (3) 38.9° (4) 57.6°

- 280.** If the cost of printing is Rs. 16,800 , the royalty is :

(1) Rs. 2400 (2) Rs. 3200
 (3) Rs. 4800 (4) Rs. 8400

- 281.** Royalty on the book is less than canvassing expenditure by

(1) 25% (2) 50%
 (3) 24% (4) 12%

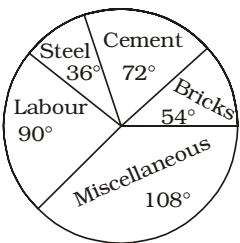
STATISTICS AND DATA INTERPRETATION

282. If miscellaneous expenditures amount to Rs. 12000, the expenditure on canvassing will be

- (1) Rs. 80000
- (2) Rs. 144000
- (3) Rs. 468000
- (4) Rs. 405000

Directions (283–286) : The pie-chart given below shows the usage of materials in the construction of a house. Study the chart and answers the questions :

(SSC CGL Tier-I (CBE)
Exam. 08.09.2016 (IIIrd Sitting)



283. The percentage of steel used in the construction of house is

- (1) 10%
- (2) 12%
- (3) 20%
- (4) 36%

284. The ratio of cement and bricks used in the construction is :

- (1) 3 : 4
- (2) 2 : 3
- (3) 4 : 3
- (4) 2 : 5

285. If the cost of cement is Rs. 5000, then the labour cost is :

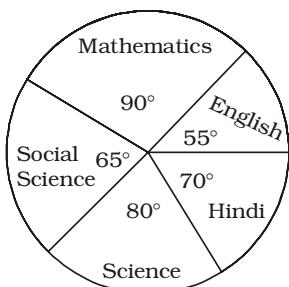
- (1) Rs. 5500
- (2) Rs. 6250
- (3) Rs. 9000
- (4) Rs. 4000

286. The average of percentages of steel, cement and miscellaneous items used in the construction is :

- (1) 10%
- (2) 25%
- (3) 20%
- (4) 35%

Directions (287–290) : The following pie diagram gives the marks scored by a student in different subjects – English, Hindi, Mathematics, Science and Social Science in an examination. Assuming that the total marks obtained for the examination are 540, answer the questions.

(SSC CGL Tier-I (CBE)
Exam. 11.09.2016 (IIInd Sitting)



287. The marks scored in English , Science and Social science exceed the marks scored in Hindi and Mathematics by

- (1) 10%
- (2) $10\frac{1}{9}\%$
- (3) 25%
- (4) $11\frac{1}{9}\%$

288. The subject in which the student scored 105 marks is

- (1) English
- (2) Hindi
- (3) Mathematics
- (4) Science

289. The difference of marks between English and Science is the same as between

- (1) Science and English
- (2) Hindi and Social science
- (3) English and Hindi
- (4) Mathematics and Social science

290. The marks scored in Hindi and Mathematics exceed the marks scored in English and Social science by

- (1) 30
- (2) 40
- (3) 60
- (4) 75

Directions (291–294) : The pie graph indicates the break-up of the cost of construction of a house. Assuming that the total cost of construction is Rs. 6,00,000, answer the following questions.

(SSC CGL Tier-I (CBE)
Exam. 27.10.2016 (Ist Sitting)

293. The amount spent on labour exceeds the amount spent on steel by :

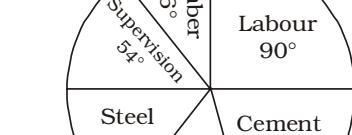
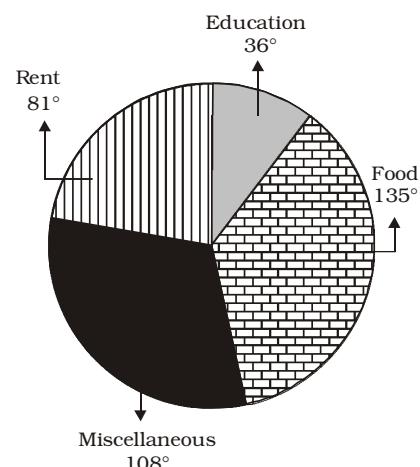
- (1) 10% of the total cost
- (2) 11% of the total cost
- (3) 13% of the total cost
- (4) 9% of the total cost

294. The percentage of the total cost of construction spent on cement, steel and supervision is :

- (1) 50%
- (2) 55%
- (3) 60%
- (4) 65%

Directions (295–298) : The following pie-chart shows the monthly expenditure of a man on various items. If he spends Rs. 16,000 per month, answer the following questions.

(SSC CGL Tier-I (CBE)
Exam. 27.10.2016 (Ist Sitting)



291. The amount spent on timber is :

- (1) Rs. 60,000
- (2) Rs. 2,00,000
- (3) Rs. 30,000
- (4) Rs. 50,000

292. The amount spent on labour exceeds the amount spent on supervision by :

- (1) Rs. 1,00,000
- (2) Rs. 1,20,000
- (3) Rs. 60,000
- (4) Rs. 30,000

295. If miscellaneous expenses be $x\%$ of the total expense, then value of x is:

- (1) 22.5
- (2) 37.5
- (3) 36
- (4) 30

296. The ratio of expenses on food and rent is :

- (1) 5 : 3
- (2) 3 : 5
- (3) 4 : 3
- (4) 3 : 4

297. The amount he spends on education is:

- (1) Rs. 1,200
- (2) Rs. 1,600
- (3) Rs. 1,800
- (4) Rs. 2,000

298. How much more does he spend on rent as compared to education ?

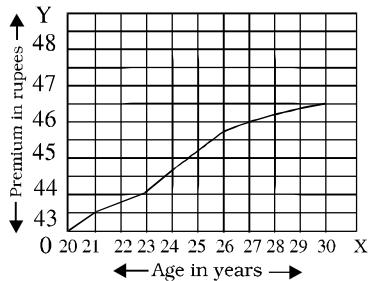
- (1) Rs. 2,400
- (2) Rs. 1,800
- (3) Rs. 3,600
- (4) Rs. 2,000

TYPE-II

Directions (1-5) : The graph given here shows the annual premiums of an insurance company, charged for an insurance of ₹ 1000 for individuals of different age-groups. Study the graph and answer each of the following questions :

(SSC CPO S.I.Exam. 07.09.2003)

Scale { along O X → 1 small div = 1 year
along O Y → 1 small div = 50 paise

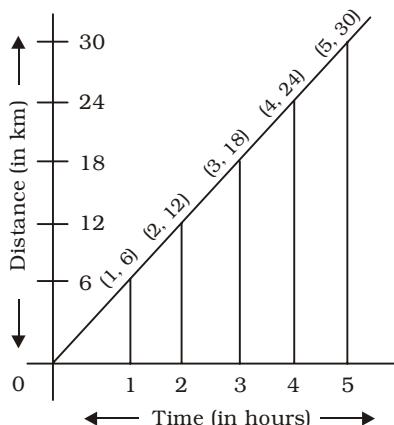


- The annual premium for a man aged 26 years for an insurance of ₹ 1000 is
 (1) ₹ 46 (2) ₹ 44
 (3) ₹ 45.7 (4) ₹ 45.25
- What is the age of a person whose premium is ₹ 44.60 for an insurance of ₹ 1000 ?
 (1) 23 years
 (2) $23\frac{1}{2}$ years
 (3) 24 years
 (4) 45 years
- The premium for a man aged 22 years for an insurance of ₹ 10,000 is
 (1) ₹ 435 (2) ₹ 440
 (3) ₹ 43.75 (4) ₹ 437.50
- What percent of the premium is increased if a man aged 30 years is insured for ₹ 1000 instead of a man aged 23 years ?
 (1) 4.75%
 (2) 5.68%
 (3) 6.24%
 (4) 6%
- Each of two persons aged 21 years and 23 years is insured for ₹ 1,00,000. The difference between their annual premiums will be

- (1) ₹ 100 (2) ₹ 50
 (3) ₹ 25 (4) ₹ 20

Directions (6-9) : The graph given here shows a car following the linear path with uniform speed. Study the graph and answer the questions.

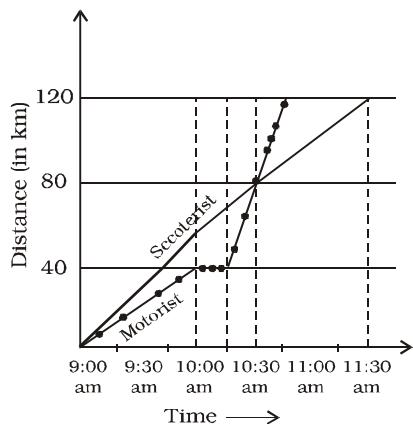
(SSC CPO S.I. Exam. 03.09.2006)



- The speed of the car is
 (1) 12 km/hr
 (2) 6 km/hr
 (3) 18 km/hr
 (4) 24 km/hr
- The speed of the car (in metres per minute) is
 (1) 60 (2) 100
 (3) 600 (4) 1000
- The distance travelled by the car in 4.5 hours is
 (1) 27 km
 (2) 30 km
 (3) 36 km
 (4) 40 km
- The car covers a distance of 15 kilometres in
 (1) 3 hours
 (2) 2 hours
 (3) 1.5 hours
 (4) 2.5 hours

Directions (10-13) : A motorist and a scooterist made a journey of 120 km at the same time and from the same place. The graph shows the progress of the journey made by each person. Study the graph and answer the questions.

FCI Assistant Grade-III
 Exam.05.02.2012 (Paper-I)
 East Zone (Ind Sitting)



- 10.** At what time did the motorist meet the scooterist ?

- (1) 10.30 am (2) 10.45 am
 (3) 10.15 am (4) 10.20 am

- 11.** What was the speed of the scooterist during the journey ? (in kmph)

- (1) 45 (2) 48
 (3) 42 (4) 46

- 12.** The scooterist completes the journey in (hours) :

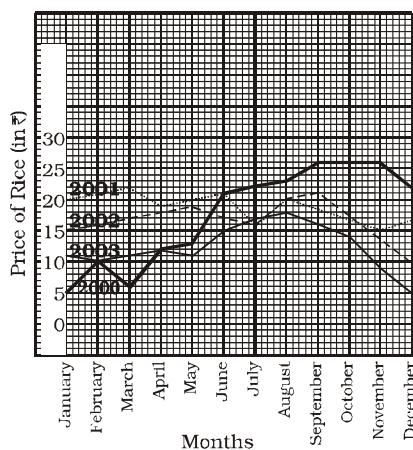
- (1) 3 (2) 2
 (3) $2\frac{1}{2}$ (4) $3\frac{1}{2}$

- 13.** How far, from the start, did the motorist meet the scooterist ? (in km)

- (1) 75 (2) 70
 (3) 90 (4) 80

Directions (14-17) : A graph showing the price of rice in India during the year 2000 to 2003 is given below. Study the graph carefully and answer the questions.

(SSC Delhi Police S.I.(SI)
 Exam. 19.08.2012)



STATISTICS AND DATA INTERPRETATION

- 14.** For the month of May, the graph shows that the price of rice was the lowest in the year
 (1) 2000 (2) 2001
 (3) 2002 (4) 2003

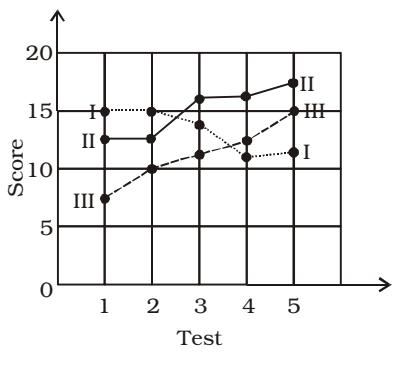
- 15.** The range of price for a year is the difference between the maximum and the minimum prices for that year. The graph shows that this range of price was the greatest for the year
 (1) 2000 (2) 2001
 (3) 2002 (4) 2003

- 16.** The month in which the price of rice were equal for the year 2000 and 2001 was
 (1) September (2) August
 (3) June (4) November

- 17.** The maximum difference in price between any two years was in the month of
 (1) January (2) November
 (3) March (4) December

- 18.** A class is divided into 3 equal groups and the class is given 5 tests in Maths. Average score of the groups and the tests is given below. The average score of the entire class in Test II is

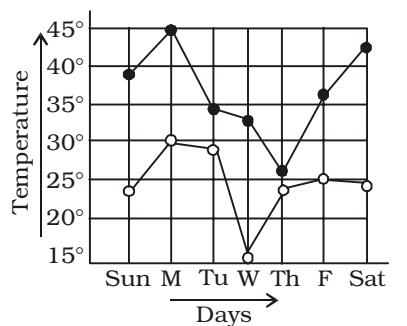
Average scores of the groups in the first five Mental Maths tests



- (1) 13 (2) 13.5
 (3) 10 (4) 12.5

(SSC Multi-Tasking Staff Exam. 17.03.2013, 1st Sitting)

- 19.** The following graph represents the maximum and minimum temperature recorded every day in a certain week. The day on which the difference between the maximum and minimum temperature was maximum is
 ● Maximum temperature
 ○ Minimum temperature



- (1) Wednesday (2) Saturday
 (3) Sunday (4) Monday

(SSC Multi-Tasking Staff Exam. 17.03.2013, IInd Sitting)

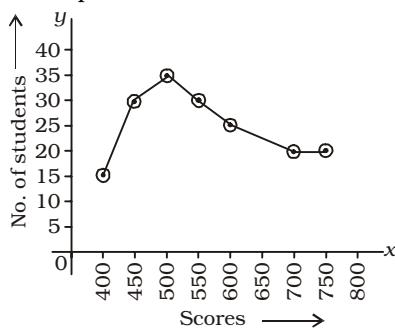
- 22.** Find the percentage decrease in income from 2001 to 2002.
 (1) 50% (2) 33%

(3) $37\frac{1}{2}\%$

(4) Data inadequate

- 23.** If the income shows positive growth every year throughout the period (2000 - 2005), then in how many years the expenditure shows a positive growth?
 (1) 5 (2) 3
 (3) 4 (4) 2

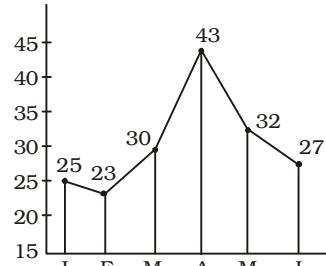
- 24.** The adjoining diagram is frequency polygon for the scores of students in a test. What is the total number of students appeared in the test?



(1) 180 (2) 200
 (3) 250 (4) 150

(SSC Graduate Level Tier-I Exam. 21.04.2013)

- 25.** Given is a line graph showing the number of accidents in a city during the first 6 months of 1999.



The decrease % of accidents from May to June is

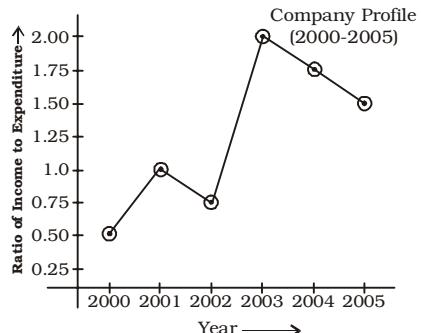
(1) $15\frac{3}{8}\%$ (2) $15\frac{1}{8}\%$

(3) $15\frac{5}{8}\%$ (4) $15\frac{7}{8}\%$

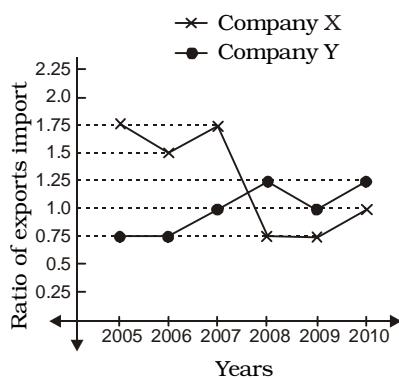
(SSC Graduate Level Tier-II Exam. 29.09.2013)

- Directions (26-27) :** Study the following graph and answer the questions.

(SSC CHSL DEO & LDC Exam. 10.11.2013, IInd Sitting)



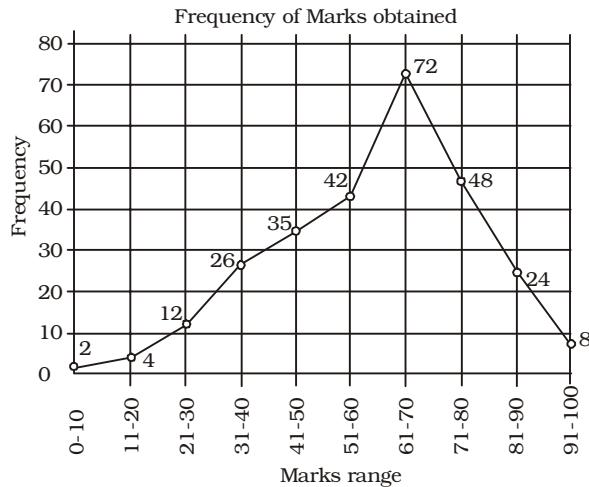
STATISTICS AND DATA INTERPRETATION



- 26.** If the imports of company X in 2007 were increased by 40%, what would be the ratio of exports to the increased imports ?
 (1) 1.25 (2) 1.75
 (3) 0.25 (4) 0.75
- 27.** In 2005, the exports of company X were double that of company Y in that year. If the imports of company X during the year were ₹ 180 crores, what was the amount (in crore ₹) of imports of company Y during the year ?
 (1) 212 (2) 210
 (3) 315 (4) 282

Directions (28 - 31) : The marks obtained by 273 examinees are shown by the frequency polygon. Given that mean marks is 59.5. Study the frequency polygon and answer the given questions.

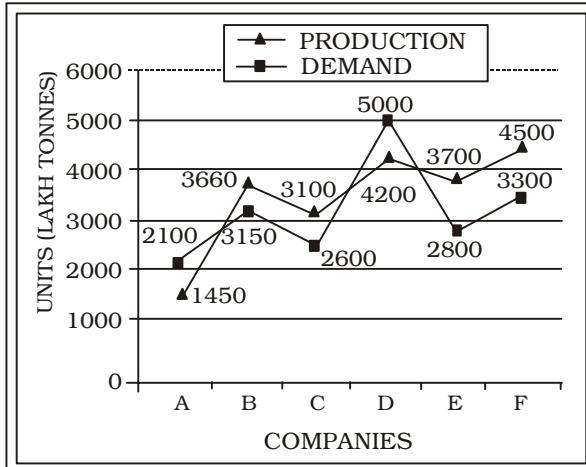
(SSC CHSL DEO & LDC Exam. 16.11.2014)



- 28.** The number of examinees getting more than average marks is
 (1) 72 (2) 105
 (3) 152 (4) 164
- 29.** Percentage of the students who get above 80% marks is
 (1) 9.81 (2) 10.53
 (3) 11.28 (4) 11.72
- 30.** Percentage of the students who got marks above 60% and below 80% is
 (1) 43.95 (2) 48.39
 (3) 51.06 (4) 56.84
- 31.** If 40 is the pass marks, percentage of students failed is
 (1) 14.56 (2) 15.84
 (3) 16.11 (4) 17.25

Directions (32 - 35) : In the following questions, the Graph shows the demand and production of different companies. Study the graph and answer the questions.

(SSC CGL Tier-I Exam, 09.08.2015
 (IInd Sitting) TF No. 4239378)



- 32.** The demand of company B is what percentage of the production of company F ?
 (1) 60% (2) 70%
 (3) 80% (4) 50%

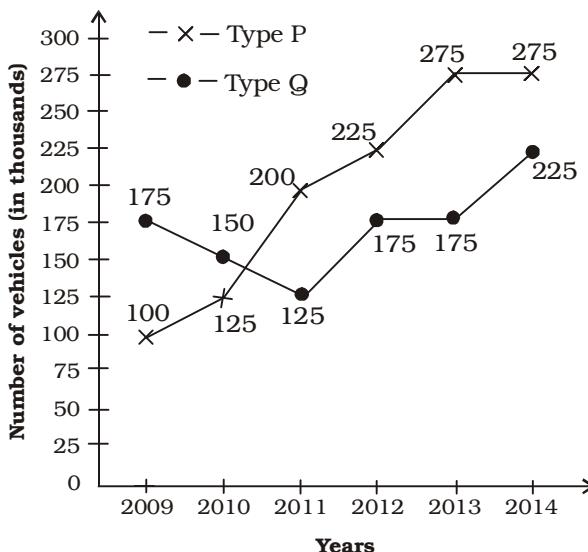
- 33.** What is the difference between the average demand and the average production of the companies (in lakh tonnes)? [Approximately]

- (1) 200 (2) 325
 (3) 275 (4) 250
- 34.** The production of company A is approximately what percent of the demand of company C ?
 (1) 50% (2) 65%
 (3) 60% (4) 55%
- 35.** What is the ratio of the companies having more demand than production to those having more production than demand ?
 (1) 2 : 3 (2) 1 : 2
 (3) 3 : 2 (4) 2 : 1

Directions (36-40) : The following graph shows production (in thousands) of two types (P and Q) of vehicles by a factory over the years 2009 to 2014. Study the graph and answer the given questions.

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

STATISTICS AND DATA INTERPRETATION



- 36.** In how many of the given years, was the production of Type P vehicles of the company more than the average production of this type vehicles in the given years?

(1) 3 (2) 4
(3) 2 (4) 5

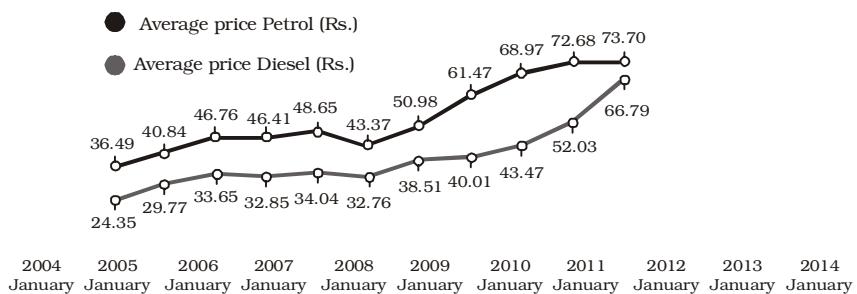
37. Approximate percentage decrease in production of Type Q vehicles from 2010 to 2011 is

(1) 10.1 (2) 16.7
(3) 14.3 (4) 12.5

Directions (41–43) : Observe the graph below and answer the following question.

(SSC CPO SI, ASI Online Exam.05.06.2016) (IIInd Sitting)

Fuel prices over last 10 years



- 41.** What is the approximate percentage difference in average price of Petrol in 2004 and in 2014?

(1) 98%
(2) 100%
(3) 102%
(4) 105%

42. In which year the difference between average prices of petrol and Diesel is minimum?

43. What is the average of diesel prices over the years 2006–2012?

(1) 36.47
(2) 37.34
(3) 35.67
(4) 38.77

- 38.** The total production of Type P vehicles in the years 2009 and 2011 is what percent of total production of Type Q vehicles in 2010 and 2014?

- (1) 75
 - (2) 69.25
 - (3) 80
 - (4) 81.25

- 39.** The ratio of total production of Type P vehicles to total production of type Q vehicles over the years is

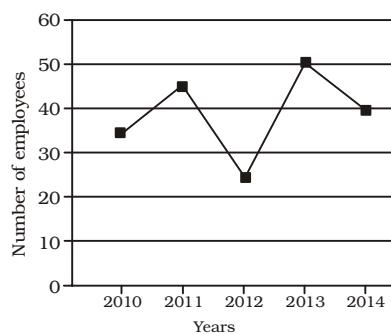
- (1) $48 : 41$
(2) $5 : 8$
(3) $8 : 5$
(4) $41 : 48$

- 40.** The production of Type Q vehicles in 2010 was approximately what percent of Type P vehicles in 2014?

- (1) 60 (2) 45.5
(3) 54.5 (4) 75

Directions (44-48) : Study the following line chart carefully and answer the questions given below it. The following line chart represents the number of employees recruited in different years in a company.

(SSC CAPFs (CPO) SI & ASI,
Delhi Police Exam. 05.06.2016)
(Ist Sitting)



- 44.** What was the ratio of number of employees recruited in the year 2011 to that in the year 2013?

STATISTICS AND DATA INTERPRETATION

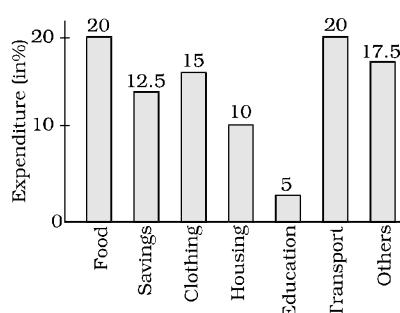
- (1) 2 : 3
 (2) 9 : 10
 (3) 10 : 9
 (4) 5 : 9
- 45.** The number of employees recruited in the year 2012 was what percent of the number employees recruited in the year 2014 ?
 (1) 50%
 (2) 60%
 (3) 62.5%
 (4) 70%
- 46.** If the total number of employees before the year 2010 was 640, then the total number of employees after 2014 was :
 (1) 820
 (2) 835
 (3) 815
 (4) 845
- 47.** If the number of employees before 2010 was 640, what was percentage increase in 2010?
 (1) 5%
 (2) 5.5%
 (3) 4%
 (4) 4.5%
- 48.** The number of employees recruited in 2015 was 40% more than that recruited in 2014. How many employees were recruited in 2015?
 (1) 56
 (2) 16
 (3) 64
 (4) 60

TYPE-III

Directions (1-5) : The bar graph given below shows the spending of family income on various items and savings during 1993. Observe the graph and answer the following questions :

(SSC CGL Prelim Exam. 08.02.2004
 (First Sitting)

**Family Income spent during 1993
 (In percentage)**



- 1.** The per cent of income spent on food is :
 (1) 5% (2) 10%
 (3) 12.5% (4) 20%

- 2.** The per cent of income spent on clothing exceeds that on savings by :
 (1) 12.5% (2) 2.5%
 (3) 10% (4) 22.5%

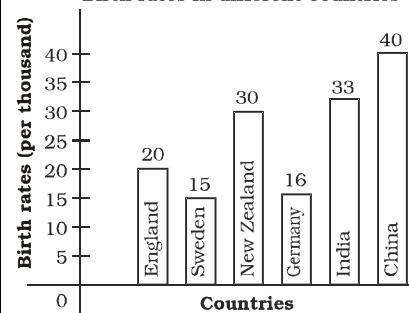
- 3.** If the total income of the family during 1993 was ₹ 100000, the savings of the family in 1993 was :
 (1) ₹ 1,750
 (2) ₹ 20,000
 (3) ₹ 12,500
 (4) ₹ 50,000

- 4.** The total expenses of the family on transport is equal to those spent on :
 (1) savings
 (2) clothing
 (3) food
 (4) others

- 5.** The savings of the family is more than that of expenditure incurred on :
 (1) housing
 (2) clothing
 (3) transport
 (4) others

Directions (6-10) : Study the bar diagram given below carefully and answer the following questions based on it.

(SSC CPO S.I. Exam. 05.09.2004)



- 6.** The birth-rate of which country is 25% more than that of Germany?
 (1) India
 (2) China

- (3) England
 (4) New Zealand

- 7.** The birth rate of India is what per cent of the birth-rate of England?
 (1) 165%
 (2) 155%
 (3) 140%
 (4) 100%

- 8.** The birth-rate of China is how many times the birth-rate of Germany?
 (1) 0.4
 (2) 5.2
 (3) 4.0
 (4) 2.5

- 9.** What is the ratio of birth-rate of India to that of Sweden ?
 (1) 5 : 11
 (2) 11 : 5
 (3) 2 : 1
 (4) 1 : 2

- 10.** By how much per cent is the birth-rate of England less than the birth-rate of New Zealand?
 (1) 30%

(2) $33\frac{1}{3}\%$

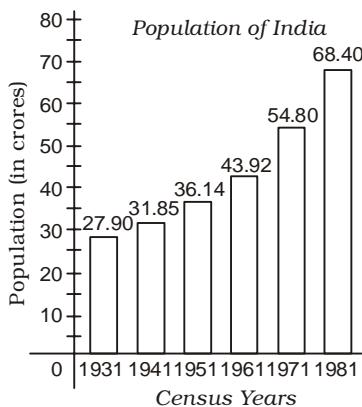
(3) 45%

(4) 50%

STATISTICS AND DATA INTERPRETATION

Directions (11-14) : The Bar Graph given here shows the population (in crores) of India in various census years. Observe the graph and answer the question based on it.

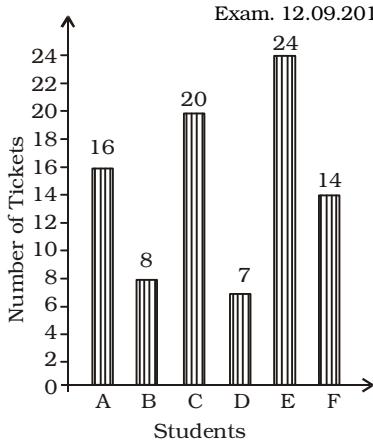
(SSC CGL Prelim Exam. 27.07.2008
(Second Sitting)



11. The per cent increase in population from 1971 to 1981 is
(1) 24.8% (2) 20%
(3) 16.7% (4) 22.9%
12. In which census year, the per cent increase in population is highest as compared to that in the previous census year?
(1) 1951 (2) 1961
(3) 1971 (4) 1981
13. In which census year, the per cent increase in population is least as compared to that in the previous census year?
(1) 1961 (2) 1951
(3) 1971 (4) 1941
14. Per year increase in population from the year 1931 to 1981 is
(1) 8100000 (2) 7600000
(3) 8900000 (4) 6700000

Directions (15-17) : The bar graph, given here, shows the number of tickets sold by 6 students A, B, C, D, E and F during a fair. Observe the graph and answer questions based on it

(SSC (South Zone) Investigator
Exam. 12.09.2010)



15. Total number of tickets sold by A, B and C is

(1) 45 (2) 44
(3) 42 (4) 40

16. The least number of tickets were sold by

(1) B (2) F
(3) A (4) D

17. Total number of tickets sold by D, E and F is

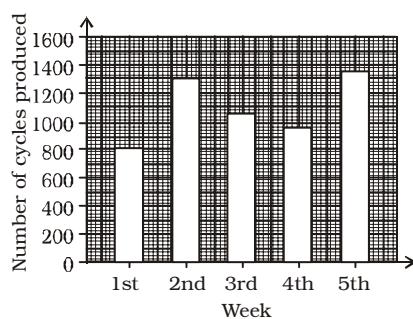
(1) 47 (2) 46
(3) 45 (4) 44

Directions (18 – 20) : Given here is a bar graph showing the number of cycles produced in a factory during five consecutive weeks.

Observe the graph and answer the questions based on this graph.

(SSC CPO S.I.
Exam 12.12.2010 (Paper-I)

Graph showing the number of cycles produced in a factory in 5 consecutive weeks



18. The number of cycles produced during third and fourth weeks together is

(1) 1060 (2) 1980
(3) 920 (4) 1900

19. The number of cycles produced in the 5th week is

(1) 1400 (2) 1300
(3) 1440 (4) 1600

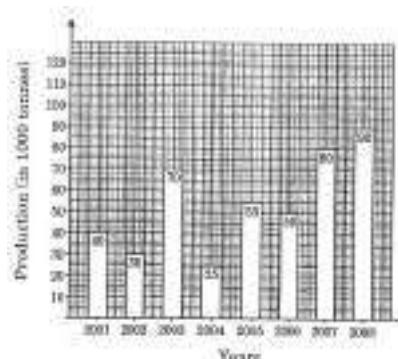
20. Total number of cycles produced in five consecutive weeks is

(1) 5520 (2) 1600
(3) 7200 (4) 7000

Directions (21-24) : Study the following graph and answer the questions given below it.

(SSC Multi-Tasking (Non-Technical)
Staff Exam. 20.02.2011)

Production of salt by a company (in 1000 tonnes) over the years



21. What was the percentage decline in the production of salt from 2003 to 2004?

(1) 64.2% (2) 180%
(3) 62.4% (4) 107%

22. The average production of 2004 and 2005 was exactly equal to the average production of which of the following pair of years?

(1) 2006, 2007 (2) 2005, 2006
(3) 2002, 2006 (4) 2001, 2005

23. What was the percentage increase in production of salt in 2008 compared to that of 2001?

(1) 55.5% (2) 125%
(3) 150% (4) 220%

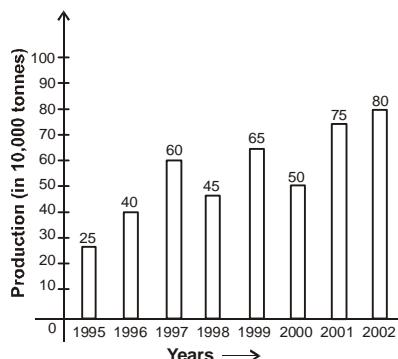
24. In how many of the given years was the production of salt more than the average production of the given years?

(1) 1 (2) 2
(3) 3 (4) 4

Directions (25-28) : Study the following graph and answer the questions based on it.

(SSC Multi-Tasking (Non-Technical)
Staff Exam. 27.02.2011)

Production of fertilizers by a company
(in 10000 tonnes over the years 1995-2002)



STATISTICS AND DATA INTERPRETATION

- 25.** What was the percentage decline in the production of fertilizers from 1997 to 1998?

(1) $33\frac{1}{3}\%$ (2) 30%
 (3) 25% (4) 20%

- 26.** In how many years was the production of fertilizers more than the average production of the given years?

(1) 1 (2) 2
 (3) 3 (4) 4

- 27.** In which year was the percentage increase in production as compared to the previous year, the maximum?

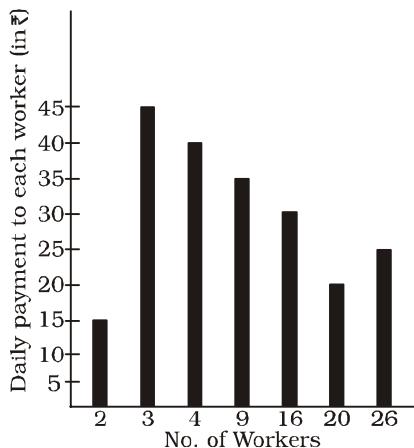
(1) 2002 (2) 2001
 (3) 1996 (4) 1997

- 28.** The ratio of total production of fertilizers in the year 1996 and 1997 to that of total production in the year 1995, 1998 and 2000 is

(1) 5 : 6 (2) 6 : 5
 (3) 20 : 29 (4) 13 : 24

Directions (29-30) : Given here is a graph showing the number of workers with their daily payment by a workshop. Study the graph and answer questions based on this graph.

(SSC CISF Constable (GD) Exam. 05.06.2011)



- 29.** The number of workers whose daily payment is ₹ 20 is

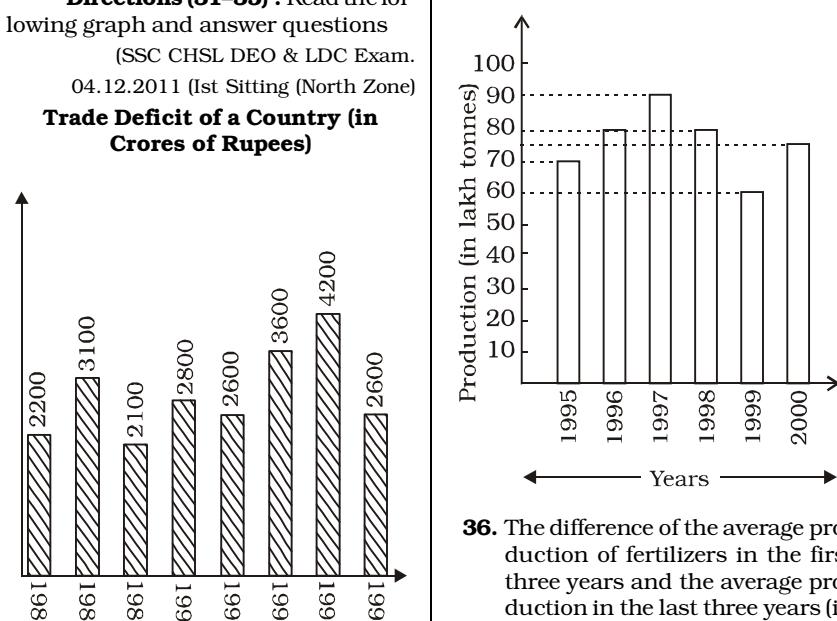
(1) 9 (2) 16
 (3) 20 (4) 4

- 30.** The total daily payment made to the group which contains 9 workers is (in ₹)

(1) 400 (2) 315
 (3) 480 (4) 135

Directions (31-35) : Read the following graph and answer questions
 (SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (North Zone))

Trade Deficit of a Country (in Crores of Rupees)



- 31.** The deficit in 1993-94 was roughly how many times the deficit in 1990-91?

(1) 1.4 (2) 1.5
 (3) 2.5 (4) 0.5

- 32.** Percentage increase in deficit in 1993-94 as compared to deficit in 1989-90 was

(1) 200% (2) 150%
 (3) 100% (4) 2100%

- 33.** In which of the following years, the percent increase of deficit was highest over its preceding year?

(1) 1992-93 (2) 1990-91
 (3) 1993-94 (4) 1988-89

- 34.** The ratio of the number of years, in which the trade deficit is above the average deficit, to those years in which the trade deficit is below the average deficit, is

(1) 3 : 5 (2) 5 : 3
 (3) 4 : 4 (4) 3 : 4

- 35.** The deficit in 1992-93 was approximately how many percent of the average deficit?

(1) 150% (2) 140%
 (3) 125% (4) 90%

Directions (36-40) : The following bar graph shows the production of fertilizers (in lakh tonnes) by a company, in six consecutive years. Study the graph and answer the questions.

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IIInd Sitting (North Zone))

- 36.** The difference of the average production of fertilizers in the first three years and the average production in the last three years (in lakh tonnes) is

(1) $2\frac{1}{3}$ (2) $8\frac{1}{3}$
 (3) $4\frac{1}{6}$ (4) $3\frac{1}{3}$

- 37.** The ratio of the total production of fertilizers in the year 1995, 1997 and 1999 to the total production in the remaining three years is

(1) 44 : 45 (2) 48 : 43
 (3) 44 : 47 (4) 46 : 45

- 38.** The total production of fertilizers in the year 1998 and 2000 is $x\%$ of the total production in the years 1997 and 1999. Then x is equal to

(1) $103\frac{1}{3}$ (2) $79\frac{7}{17}$
 (3) $96\frac{24}{31}$ (4) $125\frac{25}{27}$

- 39.** The year in which the production of fertilizers is nearest to the average production of all the six years, is

(1) 1999 (2) 1998
 (3) 1995 (4) 2000

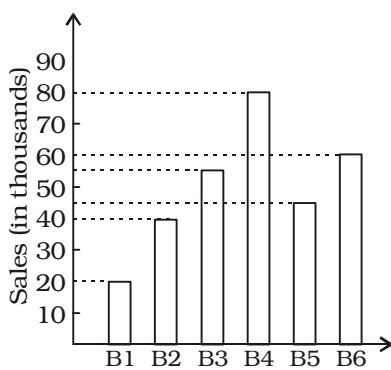
- 40.** Percentage increase in production of fertilizers for a year with respect to its previous year was maximum in the year

(1) 1996 (2) 1997
 (3) 1999 (4) 2000

STATISTICS AND DATA INTERPRETATION

Directions (41–45) : Sales of books (in thousands) from six branches (B1, B2, B3, B4, B5, B6) of a publishing company are given below. Study the graph and answer the following questions.

(SSC CHSL DEO & LDC Exam.
04.12.2011 (IInd Sitting (East Zone)



41. The average sales of the branches B1 and B4 is equal to the average sales of the branches

- (1) B3 and B5 (2) B3 and B6
- (3) B5 and B6 (4) B2 and B5

42. The number of branches in which sales of books are below the average level is

- (1) 2 (2) 3
- (3) 1 (4) 4

43. If the sale of books from the branch B2 increases by 30% and that from the branch B4 decreases by 10%, the approximate sale from all the six branches will
 (1) increase by 1.33%
 (2) decrease by 1.67%
 (3) remain same
 (4) decrease by 1.33%

44. If each branch can increase the sale of books by 2%, then the total number of books (in thousands) sold by the company will be

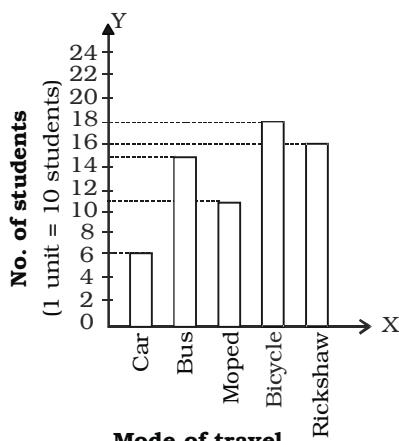
- (1) 305 (2) 306
- (3) 310 (4) 315

45. If all the six branches are divided into three groups such that each group has equal performance on selling books, then the minimum difference of the number of books (in thousands) sold by the two members of any group is

- (1) 20 (2) 10
- (3) 15 (4) 5

Directions (46–49) : The following bar diagram, represents the use of different modes of travel to school by students in a certain locality of the town. Study the graph and answer the questions.

(SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (Ist Sitting)



46. How many students are coming from that locality ?

- (1) 500 (2) 600
- (3) 560 (4) 660

47. How many students use Bicycle and Rickshaw combined ?

- (1) 240 (2) 340
- (3) 140 (4) 440

48. What is the percentage of students using Bus from that locality ?

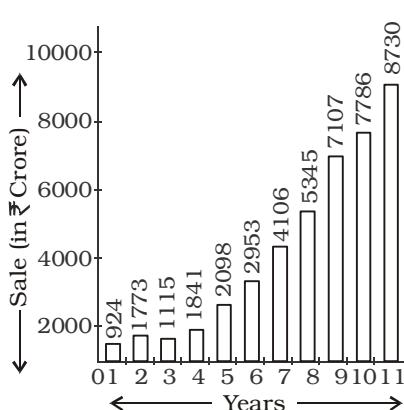
- (1) $22\frac{14}{33}\%$ (2) $18\frac{2}{3}\%$
- (3) $22\frac{8}{11}\%$ (4) 22%

49. What is the ratio of the students using their means of transport as Car with those using Rickshaw ?

- (1) 7 : 2 (2) 8 : 3
- (3) 2 : 7 (4) 3 : 8

Directions (50–54) : The following Bar chart shows the sales of a company XYZ (in ₹ Crore). Study the chart and answer the following questions.

(SSC CHSL DEO & LDC Exam.
21.10.2012 (IInd Sitting)



50. Total sales in 2nd and 3rd years together is :

- (1) ₹ 2688 crores
- (2) ₹ 2888 crores
- (3) ₹ 2788 crores
- (4) ₹ 2488 crores

51. The 2nd highest sale is in the year :

- (1) 10 (2) 9
- (3) 8 (4) 7

52. The 2nd least sale is in year :

- (1) 2 (2) 3
- (3) 6 (4) 4

53. The mean of the highest and the lowest sale (in ₹ Crore) is :

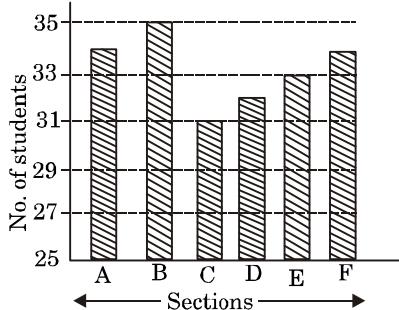
- (1) ₹ 4922.5 (2) ₹ 4827
- (3) ₹ 4365 (4) ₹ 4922

54. The sale in the year 4 is less than the sale in the year 8, by

- (1) ₹ 3608 crores
- (2) ₹ 3504 crores
- (3) ₹ 3127 crores
- (4) ₹ 3427 crores

Directions (55–59) : The bar graph given below shows the total number of students in six sections of a class VI of a certain school. Using this graph, answer the question.

(SSC CHSL DEO & LDC Exam.
28.10.2012 (Ist Sitting)



STATISTICS AND DATA INTERPRETATION

55. Which two sections have the same number of students ?

- (1) Sec A and Sec E
- (2) Sec A and Sec F
- (3) Sec C and Sec D
- (4) Sec B and Sec F

56. What is the ratio of the number of students in section A to that in section C ?

- (1) 34 : 35
- (2) 32 : 35
- (3) 31 : 35
- (4) 34 : 31

57. What is the total number of students in class VI ?

- (1) 200
- (2) 209
- (3) 199
- (4) 179

58. The ratio of the students in section B and section C is

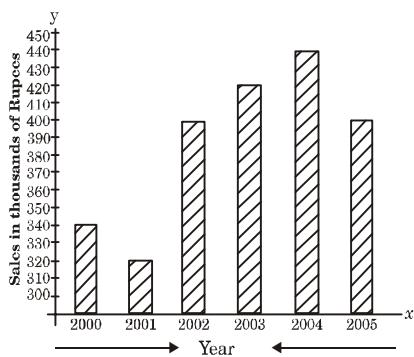
- (1) 31 : 34
- (2) 34 : 35
- (3) 35 : 31
- (4) 31 : 35

59. The percentage of students in section C out of the total students in class VI is approximately

- (1) 17.58%
- (2) 16.08%
- (3) 16.58%
- (4) 15.57%

Directions (60–64) : The following bar diagram analys the sale of a company from 2000 to 2005, Examine the diagram and answer the questions.

(SSC CHSL DEO & LDC Exam.
04.11.2012 (IInd Sitting)



60. The sales in 2004 are what percentage of those in 2002?

- (1) 40%
- (2) 4%
- (3) 110%
- (4) 1.1%

61. In which year did the sales show the least decrease to that of the preceding year ?

- (1) 2004
- (2) 2001
- (3) 2003
- (4) 2005

62. By what amount are the sales in 2003 more than those in 2001 ?

- (1) ₹ one hundred
- (2) ₹ ten thousand
- (3) ₹ one lakh
- (4) ₹ ten lakhs

63. The sales in 2001 are how many times those of 2002 ?

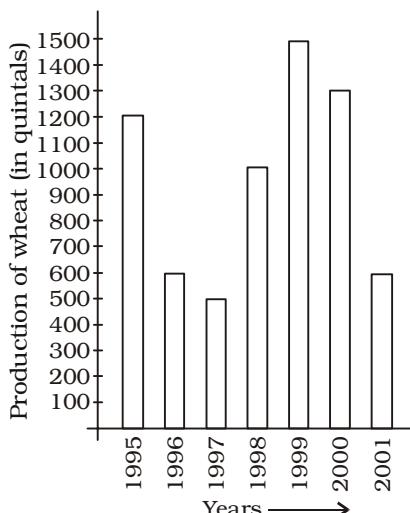
- (1) 8 times
- (2) 0.8 times
- (3) 2.5 times
- (4) 3 times

64. In which year did the sales show the least percent increase to that of the preceding year ?

- (1) 2000
- (2) 2002
- (3) 2003
- (4) 2004

Directions (65–68) : The graph shows the production of wheat in different years of a particular State. Study the graph and answer questions.

(SSC Graduate Level Tier-I Exam.
11.11.2012 (Ist Sitting)



65. The year in which the production reached maximum is

- (1) 1995
- (2) 1997
- (3) 1999
- (4) 2000

66. The percentage increase in production of wheat from 1997-1998 is

- (1) 100%
- (2) 150%
- (3) 90%
- (4) 120%

67. The year which had the percentage of decrease vis-a-vis its previous year in production as

$$13 \frac{1}{3} \% \text{ is}$$

- (1) 1996-97
- (2) 1995-96
- (3) 1999-2000
- (4) 2000-01

68. The total production from the year 1995 to 1998 (in quintals) is

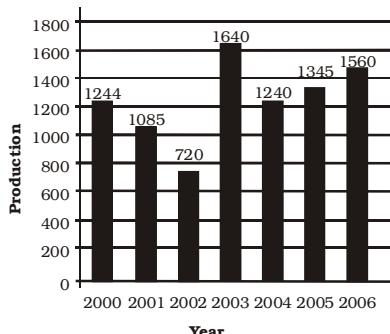
- (1) 3000
- (2) 3100
- (3) 3200
- (4) 3300

Directions (69–70) : The bar diagram below shows the production of potatoes (in quintals) from the year

2000 to 2006. Study the diagram and answer the following questions.

(SSC Multi-Tasking Staff
Exam. 10.03.2013)

**Production of Potatoes (in quintals)
from 2000 to 2006.**



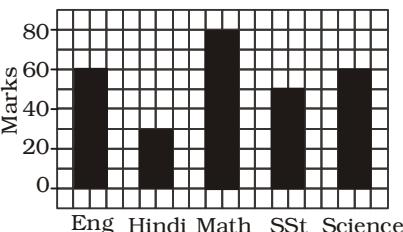
69. Considering the average production during this period, the number of years in which the production is above average is :

- (1) 1
- (2) 2
- (3) 3
- (4) 4

70. During this period, the highest rate of decline in production is:

- (1) 24.4%
- (2) 28.22%
- (3) 33.64%
- (4) 35.32%

71.

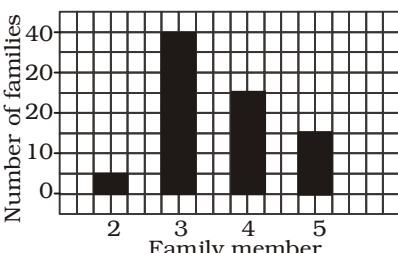


The above bar graph show the marks obtained by a student in an examination. What is the average marks obtained by the student ?

- (1) 55
- (2) 56
- (3) 57
- (4) 58

(SSC Graduate Level Tier-I
Exam. 21.04.2013 IInd Sitting)

72.



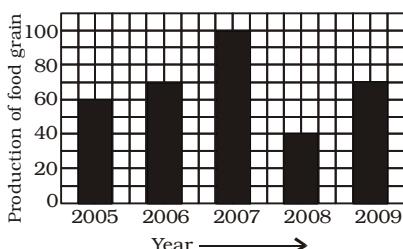
STATISTICS AND DATA INTERPRETATION

Study the bar graph carefully and answer the following question.
Which type of family is the most common?

- (1) 2 members (2) 3 members
(3) 4 members (4) 5 members

(SSC Graduate Level Tier-I Exam. 21.04.2013 IInd Sitting)

73.



Study the above bar graph showing the production of food grains (in million tons).

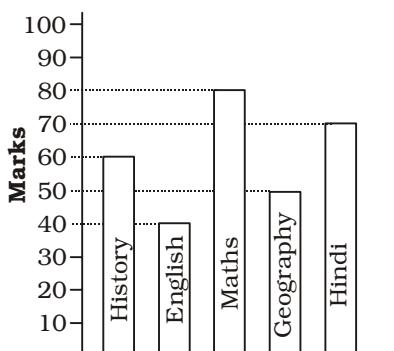
What is the ratio between the maximum production and the minimum production during the given period?

- (1) 1 : 2 (2) 2 : 3
(3) 3 : 4 (4) 5 : 2

(SSC Graduate Level Tier-I Exam. 21.04.2013)

Directions (74-75) : The bar graph shows the marks obtained by a student in an examination out of 100 marks in each subject. Study the graph and answer the questions.

(SSC (CHSL DEO & LDC Exam. 20.10.2013)



74. The ratio of the marks of Maths and History is

- (1) 6 : 5 (2) 8 : 5
(3) 3 : 4 (4) 4 : 3

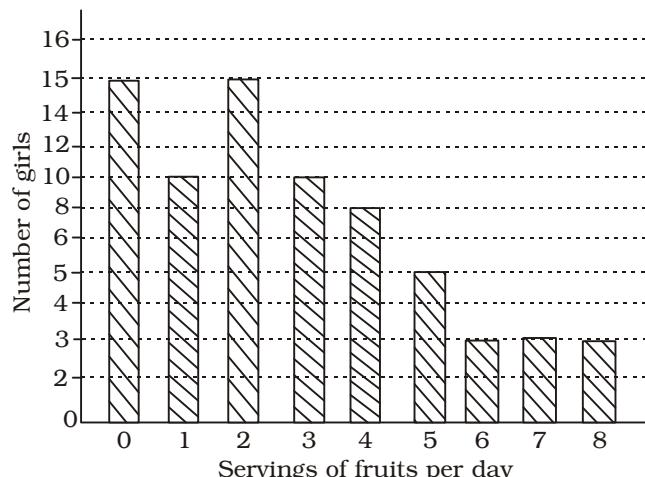
75. The average marks of Hindi and English is

- (1) 65 (2) 50
(3) 55 (4) 60

Directions (76-78) : The distribution of fruit consumption in a sample of 72 seventeen - year - old girls is given in the graph below. Study the graph and answer the questions.

(SSC CGL Tier-I Exam. 26.10.2014)

Distribution of fruit consumption



76. How many of these girls ate fewer than two servings per day?

- (1) 15 (2) 40
(3) 25
(4) None of these

77. What percent of these girls ate six or more servings per day?

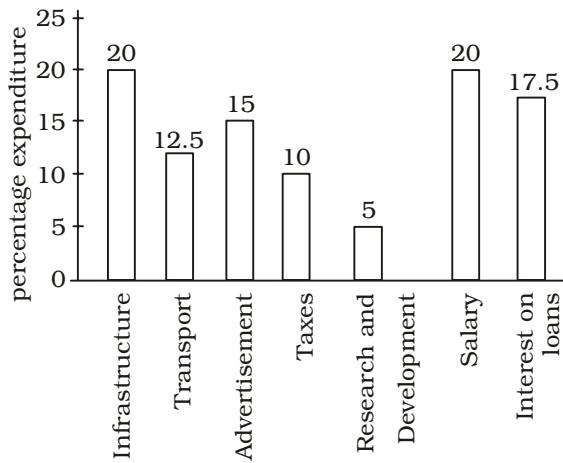
- (1) 12.5% (2) 13%
(3) 10% (4) 11%

78. How many of these girls ate more than two servings but less than six servings per day?

- (1) 26 (2) 18
(3) 23 (4) 38

Directions (79 – 83) : The bar-graph given below shows the percentage distribution of total expenditures of a company under various expense heads during 2013. Study the graph and answer the given questions.

(SSC CHSL DEO Exam. 16.11.2014 (1st Sitting))



79. The expenditure on the interest on loans is what percent more than the expenditure on transport?

- (1) 5% (2) 10%
(3) 20% (4) 40%

80. The ratio of the total expenditure on infrastructure and transport to the total expenditure on taxes and interest on loans is

- (1) 5 : 4 (2) 8 : 7
(3) 9 : 7 (4) 13 : 11

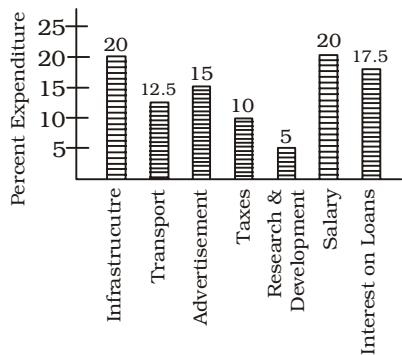
STATISTICS AND DATA INTERPRETATION

- 81.** If the expenditure on advertisement is ₹ 2.10 crores, then the difference between the expenditures on transport and taxes is
 (1) ₹ 25 lakhs (2) ₹ 35 lakhs
 (3) ₹ 65 lakhs (4) ₹ 95 lakhs
- 82.** If the total amount of expenditure of the company is N times the expenditure on research and development, then the value of N is
 (1) 5 (2) 18
 (3) 20 (4) 27

- 83.** If the interest on loans amounts to ₹ 2.45 crores, then the total amount of expenditure on advertisement, taxes and research and developments is
 (1) ₹ 2.4 crores (2) ₹ 4.2 crores
 (3) ₹ 5.4 crores (4) ₹ 7 crores

Directions (84–87) : The bar graph shows the percentage distribution of the total expenditures of a company under various expense heads during 2005. Study the bar graph and answer the following **four** questions.

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015 IInd Sitting)



- 84.** If the expenditure on advertisement is Rs. 2.10 crores, then the difference between the expenditure on transport and taxes is equal to
 (1) Rs. 65 lakhs (2) Rs. 1.25 lakhs
 (3) Rs. 35 lakhs (4) Rs. 95 lakhs
- 85.** The ratio of the total expenditure on infrastructure and transport to the total expenditure on taxes and interest on loans is
 (1) 5 : 4 (2) 13 : 11
 (3) 9 : 7 (4) 8 : 7

- 86.** If the interest on loans amounted to Rs. 2.45 crores, then the total amount of expenditure on advertisement, taxes and research and development is equal to

- (1) Rs. 3 crores
 (2) Rs. 5.4 crores
 (3) Rs. 4.2 crores
 (4) Rs. 7 crores

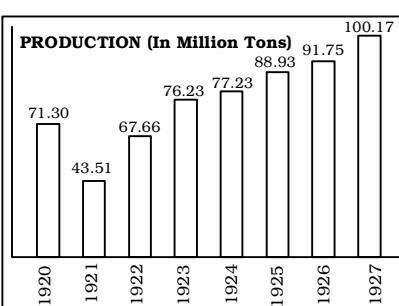
- 87.** The expenditure on the interest

- on loans is by what percent more than the expenditure on transport ?
 (1) 20% (2) 40%
 (3) 5% (4) 10%

Directions (88–91) : The following table shows the worldwide production of steel in 1920–1927. Study the table and answer the questions.

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IInd Sitting)

Year	1920	1921	1922	1923	1924	1925	1926	1927
Production (In million tons)	71.30	43.51	67.66	76.23	77.23	88.93	91.75	100.17



- 88.** The difference of the production of steel in the year 1923 and 1924 is $x\%$ of 1927. Then the value of x is approximately
 (1) 0.01 (2) 0.1
 (3) 0.001 (4) 1

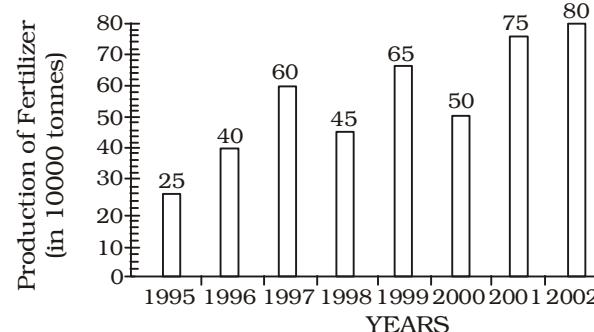
- 89.** The ratio of production of steel in the year 1924 and 1925 to that of 1923 and 1927 is
 (1) 2005 : 2077
 (2) 2077 : 2205
 (3) 2205 : 2007
 (4) 2205 : 2077

- 90.** The number of years during which the company has its production less than the average production during 1920–1927 is approximately
 (1) 6 (2) 4
 (3) 3 (4) 2

- 91.** The average production of steel is (in million tonnes)
 (1) 76.09 (2) 74.07
 (3) 77.10 (4) 75.13

Directions (92–96) : Study the following bar graph and answer the questions.

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IInd Sitting) TF No. 3441135)



- 92.** The number of years, the production of fertilizers was more than average production of the given years is :
 (1) 4 (2) 2
 (3) 1 (4) 3

- 93.** The average production of 1996 and 1997 is exactly equal to the average production of the years

- (1) 1995 and 2001
 (2) 1995 and 1999
 (3) 1999 and 2000
 (4) 2000 and 2001

- 94.** The percentage increase in production of fertilizers in 2002 compared to that in 1995 is :
 (1) 220% (2) 180%
 (3) 240% (4) 200%

STATISTICS AND DATA INTERPRETATION

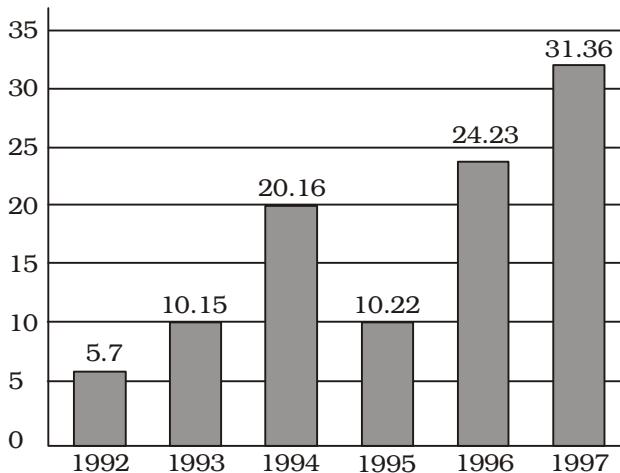
- 95.** The percentage increase in production as compared to previous year is maximum in year :
 (1) 1999 (2) 1996
 (3) 1997 (4) 2002

- 96.** The percentage decline in the production of fertilizers from 1997 to 1998 is :
 (1) 26 % (2) 25%
 (3) 27.5% (4) 23%

Directions (97-100) : Study the Bar diagram carefully and answer the questions.

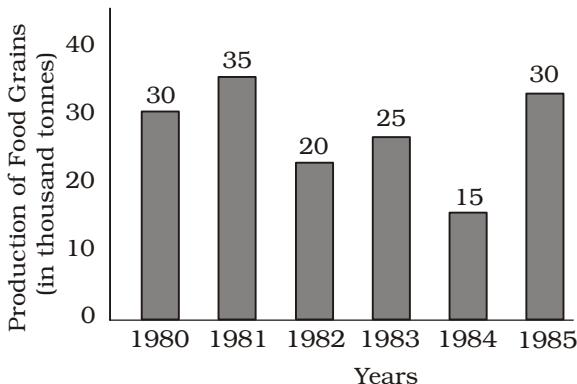
(SSC CGL Tier-I (CBE) Exam. 10.09.2016)

The Bar diagram shows the trends of foreign direct investment (FDI) into India from all over the World (in Rs. crores).



Directions (101-104) : The graph shows the production of food grains of a country in different years. Study the graph and answer the questions.

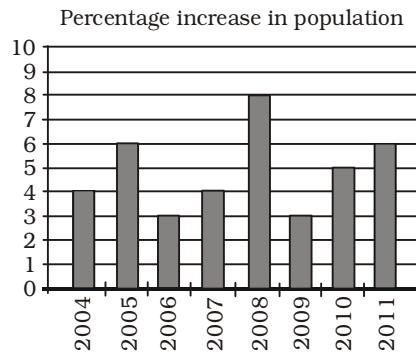
(SSC CGL Tier-I (CBE) Exam. 11.09.2016) (Ist Sitting)



- 101.** The sum of the production of food grains in the years 1982 and 1984 is equal to that in the year :

Directions (105-108) : Following table gives details about the percentage change of the population in a particular town for given years. Go through the chart given and answer the questions that follow :

(SSC CPO Exam. 06.06.2016)
(Ist Sitting)



- 97.** The sum of FDI of 1992 and 1993 is
 (1) Rs. 15.58 crores
 (2) Rs. 15.85 crores
 (3) Rs. 15.22 crores
 (4) Rs. 15.65 crores

- 98.** The year which exhibited the 2nd highest growth percentage in FDI in India over the period shown is
 (1) 1993
 (2) 1994
 (3) 1997
 (4) 1996

- 99.** The ratio of investment in 1997 to the average investment is
 (1) 2 : 1
 (2) 1 : 2
 (3) 1 : 1
 (4) 3 : 1

- 100.** The absolute difference in FDI to India between 1996 and 1997 is
 (1) Rs. 7.29 crores
 (2) Rs. 7.13 crores
 (3) Rs. 7.16 crores
 (4) Rs. 7.22 crores

- (1) 1980 (2) 1981
 (3) 1983 (4) 1985

- 102.** The difference between the production of food grains in the years 1981 and 1985 is
 (1) 500 tonnes (2) 1000 tonnes
 (3) 5000 tonnes (4) 10000 tonnes

- 103.** The percentage increase in production from 1984 to 1985 was
 (1) 15 (2) 30
 (3) 50 (4) 100

- 104.** The two consecutive years in which rate of change of production of food grains is minimum are
 (1) 1980 and 1981
 (2) 1982 and 1983
 (3) 1984 and 1985
 (4) 1983 and 1984

- 105.** How many years witnessed a decrease in population across all the given years ?
 (1) 1 (2) 2
 (3) 3 (4) 0

- 106.** Which year out of these 8 years has the highest population ?
 (1) 2008 (2) 2005
 (3) 2010 (4) 2011

- 107.** What was the population of the town in year 2009 ?
 (1) 3 (2) 5
 (3) 4 (4) Can not be determined

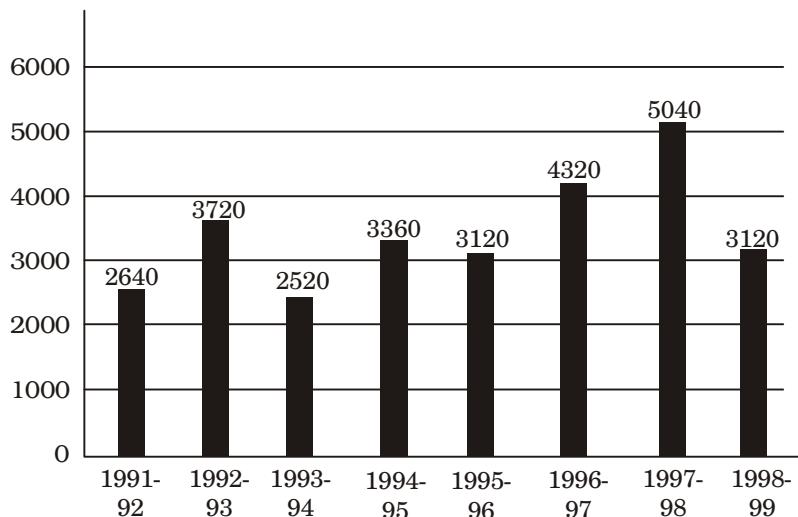
STATISTICS AND DATA INTERPRETATION

- 108.** What was the percentage increase in population of the town from 2005 to 2008 ?
 (1) 19% (2) 33.33%
 (3) 22.6% (4) Can not be determined

- (2) 33.33%
 (3) 22.6%
 (4) Can not be determined

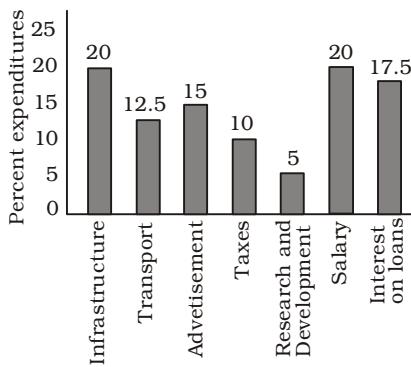
Directions (109–112) : Study the following bar-diagram carefully and answer the questions. The bar graph given below shows the foreign exchange reserves of a country (in million US \$) from 1991-1992 to 1998 - 1999.

(SSC CGL Tier-I (CBE) Exam. 27.08.2016) (Ist Sitting)



Directions (113–116) : Study the bar-graph given below which shows the per cent distribution of total expenditures of a company under various expenses and answer the questions.

(SSC CGL Tier-I (CBE) Exam. 28.08.2016) (IIInd Sitting)



- 113.** The expenditure on the interest on loans is more than the expenditure on transport by

- (1) 5% (2) 10%
 (3) 40% (4) 30%

- 114.** If the interest on loans amounted to Rs. 2.45 crores, then the total amount of expenditure on advertisement, taxes and research and development is :

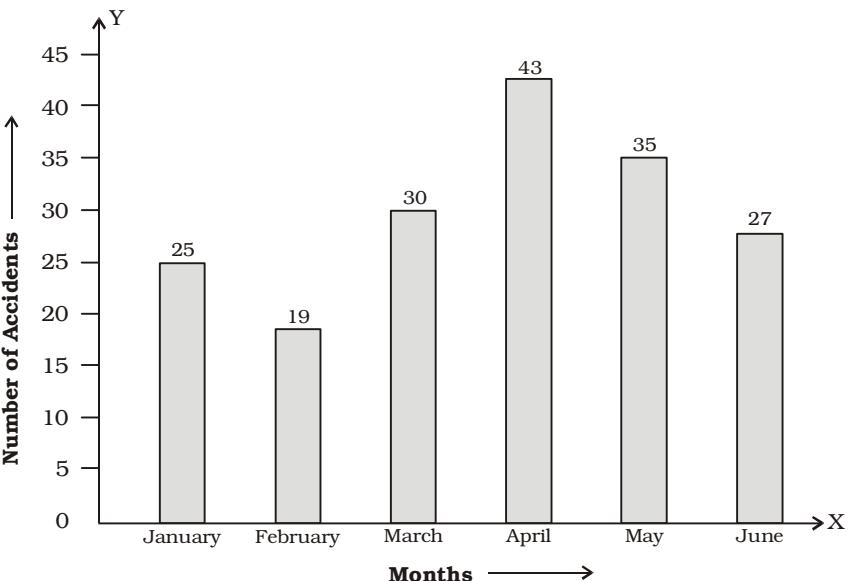
- (1) Rs. 7 crores
 (2) Rs. 4.2 crores

- (3) Rs. 5.4 crores
 (4) Rs. 3 crores

- 115.** The ratio of the total expenditure on infrastructure and transport to the total expenditure on taxes and interest on loans is :
 (1) 5 : 4 (2) 8 : 7

Directions (117–120) : The bar-chart is showing the number of accidents in a city during the first six month of a year. Examine the bar chart and answer the following questions.

(SSC CGL Tier-I (CBE) Exam. 01.09.2016) (IIInd Sitting)



STATISTICS AND DATA INTERPRETATION

117. What is the percentage of accidents in the month of April to the total accidents in the city?

- (1) 15% (2) 20%
 (3) 22% (4) 24%

118. Compared to the month of January, what is the percentage of decrease in accidents in the month of February?

- (1) 25 (2) 24
 (3) 30 (4) 27

119. By what number, is the number of accidents that occurred in April is greater than the average number of accidents that occurred during the 6 months period?

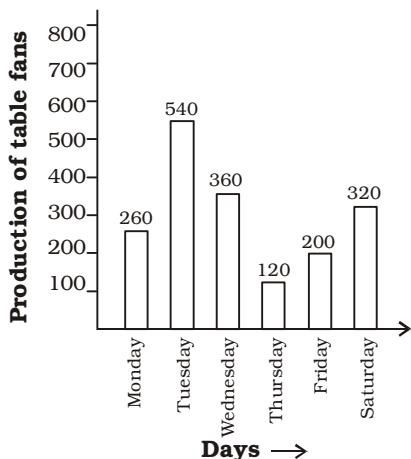
- (1) 13.17 (2) 8
 (3) 9 (4) 11

120. Percentage of decrease in the number of accidents from May to June is :

- (1) $15\frac{4}{7}\%$ (2) $27\frac{3}{7}\%$
 (3) $22\frac{6}{7}\%$ (4) $18\frac{5}{7}\%$

Directions (121-124) : The following bar graph shows the production of table fans in a factory during one week. Study the bar graph and answer the given questions.

(SSC CGL Tier-I (CBE)
 Exam. 29.08.2016 (ISt Sitting)



121. The maximum production exceeds the minimum production by :

- (1) 400 (2) 420
 (3) 500 (4) 540

122. The average production of table fans in that week is :

- (1) 370 (2) 280
 (3) 300 (4) 250

123. The ratio of the total production of table fans in the factory from Monday to Wednesday to that from Thursday to Saturday is :

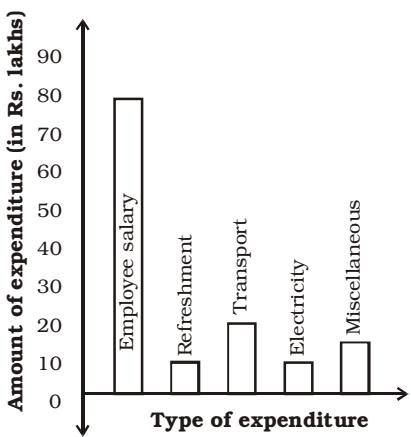
- (1) 19 : 26 (2) 26 : 19
 (3) 29 : 16 (4) 16 : 29

124. The average production of table fans on Monday and Tuesday exceeds the average production of table fans during the week by

- (1) 150 fans (2) 100 fans
 (3) 140 fans (4) 200 fans

Directions (125-128) : The bar diagram shows the monthly expenditure of a company. Study the graph and answer the questions.

(SSC CGL Tier-I (CBE)
 Exam. 30.08.2016 (IIIrd Sitting)



125. The percentage of money spent on miscellaneous is

- (1) $7\frac{2}{17}\%$ (2) $17\frac{2}{7}\%$
 (3) $11\frac{1}{9}\%$ (4) $9\frac{1}{11}\%$

126. The fraction of money spent on refreshment is :

- (1) $13\frac{1}{2}$ (2) $\frac{2}{27}$
 (3) $\frac{1}{10}$ (4) 10

127. The total monthly expenditure of the company is :

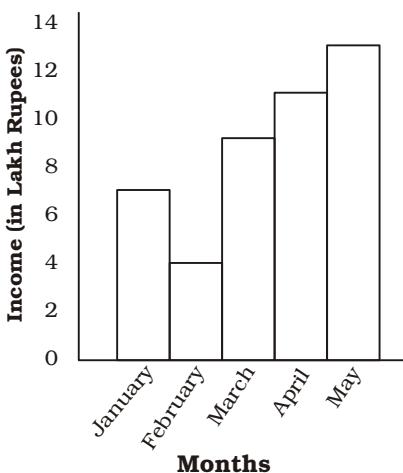
- (1) Rs. 153 lakhs
 (2) Rs. 315 lakhs
 (3) Rs. 135 lakhs
 (4) Rs. 531 lakhs

128. The ratio between expenditure on transport and employee salary on monthly basis is :

- (1) 1 : 4 (2) 4 : 3
 (3) 3 : 4 (4) 4 : 1

Directions (129-132) : The bar graph given indicates the income of a firm. Study the graph and answer the questions given.

(SSC CGL Tier-I (CBE)
 Exam. 09.09.2016 (IIIrd Sitting)



129. Which period shows a steady increase of income ?

- (1) March to May
 (2) February to April
 (3) February to May
 (4) Insufficient data to predict

130. During which month, the ratio of the income to that of the previous month is the largest?

- (1) February
 (2) March
 (3) April
 (4) May

131. The income in May is how many times to that of February?

- (1) 3.25
 (2) 4
 (3) 3.5
 (4) 5

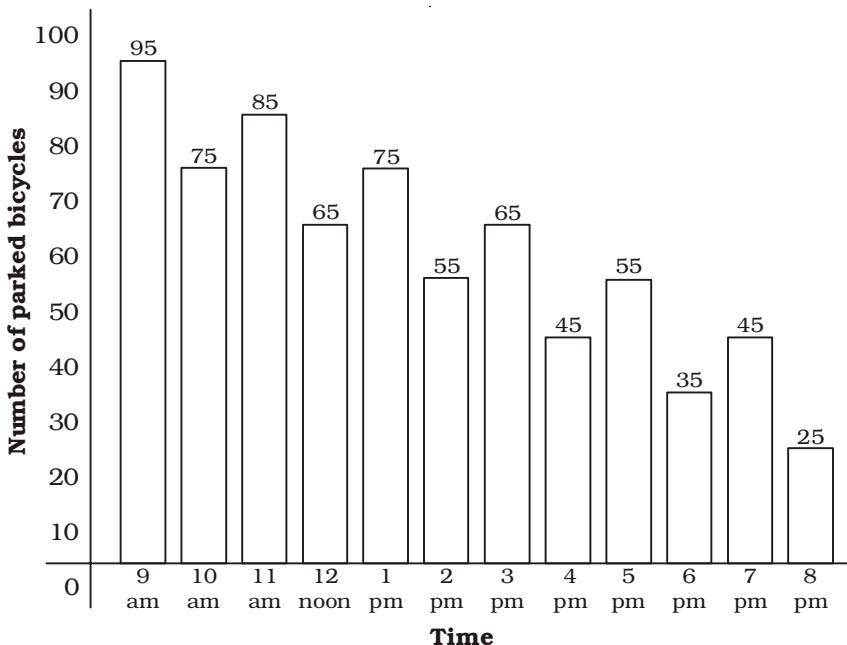
132. The average monthly income of the firm (in lakh rupees) is :

- (1) 7.6
 (2) 6
 (3) 8.8
 (4) None of these

Directions (133-136) : Study the bar diagram and answer the following questions.

The bar diagram shows the number of bicycles parked in the parking space of a hall at various points of time.

(SSC CGL Tier-I (CBE)
 Exam. 10.09.2016 (IIInd Sitting)



133. The charges for parking is Re. 1 per hour. What will be the total collection from 9 am to 7 pm?

- (1) Rs. 625 (2) Rs. 635
 (3) Rs. 685 (4) Rs. 695

134. What is the percentage decrease in the number of parked cycles between 7 pm and 8 pm? (in whole number)

- (1) 30 (2) 38
 (3) 42 (4) 45

135. What is the average number of parked cycles as seen from the graph?

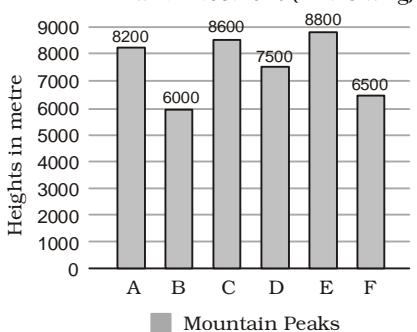
- (1) 40 (2) 45
 (3) 55 (4) 60

136. How many times, as mentioned in the graph, is the number of parked cycles above average?

- (1) 3 (2) 4
 (3) 5 (4) 6

Directions (137-140) : A bar graph showing the heights of six mountain peaks is given below. Study the bar graph and answer the questions.

(SSC CGL Tier-I (CBE)
 Exam. 11.09.2016 (IIIrd Sitting)



137. The average height of all the peaks (in metre) is

- (1) 7601.5 (2) 7600
 (3) 7599.5 (4) 7610

138. Which peak is the second highest?

- (1) B (2) C
 (3) A (4) E

139. What is the respective ratio of the heights of the highest peak and the lowest peak?

- (1) 22 : 15 (2) 15 : 22
 (3) 20 : 13 (4) 13 : 22

140. When the heights of the given peaks are written in ascending order, what is the average of the middle two peaks?

- (1) 7950 m (2) 7560 m
 (3) 7650 m (4) 7850 m

TYPE-IV

Directions (1-5) : The following is a horizontal bar diagram showing the accidents in which two-wheelers are involved with other objects. Study the diagram and answer the questions.

OBJECTS HIT

Two-wheelers	<input type="checkbox"/>
Cars	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Buses	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Tanker lorry	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Pedestrians	<input type="checkbox"/> <input type="checkbox"/>
Bicycles	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Stationary	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
vehicles	<input type="checkbox"/> Represents 20

(SSC CHSL DEO & LDC Exam.

21.10.2012 (1st Sitting)

1. The difference in percentage between the accidents involving two-wheelers and two-wheelers and two-wheelers and other objects is respectively.

- (1) 77% more (2) 77% less
 (3) 54% more (4) 54% less

2. 60% of the accidents are involved due to

- (1) cars, buses, tanker lorry and pedestrians
 (2) cars, tanker lorry, bicycles and stationary vehicles
 (3) two-wheelers, cars, buses and stationary vehicles
 (4) two-wheelers, cars, buses and tanker lorry

3. If the data of the bar diagram is represented by a pie-chart, and the angle of a sector of the pie-chart is 36° , then this sector represents the accidents involving

- (1) pedestrians (2) bicycles
 (3) buses
 (4) stationary vehicles

4. The percentage of accidents in which pedestrians and cyclists are involved is

- (1) 24% (2) 6%
 (3) 60% (4) 20.4%

5. The percentage by which the accidents involving buses is less than the accidents involving tanker lorry is

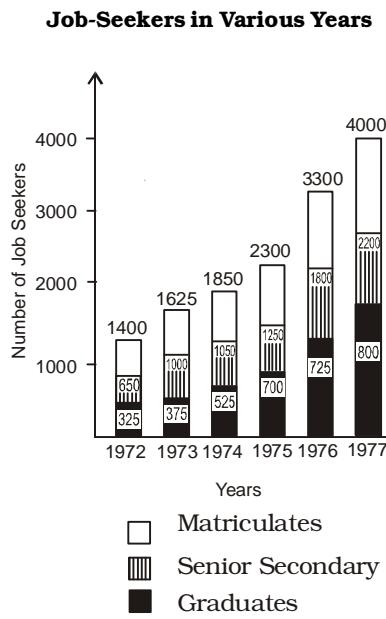
- (1) 6% (2) 4%
 (3) 40% (4) 28%

Directions (6-9) : The bar graph given here shows the number of job-seekers of a state in various years at different stages of education.

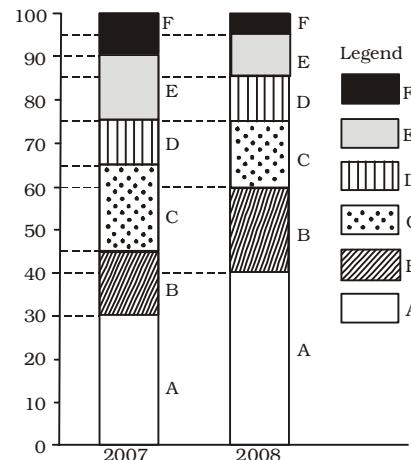
Study the graph carefully and answer the questions based on it.

(SSC CPO Sub-Inspector
 Exam. 16.12.2007)

STATISTICS AND DATA INTERPRETATION



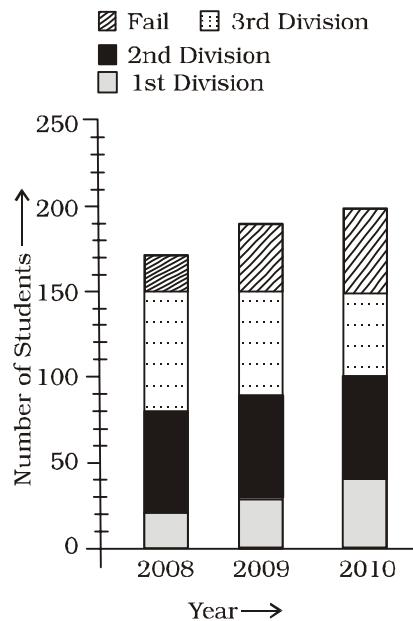
Percentage of six different types of mobiles manufactured by a company over two years



6. In which year was the number of Graduate job-seekers the same as that of Senior Secondary job-seekers ?
 - (1) 1973
 - (2) 1974
 - (3) 1975
 - (4) 1976
7. In comparison to the year 1973, how many more job-seekers in all, were there in the year 1977?
 - (1) 700
 - (2) 1700
 - (3) 2375
 - (4) 2150
8. In which year, was the number of Matriculate job-seekers maximum ?
 - (1) 1973
 - (2) 1975
 - (3) 1972
 - (4) 1977
9. The number of job-seekers, having their qualification as Senior Secondary, in the year 1974 was :
 - (1) 525
 - (2) 800
 - (3) 1050
 - (4) 1875

Directions (10-14) : The bar chart given below shows the percentage distribution of the production of various models of a mobile manufacturing company in 2007 and 2008. The total production in 2007 was 35 lakh mobile phones and in 2008 the production was 44 lakh. Study the chart and answer the following questions.

(SSC Graduate Level Tier-II
Exam. 16.09.2012)

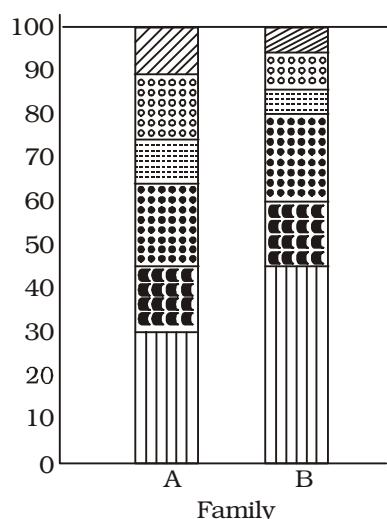


10. Total number of mobiles of models A, B and E manufactured in 2007 was
 - (1) 24,50,000
 - (2) 22,75,000
 - (3) 21,00,000
 - (4) 19,25,000
11. For which models was the percentage variation in production from 2007 to 2008 the maximum ?
 - (1) B and C
 - (2) C and D
 - (3) D and E
 - (4) A and B
12. What was the difference in the number of B type mobiles produced in 2007 and 2008 ?
 - (1) 3,55,000
 - (2) 2,70,000
 - (3) 2,25,000
 - (4) 1,75,000
13. If the percentage production of A type mobiles in 2008 was same as that in 2007, then the number of A type mobiles produced in 2008 would have been
 - (1) 14,00,000
 - (2) 13,20,000
 - (3) 11,70,000
 - (4) 10,50,000
14. If 85% of the D type mobiles produced in each year were sold by the company, how many D type mobiles remained unsold ?
 - (1) 76,500
 - (2) 93,500
 - (3) 1,18,500
 - (4) 1,22,500
15. The percentage passed in 1st division in 2008 was
 - (1) 27%
 - (2) 32%
 - (3) $15\frac{3}{8}\%$
 - (4) $11\frac{13}{17}\%$
16. The pass percentage in 2008 was
 - (1) 67%
 - (2) 73%
 - (3) $79\frac{2}{3}\%$
 - (4) $82\frac{6}{17}\%$
17. In which year the school had the best result for H.S. in respect of percentage of pass candidates ?
 - (1) 2008
 - (2) 2009
 - (3) 2010
 - (4) The percentage of pass candidates are same for the three years.
18. The number of students passed with 3rd division in the year 2008 was
 - (1) 50
 - (2) 60
 - (3) 70
 - (4) 80
19. The percentage of the students passed with 2nd division in the year 2010 was
 - (1) 30%
 - (2) 40%
 - (3) 50%
 - (4) 60%
20. **Directions (20-22) :** Study the diagram and answer the questions.

(SSC Graduate Level Tier-I
Exam. 19.05.2013)

(SSC CGL Tier-I
Re-Exam. (2013) 27.04.2014)

STATISTICS AND DATA INTERPRETATION



- 20.** If the total annual expenditure of family B is ₹ 10,000 then money spent on clothes during the year is
 (1) ₹ 600 (2) ₹ 6000
 (3) ₹ 1500 (4) ₹ 200

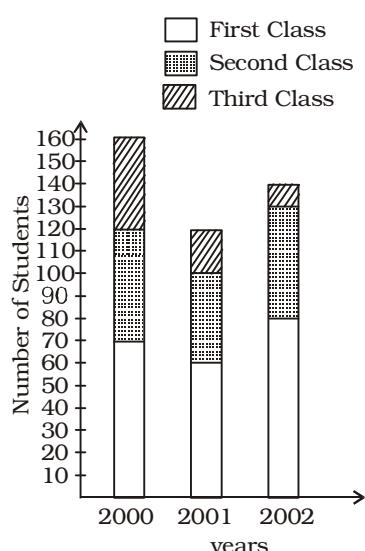
- 21.** What fraction of the total expenditure is spent on Education in family A ?

- (1) $\frac{2}{3}$ (2) $\frac{9}{13}$
 (3) $\frac{1}{5}$ (4) $\frac{13}{20}$

- 22.** If the total annual expenditure of family A is ₹ 30,000 then money spent on food, clothes and house-rents is.
 (1) ₹ 18,000 (2) ₹ 21,000
 (3) ₹ 15,000 (4) ₹ 18,500

Directions (23-26) : The sub divided bar diagram given below depicts the result of Class XII students of a school for three years. Study the diagram and answer the questions given below :

(SSC CGL Tier-I Re-Exam. (2013)
 20.07.2014) (Ist Sitting)



- 23.** The percentage of students passed with Second class in the year 2000 is
 (1) $33\frac{1}{4}\%$ (2) $32\frac{1}{4}\%$
 (3) $30\frac{1}{4}\%$ (4) $31\frac{1}{4}\%$

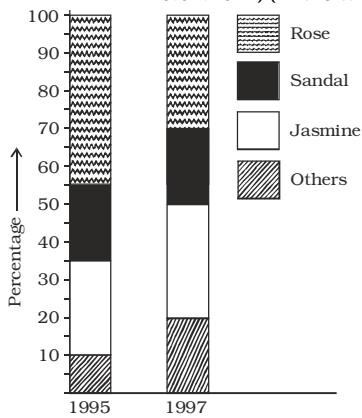
- 24.** The percentage of students passed with First class in the year 2001 is
 (1) 50% (2) 45%
 (3) 60% (4) 65%

- 25.** The number of students passed with Third class in the year 2002 is
 (1) 130 (2) 10
 (3) 140 (4) 20

- 26.** The number of students passed with Second class in the year 2002 is
 (1) 80 (2) 130
 (3) 50 (4) 100

Directions (27-29) : The production figures of a perfume manufacturer are given in the form of percentage in sub-divided bar diagram. Study the diagram and answer the questions.

(SSC CGL Tier-I Re-Exam. (2013)
 20.07.2014) (IIInd Sitting)



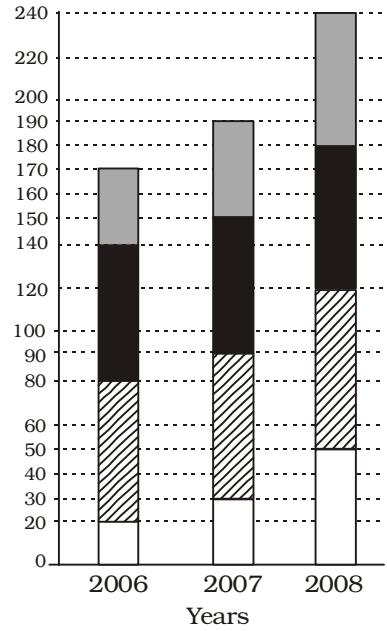
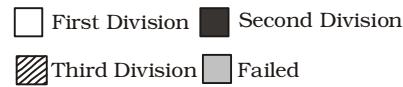
- 27.** What is the ratio of percentage production of rose perfume during 1995 to that during the year 1997 ?
 (1) 4 : 3 (2) 3 : 2
 (3) 2 : 3 (4) 5 : 4

- 28.** What is the percentage of production of sandal perfume during the year 1995 over that during 1997 ?
 (1) 100% (2) 1%
 (3) 0% (4) 50%

- 29.** What is the production of jasmine perfume in the year 1997? Given that during the year 1997 total perfumed production was 5000 units.
 (1) 1200 (2) 2500
 (3) 2000 (4) 1500

Directions (30 – 33) : The subdivided bar diagram given below depicts the result of B.Com. students of a college for 3 years. Study the graph and answer the given questions.

(SSC CHSL DEO Exam. 16.11.2014
 (Ist Sitting)



- 30.** How many percent of students passed in first division in 2007?
 (1) $15\frac{15}{19}\%$ (2) $11\frac{13}{17}\%$

- (3) $16\frac{2}{3}\%$ (4) $12\frac{1}{2}\%$

- 31.** What was the pass percentage in 2008 ?

STATISTICS AND DATA INTERPRETATION

- (1) $33\frac{1}{3}\%$ (2) $82\frac{6}{17}\%$
 (3) 75% (4) 78%
- 32.** What was the number of third divisions in 2006?
 (1) 60 (2) 140
 (3) 59 (4) 120

- 33.** In which year, did the college have the best result for B. Com?
 (1) 2007 and 2008
 (2) 2008
 (3) 2007
 (4) 2006

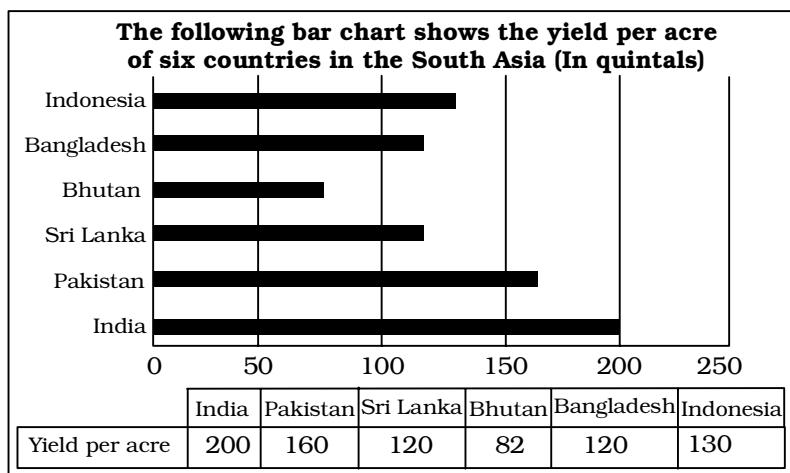
- 34.** The yield per acre of India is what percent more than that of Pakistan?
 (1) 25% (2) 50%
 (3) 75% (4) 100%

- 35.** If the yield per acre is arranged in ascending order, then what is the difference between the yield per acre of first three countries and last three countries?
 (1) 168 quintals
 (2) 172 quintals
 (3) 182 quintals
 (4) 190 quintals

- 36.** The yield per acre produced by Bangladesh is what percent of the total yield per acre produced by all countries?
 (1) 14% (2) 13.5%
 (3) 14.8% (4) 16%

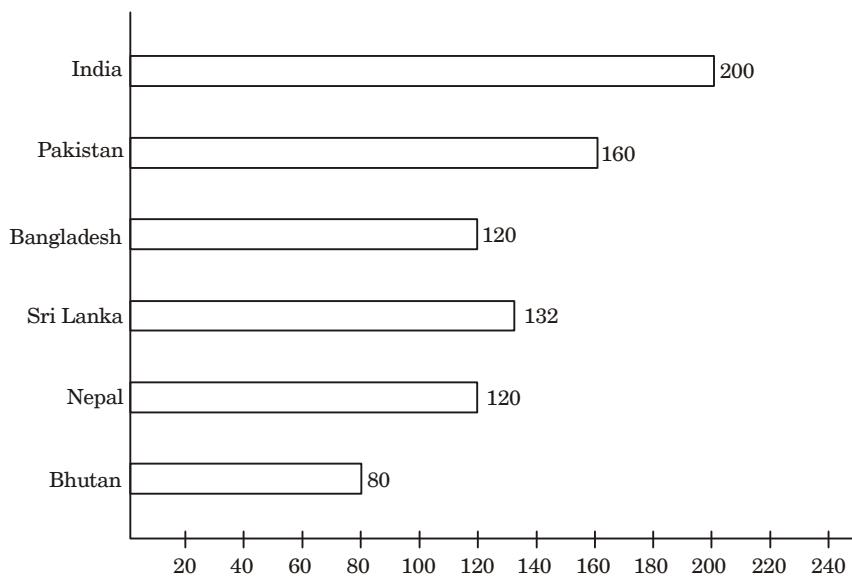
Directions (34–36) : Study the following bar graph carefully to answer the questions.

(SSC CGL Tier-I (CBE) Exam. 27.08.2016) (IInd Sitting)



Directions (37–40) : The bar graph given below shows the per acre yield (in kg) of different countries. Study the graph carefully and answer the questions.

(SSC CGL Tier-I (CBE) Exam. 02.09.2016) (Ist Sitting)



- 37.** The average yield of the given countries is

- (1) $132\frac{1}{3}$ kg (2) $133\frac{1}{3}$ kg
 (3) $134\frac{1}{3}$ kg (4) $135\frac{1}{3}$ kg

- 38.** By how much percent is India's per acre yield more than that of Pakistan's?

- (1) 20% (2) 25%
 (3) $33\frac{1}{3}\%$ (4) 35%

- 39.** Sri Lanka's yield (approximately) is what percent of total yield of all the countries?
 (1) 17.8%
 (2) 16.2%
 (3) 18.2%
 (4) 15.4%

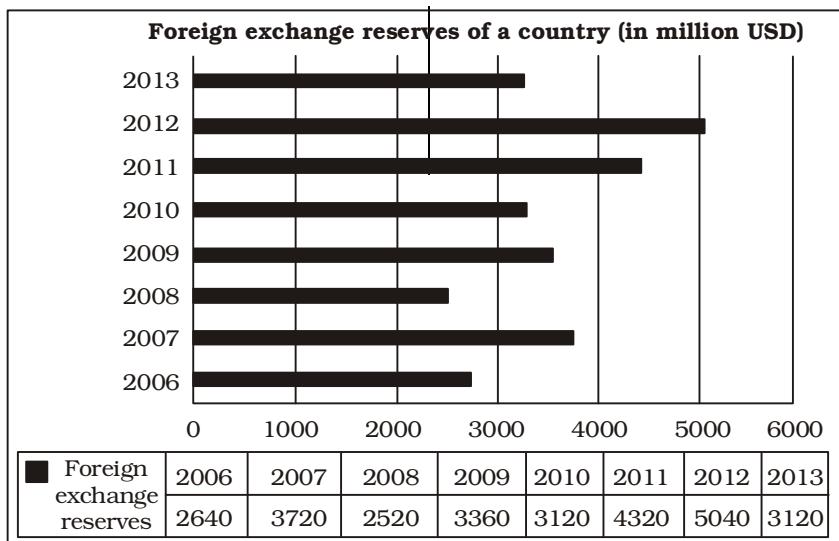
- 40.** Writing the yields of all countries in ascending order, the difference between the sum of yields of first three countries to that of last three countries is
 (1) 200 kg.
 (2) 212 kg.
 (3) 172 kg.
 (4) 162 kg.

Directions (41–43) : Study the following bar-diagram carefully and answer the questions.

(SSC CGL Tier-I (CBE) Exam. 02.09.2016)

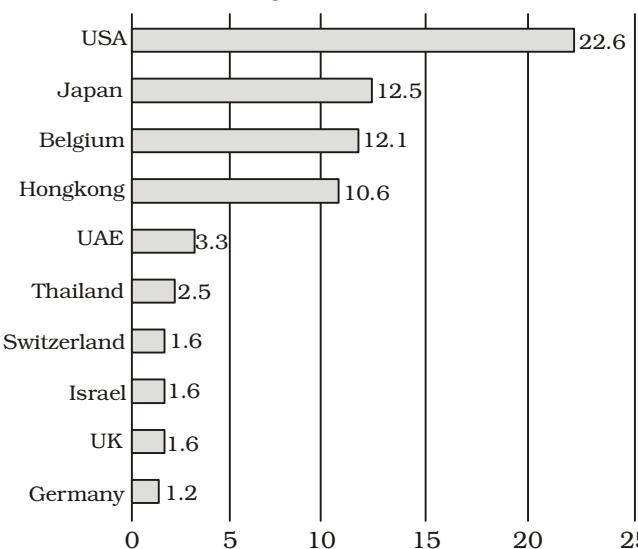
(IInd Sitting)

STATISTICS AND DATA INTERPRETATION



Directions (44–47) : Study the bar diagram carefully and answer the following questions.

(SSC CGL Tier-I (CBE) Exam. 02.09.2016) (IInd Sitting)
Export (in Billion Rupees) of gems and jewellery in the year 1991-1992 is given.



- 44.** The ratio of the sum of the exports to the bottom six countries to the total exports to all the given countries in 1991 – 1992 is approximately :

- (1) $\frac{1}{6}$ (2) $\frac{1}{5}$
 (3) $\frac{1}{8}$ (4) $\frac{2}{9}$

- 45.** The country to which twice the export is nearly equal to the average exports in 1991-92 is

- (1) U.K (2) Thailand
 (3) Israel (4) UAE

- 46.** The ratio of the total exports to Japan, Belgium and Hongkong to the export to rest of the countries in 1991-92 is nearly :

- (1) 35 : 34 (2) 35 : 69
 (3) 69 : 35 (4) 35 : 35

- 47.** The export to Hongkong is approximately how many times the exports to Germany ?

- (1) 8 (2) 9
 (3) 10 (4) 11

- 41.** The foreign exchange reserve in 2012 was how many times that in 2009?

- (1) 0.7 (2) 1.2
 (3) 1.4 (4) 1.5

- 42.** What was the percentage increase in the foreign reserves in 2012 over 2008?

- (1) 100 (2) 150
 (3) 200 (4) 620

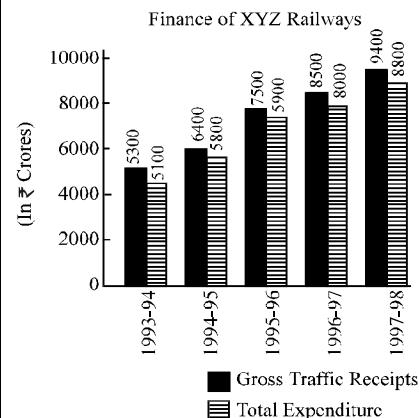
- 43.** The ratio of the number of years, in which the foreign exchange reserves are above the average reserves, to those in which reserves are below the average reserves, is

- (1) 2 : 6 (2) 3 : 4
 (3) 3 : 5 (4) 1 : 1

TYPE-V

Directions (1-5) : The following questions are based on the bar graph. Read the graph and answer the questions.

(SSC CGL Prelim Exam. 04.07.1999
(First Sitting)



- 1.** What is the percentage increase in the gross traffic receipts in 1995-96 as compared to 1993-94?
 (1) 33.9% (2) 41.5%
 (3) 20.7% (4) 17%

- 2.** If profit \approx gross traffic receipts – total expenditure, then in 1996-97, what percentage of gross traffic receipts is the profit made?
 (1) 5.9% (2) 6.4%
 (3) 7.2% (4) 8%

- 3.** In which year was the profit as a percentage of gross traffic receipts the highest?
 (1) 1997-98 (2) 1996-97
 (3) 1995-96 (4) 1994-95

STATISTICS AND DATA INTERPRETATION

- 4.** In order to make a profit of 10%. What should have been the gross traffic receipts (in ₹ crores) in 1994-95, total expenditure remaining the same?

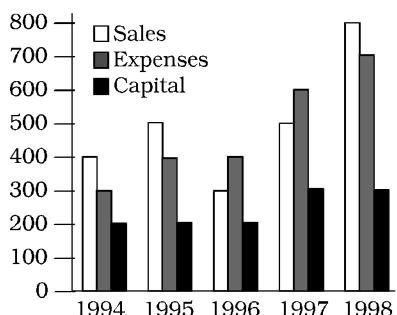
(1) 5,667 (2) 5,876
 (3) 6,444 (4) 7,667

- 5.** By what amount (in ₹ crores) has the expenditure increased over the period 1993-94 to 1997-98?

(1) 4,100 (2) 3,900
 (3) 3,850 (4) 3,700

Directions (6-10) : The following graph gives Sales, Expense and Capital of a company for a period of five years 1994 to 1998. Read the graph and answer the following questions.

(SSC CGL Prelim Exam. 04.07.1999
 (Second Sitting)



Profit = Sales - Expense

- 6.** What has been the simple average growth rate per annum of expense between 1994 and 1998?

(1) 25% (2) $33\frac{1}{3}\%$
 (3) 40% (4) 130%

- 7.** In which year was the Sales to Expense ratio the lowest?

(1) 1994 (2) 1996
 (3) 1997 (4) 1998

- 8.** What was the average per annum increase in sales (in ₹ cr.) from 1994 to 1998?

(1) 50 (2) 60
 (3) 80 (4) 100

- 9.** In which year was the ratio of profit to capital the highest?

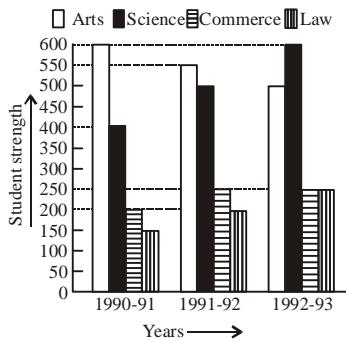
(1) 1998 (2) 1995
 (3) 1996 (4) 1997

- 10.** In which year was the ratio of sales to capital the lowest?

- (1) 1998 (2) 1997
 (3) 1996 (4) 1995

Directions (11-14) : Given here is a multiple bar diagram depicting the changes in the students strength of a college in four faculties from 1990-91 to 1992-93. Study the diagram and answer the questions.

(SSC CGL Prelim Exam. 04.02.2007
 (First Sitting)



- 11.** In which faculty was there a regular decrease in students' strength?

(1) Arts (2) Science
 (3) Commerce (4) Law

- 12.** The percentage of students in Science faculty in 1990-91 was

(1) 26.9% (2) 27.8%
 (3) 29.6% (4) 30.2%

- 13.** The total students strength in 1991-92 was how many times that of Commerce students in the same year?

(1) 3 (2) 4
 (3) 5 (4) 6

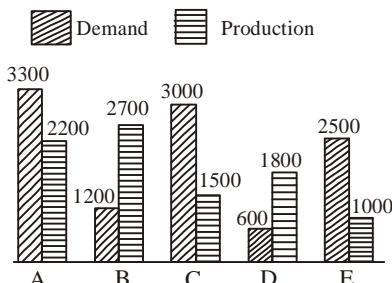
- 14.** What was the percent increase in Science students from the year 1990-91 to 1992-93?

(1) 50% (2) $66\frac{2}{3}\%$
 (3) 75% (4) 150%

Directions (15-18) : Study the following graph and answer the questions. Number on the top of a bar is the number of TVs.

(SSC CPO S.I. Exam. 06.09.2009)

Demand and Production of Colour T.V.s of five Companies for January 2006



- 15.** What is the ratio of the companies having more demand than production to the companies having more production than demand?

(1) 2 : 3 (2) 4 : 1
 (3) 2 : 2 (4) 3 : 2

- 16.** What is the difference between average demand and average production of the five companies taken together?

(1) 1400 (2) 400
 (3) 280 (4) 138

- 17.** Demand of company D is approximately what per cent of demand of company E?

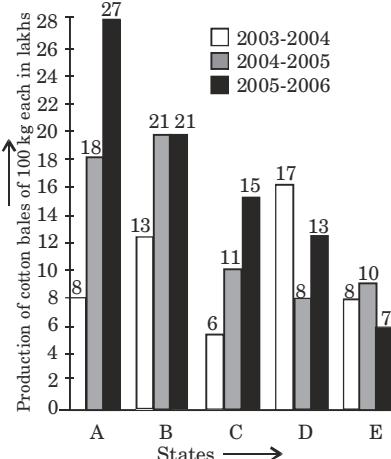
(1) 12% (2) 20%
 (3) 24% (4) 30%

- 18.** What is the ratio of average demand to average production of companies B and D?

(1) 1 : 5 (2) 2 : 5
 (3) 3 : 5 (4) 4 : 5

Directions (19-22) : The following graph shows the production of cotton bales of 100 kg each (in lakhs) by different states A, B, C, D and E over the years. Study the graph and answer the following Questions.

(SSC CGL Tier-1 Exam. 19.06.2011
 (Second Sitting)



- 19.** The production of State C in 2003-2004 is how many times its production in 2005-2006?

(1) 2.5 (2) 1.85
 (3) 1.5 (4) 0.4

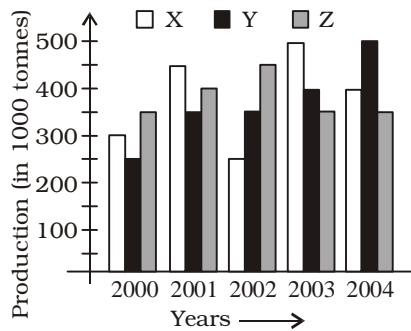
- 20.** In which State(s) is there a steady increase in the production of cotton during the given period?

(1) A and B (2) B and D
 (3) A and C (4) D and E

STATISTICS AND DATA INTERPRETATION

Directions (23–26) : The following graph shows the production of wheat flour (in 1000 tonnes) by three companies X, Y and Z over the years. Study the graph and answer the questions.

(SSC CGL Tier-1 Exam. 26.06.2011
(Second Sitting)



- 23.** What is the difference between the production of company Z in 2004 and company Y in 2000 (in thousand tonnes) ?
 (1) 100 (2) 200
 (3) 20 (4) 2

24. What is the ratio of the average production of company X in the period 2002-2004 to the average production of company Y in the same period ?
 (1) 1 : 1 (2) 15 : 17
 (3) 23 : 25 (4) 27 : 29

25. What is the percentage increase in the production of company Y from 2002 to 2003?
 (1) $14\frac{2}{7}\%$ (2) $16\frac{6}{7}\%$
 (3) 25% (4) 40%

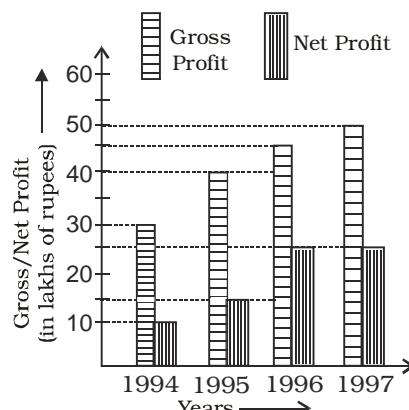
26. The average production for five years was maximum for which company (s) ?
 (1) X and Z both
 (2) Y (3) Z
 (4) X and Y both

Directions (27-31) : Study the following bar graph and answer the questions.

FCI Assistant Grade-III
Exam. 25.02.2012 (Paper-I)

North Zone (Ist Sitting)

Gross Profit and Net Profit of a company (in lakhs of rupees) for the years 1994-1997:



- Years

27. The year in which the gross profit is double the net profit
(1) 1997 (2) 1995
(3) 1996 (4) 1994

28. The percentage of net profit of 1995 as compared to the gross profit in that year is
(1) 25.5% (2) 35.5%
(3) 37.5% (4) 42.5%

29. The difference of average gross profit and average net profit calculated for four years is
(1) ₹ 18.75 lakhs
(2) ₹ 19.75 lakhs
(3) ₹ 20.5 lakhs
(4) ₹ 22.5 lakhs

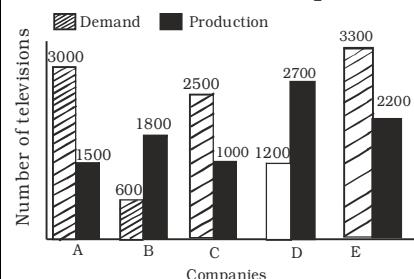
30. The ratio of gross profit to net profit in a year was greatest in the year
(1) 1994 (2) 1995
(3) 1996 (4) 1997

31. For the entire four years as shown, the ratio of total gross profit to total net profit is
 (1) 13 : 4 (2) 11 : 6
 (3) 11 : 5 (4) 9 : 4

Directions (32-35) : The bar graph, given here, shows the demand and production of colour televisions of five companies for Diwali season in the year 2009. Study the graph carefully and answer the questions based on the graph.

(SSC CHSL DEO & LDC
Exam. 28.11.2010 (Ist Sitting)

Demand and Production of Colour Televisions of Five Companies.



- 32.** The ratio of the demand and production of colour televisions of company E is :

(1) 3 : 2 (2) 2 : 3
 (3) 2 : 1 (4) 1 : 2

33. The demand of colour televisions of company B is approximately what per cent of that of company C ?

(1) 60% (2) 25%
 (3) 24% (4) 6%

- 34.** The production of colour televisions of company D is how many times that of company A ?

 - 1.9
 - 1.8
 - 1.5
 - 2.3

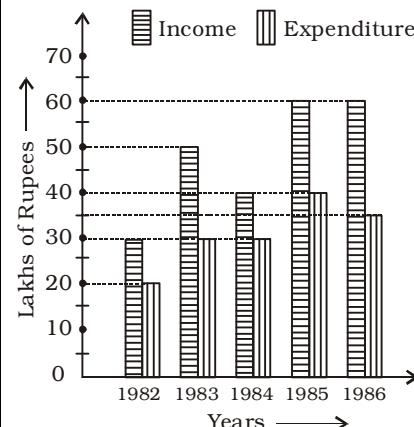
35. The ratio of companies having more demand than production of colour televisions to those having more production than demand is :

 - 2 : 3
 - 4 : 1
 - 1 : 4
 - 3 : 2

Directions (36-40) : Read the graph and answer the following questions.

**(SSC CHSL DEO & LDC Exam.
04.12.2011 (1st Sitting (East Zone))**

**Income and Expenditure of a
company over the years
(in lakhs of rupees)**



STATISTICS AND DATA INTERPRETATION

36. What is the difference in profit between 1983 and 1984 (in lakhs of rupees) ?

- (1) No profit (2) 5
 (3) 10 (4) 15

37. The number of years in which the income is more than the average income of the given years is

- (1) One (2) Two
 (3) Three (4) Four

38. The ratio of the average income of all the years to the average profit is

- (1) 24 : 13 (2) 48 : 17
 (3) 12 : 7 (4) 6 : 5

39. Percentage increase in profit in 1986 over 1982 is

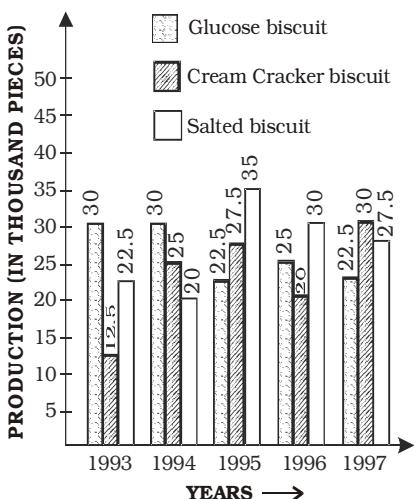
- (1) 150% (2) 120%
 (3) 100% (4) 80%

40. The total income exceeds the total expenditure over the years 1982 to 1986 by

- (1) 85 lakhs (2) 105 lakhs
 (3) 115 lakhs (4) 120 lakhs

Directions (41-45) : The bar diagram given below shows the productions (in the unit of thousand pieces) of three types of biscuits by a company in the five consecutive years. Study the diagram and answer the following questions.

(SSC CHSL DEO & LDC Exam.
 11.12.2011 (1st Sitting (Delhi Zone)



41. The percentage drop in the number of glucose biscuits manufactured from 1994 to 1995 is

- (1) 10% (2) 15%
 (3) 25% (4) 20%

42. The difference (in the unit of thousand pieces) between the total number of cream cracker biscuits manufactured in the years 1993, 1995 and 1997 and the total number of the biscuits of same type in the years 1994 and 1996 is

- (1) 15 (2) 25
 (3) 30 (4) 20

43. Total production of all the three types of biscuits was the least in the year

- (1) 1993 (2) 1997
 (3) 1996 (4) 1995

44. The production of all the three types of biscuits was maximum in the year

- (1) 1995 (2) 1994
 (3) 1996 (4) 1993

45. The ratio of production of glucose biscuits and total production of biscuits in that year was maximum in

- (1) 1994 (2) 1993
 (3) 1996 (4) 1997

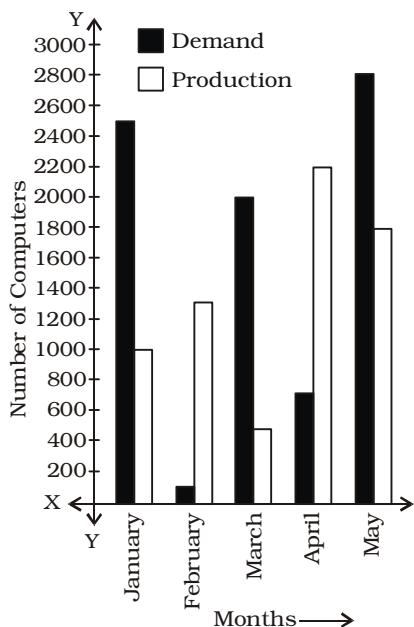
Directions (46-50) : Read the graph and answer the following questions.

(SSC CHSL DEO & LDC Exam.

11.12.2011 (1st Sitting (East Zone)

Demand and production of computers of a company for five months of 2007.

(Scale : 1 unit = 1 cm)



46. Which month has least demand of computers relative to production ?

- (1) January (2) April
 (3) May (4) February

47. What per cent of the demand of computers for the month of March is the demand of computers for the month of February ?

- (1) 5% (2) 10%
 (3) 7.5% (4) 15%

48. The production of computers in April is approximately how many times that of production in January ?

- (1) 2.2 (2) 1.8
 (3) 1.4 (4) 2.6

49. What is the difference between average demand and average production of computers of the five months taken together ?

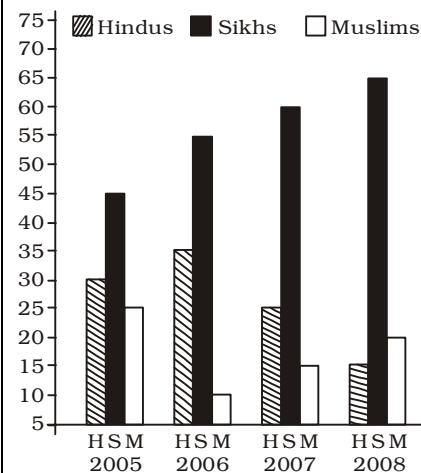
- (1) 400 (2) 700
 (3) 540 (4) 260

50. What is the ratio of the month having more demand than production to those having more production than demand ?

- (1) 4 : 1 (2) 2 : 3
 (3) 3 : 2 (4) 1 : 4

Directions (51-54) : The following diagram shows the percentage of population of Hindus, Sikhs and Muslims with respect to total population in a town during 2005 to 2008. Study the diagram and answer the questions :

(SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (IIInd Sitting)



STATISTICS AND DATA INTERPRETATION

- 51.** If the total population in 2007 was 80 lakh, then the number of Hindus in 2007 was (in lakh)

(1) 25 (2) 16
(3) 18 (4) 20

- 52.** Percentage decrease in Hindu population from 2005 to 2008 is

(1) 50% (2) 40%
(3) 25% (4) 15%

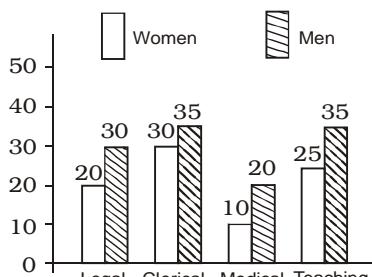
- 53.** Difference of percentage of population of Hindus in 2005 and 2008 is

(1) 20% (2) 15%
(3) 25% (4) 30%

- 54.** If the total number of Hindus in 2008 was 12 lakh, the number of Muslims in 2008 was (in lakh)

(1) 18 (2) 12
(3) 24 (4) 16

- 55.** Given below is a graph which shows the different occupations of men and women. The occupation that has larger proportion of women compared to the other three jobs is



(1) Clerical (2) Teaching
(3) Medical (4) Legal

(SSC Multi-Tasking Staff Exam. 17.03.2013, 1st Sitting)

On-line Shopping

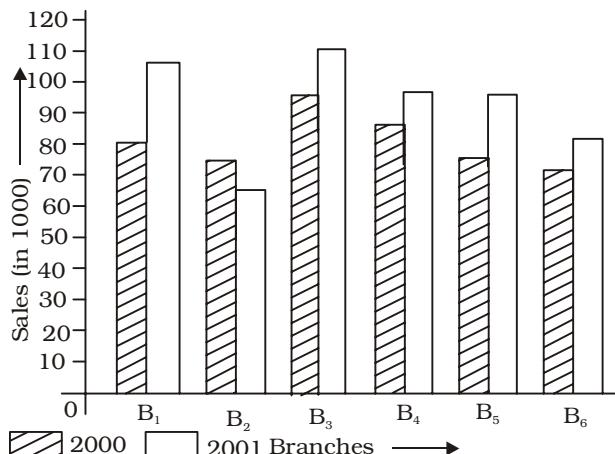
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Directions (56-59) : Bar-chart showing the Sales of Books (in 1000) from six-branches B_1 , B_2 , B_3 , B_4 , B_5 and B_6 of a Publishing Company in 2000 and 2001 is given below. Study the chart and answer the questions.

(SSC FCI Assistant Grade-III Main Exam. 07.04.2013)



- 56.** Total sales of branch B_6 for both the years is what percent of the total sales of branch B_3 for both the years?

(1) 71.11% (2) 73.17%
(3) 68.54% (4) 77.26%

- 57.** What is the ratio of the total sales of branch B_2 for both the years to the total sales of branch B_4 for both years?

(1) 2 : 3 (2) 3 : 5
(3) 5 : 7 (4) 7 : 9

- 58.** What percent of the average sales of branches B_1 , B_2 and B_3 in 2001 is the average sales of branches B_1 , B_3 and B_6 in 2000?

(1) 87.5% (2) 75%
(3) 77.5% (4) 85%

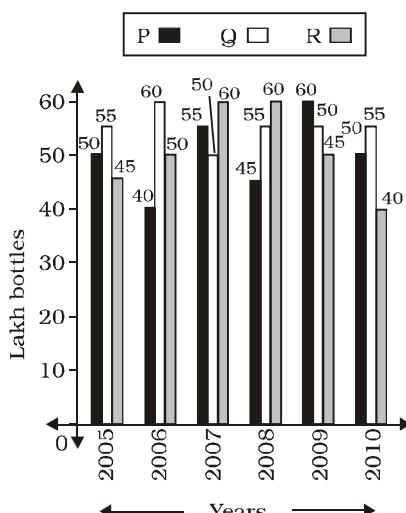
- 59.** What is the average sale of books from all the branches for the year 2000?

(1) 70 (2) 80
(3) 70.5 (4) 80.5

Directions (60-64) : A health drink company prepares the drink of three different flavours P, Q, R. The production of three flavours over a period of six years has been expressed on bar graph provided below. Study the graph and answer the questions.

(SSC Graduate Level Tier-I Exam. 21.04.2013) & (SSC CAPFs SI & CISF ASI Exam. 23.06.2013)

(Production of 3 different flavours of health drinks of a company in 6 years (in Lakh) bottles)



- 60.** In which of the following years the percentage of rise or fall in production from the previous year is maximum for the flavour of Q?

(1) 2007 (2) 2009
(3) 2010 (4) 2006

- 61.** The percentage of the total production of flavour R in 2007 and 2008 with respect to the production of flavour P in 2005 and 2006 is :

(1) 102.25% (2) 115.35%
(3) 133.33% (4) 97.67%

- 62.** The average annual production of which flavour was maximum in the given period?

(1) P and Q both
(2) Q only
(3) P and R both
(4) P only

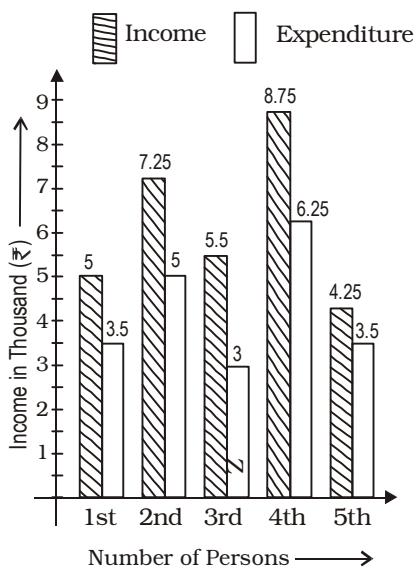
STATISTICS AND DATA INTERPRETATION

- 63.** What was the approximate decline in the production of flavour R in 2010 as compared to the production of 2008 in percentage ?
 (1) 43.33% (2) 33.33%
 (3) 30.33% (4) 53.33%

- 64.** What is the difference between the average production of flavour Q in 2008, 2009 and 2010 from that of flavour P in 2005, 2006 and 2007 (in lakh bottles) ?
 (1) 50 (2) 0.5
 (3) 5.5 (4) 5

Directions (65-66) : In the following questions, a graphical representation of income and expenditure of 5 persons during the month of January has been given. Read the graph and answer the questions.

(SSC Constable (GD)
Exam. 12.05.2013)

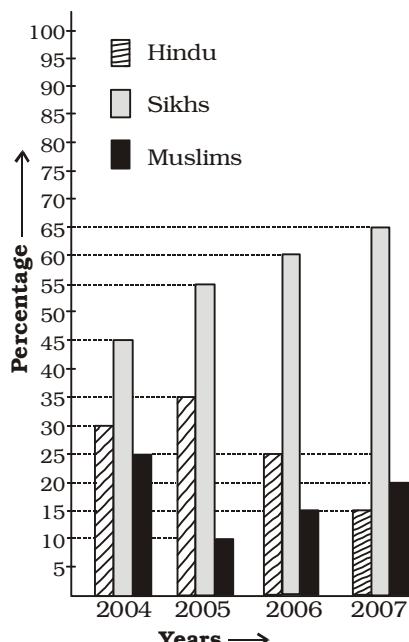


- 65.** What is the average income of five persons per month ?
 (1) ₹ 5775 (2) ₹ 6000
 (3) ₹ 6150 (4) ₹ 6250

- 66.** What is the income range of the persons ?
 (1) ₹ 3000 (2) ₹ 3250
 (3) ₹ 3750 (4) ₹ 4500

Directions (67-69) : The following bar diagram shows the percentage of Hindus, Sikhs and Muslims in a state during the years from 2004 to 2007. Examine the bar diagram and answer the following questions.

(SSC Graduate Level Tier-I
Exam. 19.05.2013 Ist Sitting)



Study the above bar diagram and answer the questions.

- 70.** The percentage of students in Science faculty in 2001- 2002 is
 (1) 30.2% (2) 26.9%
 (3) 27.8% (4) 29.6%

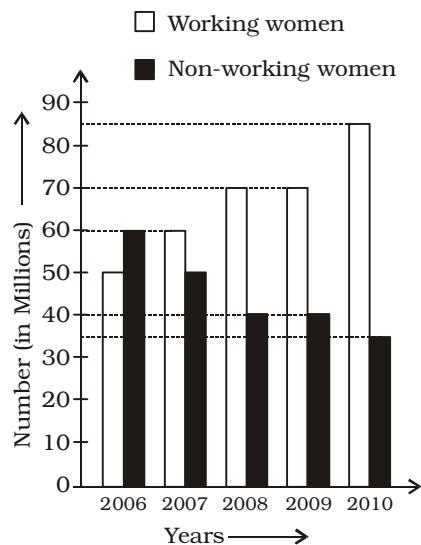
- 71.** The percentage of students in Law faculty in 2003-04 is
 (1) 14.8% (2) 18.5%
 (3) 15.6% (4) 16.7%

- 72.** Percentage of increase in Science students in 2003-04 over 2001-2002 is
 (1) 75% (2) 50%
 (3) 150% (4) $66\frac{2}{3}\%$

Directions (73-77) : Study the following multiple bar graph carefully and answer the questions

(SSC CHSL DEO & LDC Exam.
28.10.2012, 1st Sitting)

Survey of the number of working and non-working women over the years.



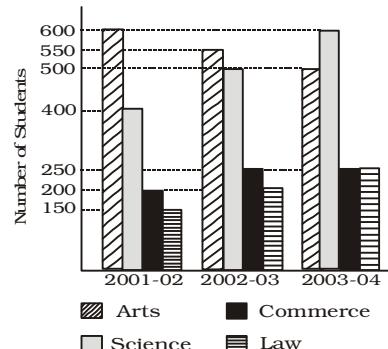
- 67.** The ratio between the Hindu and Sikh population in 2004 was
 (1) 3 : 5 (2) 1 : 2
 (3) 2 : 3 (4) 3 : 4

- 68.** If the total population of the state in 2004 was 5 lakhs, then the Hindu and Muslim population in that year was
 (1) 200000 (2) 275000
 (3) 250000 (4) 225000

- 69.** If the total population of the state in 2005 was 5 million, then the Hindu population was [1 million = 10,00,000]
 (1) 2000000 (2) 1250000
 (3) 1500000 (4) 1750000

Directions (70-72) : Shown below is the multiple bar diagram depicting the changes in the roll strength of a college in four faculties from 2001-02 to 2003-04.

(SSC Graduate Level Tier-I
Exam. 19.05.2013 Ist Sitting)



- 73.** The number of non-working women in the year 2010 was approximately (correct up to an integer) what per cent of total number of working as well as non-working women in that year ?
 (1) 23% (2) 25%
 (3) 29% (4) 31%

- 74.** What is the ratio of numbers of working women to the non-working women in the year 2009 ?
 (1) 7 : 4 (2) 4 : 7
 (3) 2 : 3 (4) 3 : 2

STATISTICS AND DATA INTERPRETATION

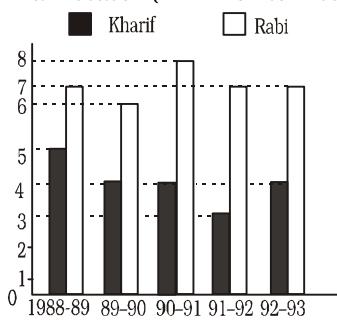
- 75.** What is the ratio of the number of women working in the year 2006 to the number of women working in the year 2010 ?
 (1) 5 : 17 (2) 17 : 5
 (3) 17 : 10 (4) 10 : 17

- 76.** In which year was the difference between the number of working and non-working women the highest?
 (1) 2007 (2) 2008
 (3) 2009 (4) 2010

- 77.** In which year or years, the difference between the number of working and non-working women the lowest ?
 (1) 2006 and 2007
 (2) 2007 and 2008
 (3) Only 2006
 (4) Only 2007

- 78.** The average Kharif production of the given years is

Production of pulses in Rabi and Kharif season (in million tonnes)



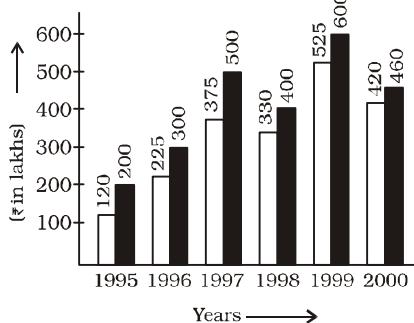
- (1) 4 million tonnes
 (2) 5 million tonnes
 (3) 4.5 million tonnes
 (4) 5.5 million tonnes

(SSC Graduate Level Tier-II Exam. 29.09.2013)

Directions (79-80) : Study the following graph and answer the given questions

(SSC CHSL DEO & LDC Exam. 27.10.2013 IIInd Sitting)

- Amount (₹ in lakhs) invested in raw materials
 ■ Value (₹ in lakhs) of sales of finished goods

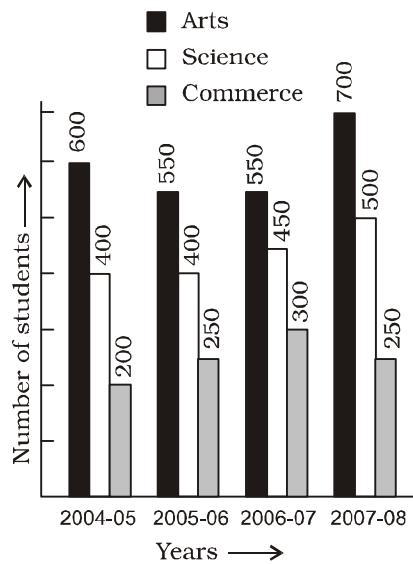


- 79.** In which year, there has been a maximum percentage increase in the amount invested in raw materials as compared to the previous year ?
 (1) 1996 (2) 1997
 (3) 1998 (4) 1999

- 80.** What was the difference between the average amount invested in raw materials during the given period and the average value of sales of finished goods during this period ?
 (1) ₹ 62.5 lakhs (2) ₹ 68.5 lakhs
 (3) ₹ 71.5 lakhs (4) ₹ 77.5 lakhs

Directions (81-82) : Student's strength of a college in Arts, Science and Commerce from 2004-05 to 2007-08 sessions are shown in the following bar graph. Study the graph and answer the questions.

(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)



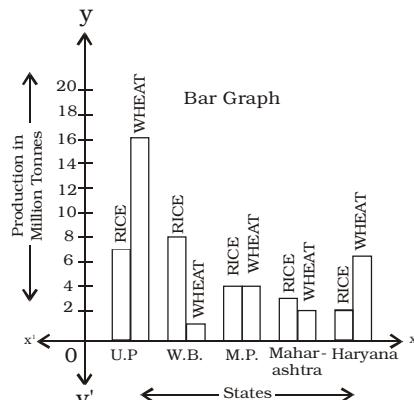
- 81.** The ratio of average number of students in Arts to the average number of students in Commerce is

- (1) 12 : 5 (2) 10 : 7
 (3) 7 : 4 (4) 48 : 35

- 82.** The % increase in Science students in 2007-08 over 2006-07 was
 (1) 10.1% (2) 11.1%
 (3) 16.7% (4) 18.2%

Directions (83-87) : Read the bar graph given below and answer the questions.

FCI Assistant Grade-III Exam. 05.02.2012 (Paper-I) East Zone (IIInd Sitting)



- 83.** Which of the above states is least producer of wheat ?

- (1) Maharashtra (2) W.B.
 (3) M.P. (4) Haryana

- 84.** Which of the above states is the largest producer of rice ?

- (1) U.P. (2) W.B.
 (3) M.P. (4) Haryana

- 85.** What fraction of rice is produced by Haryana of the total production of rice by all the above States?

- (1) $\frac{1}{8}$ (2) $\frac{1}{12}$
 (3) $\frac{1}{4}$ (4) $\frac{1}{6}$

- 86.** In which of the above states the total production of rice and wheat is the least ?

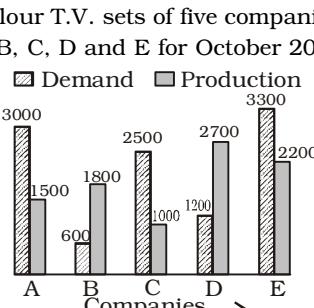
- (1) W.B. (2) M.P.
 (3) Maharashtra (4) Haryana

- 87.** Which of the above States is the largest producer of wheat ?

- (1) M.P. (2) Haryana
 (3) Maharashtra (4) U.P.

Directions (88-92) : Study the graph and answer the following questions.

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IIInd Sitting (East Zone)) Demand and Production of Colour T.V. sets of five companies A, B, C, D and E for October 2006



- 88.** What percent of the demand of company C is that of the company B ?

- (1) 14% (2) 20%
 (3) 24% (4) 26%

STATISTICS AND DATA INTERPRETATION

89. What is the difference between average demand and average production of the companies taken together ?

- (1) 1400 (2) 400
 (3) 280 (4) 138

90. The average production of the companies A, B, C and that of the companies D, E are in the ratio :

- (1) 85 : 147 (2) 86 : 147
 (3) 86 : 149 (4) 87 : 149

91. What is the ratio of companies having more demand than production to those having more production than demand ?

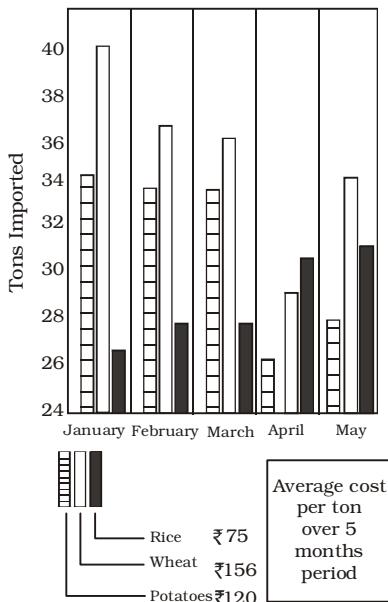
- (1) 2 : 3 (2) 4 : 1
 (3) 1:4 (4) 3 : 2

92. How many times of the production of company A is that of the company D ?

- (1) 1.4 (2) 1.5
 (3) 1.8 (4) 2.5

Directions (93-94) : The following Bar Diagram depicts figures for some agricultural imports from January-May, 2008. Answer (as closely as possible) the questions using the data provided here

(SSC Multi-Tasking Staff Exam. 24.03.2013, 1st Sitting)
 Agricultural Imports - January to May



93. What is the average cost of potato import in February and March?

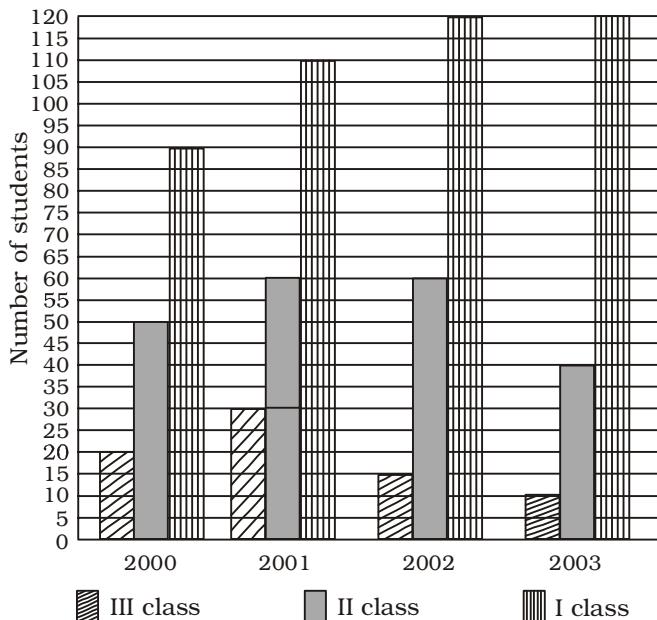
- (1) ₹ 3,960 (2) ₹ 5,960
 (3) ₹ 1,280 (4) ₹ 4,440

94. What was the total cost (in ₹) of wheat import in March?

- (1) ₹ 3,212 (2) ₹ 5,616
 (3) ₹ 7,042 (4) ₹ 2,224

Directions (95-98) : The graph shows the result of 10th class students of a school for 4 years. Study the graph and answer the questions :

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)



95. The number of students appeared for the 10th class exam in the year 2002 is

- (1) 180 (2) 195
 (3) 200 (4) 120

96. The percentage increase of first class in the year 2003 over the year 2002 is approximately

- (1) 12% (2) 0%
 (3) 10% (4) 9%

97. The year in which the maximum number of students appeared for the 10th class exam is

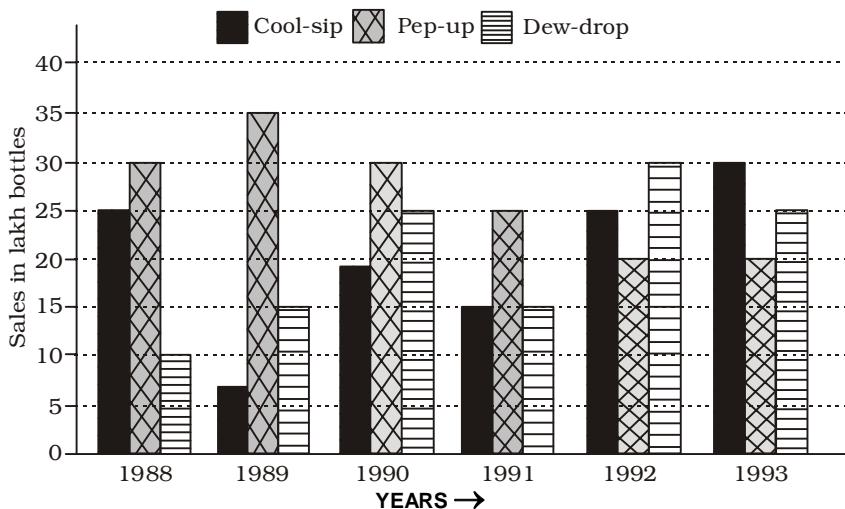
- (1) 2001 (2) 2002
 (3) 2003 (4) 2000

98. The ratio of students who scored second class to the total students appeared in the year 2000 is

- (1) 3 : 16 (2) 4 : 17
 (3) 5 : 16 (4) 11 : 16

Directions (99-104) : Study the graph and answer the questions.

(SSC CGL Tier-I Exam. 19.10.2014)
 (1st Sitting)



STATISTICS AND DATA INTERPRETATION

- 99.** In which year the sale of cool-sip is minimum ?
 (1) 1990 (2) 1992
 (3) 1993 (4) None of the above

- 100.** In case of which soft drink was the average annual sale maximum during the period 1988-1993 ?
 (1) Pep-up only
 (2) Pep-up and Dew-drop
 (3) Cool-sip only
 (4) Cool-sip and Pep-up

- 101.** What was the approximate percent drop in the sale of Pep-up in 1990 over its sale in 1989 ?
 (1) 5 (2) 14
 (3) 12 (4) 20

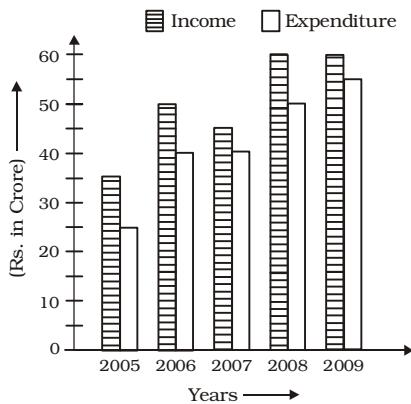
- 102.** What was the approximate percent increase in sales of Cool-sip in 1990 over its sales in 1989 ?
 (1) 100 (2) 50
 (3) 171 (4) 150

- 103.** In which year sale of Dew-drop is maximum ?
 (1) 1988 (2) 1992
 (3) 1989 (4) 1993

- 104.** In case of which soft drink was the average annual sale minimum during the period 1988-1993 ?
 (1) Pep-up only
 (2) Cool-sip only
 (3) Dew-drop only
 (4) Dew-drop and Cool-sip

Directions (105-108) : Study the following graph which shows income and expenditure of a company over the years and answer the questions.

(SSC CGL Tier-I Exam. 19.10.2014)



- 105.** The difference in profit (in Rs. crores) of the company during 2007 and 2008 is
 (1) 5 (2) 10
 (3) 15 (4) 20

- 106.** In how many years was the expenditure of the company more than the average expenditure of the given years ?

- (1) 4 (2) 3
 (3) 2 (4) 1

- 107.** The percentage increase in income of the company from 2007 to 2008 is

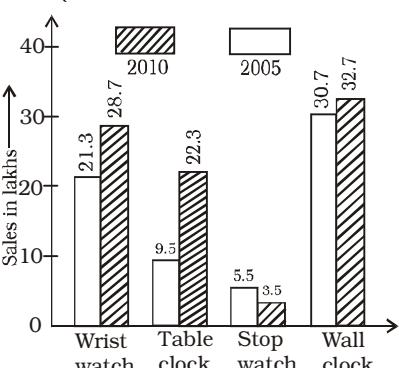
- (1) 30 (2) 25
 (3) $33\frac{1}{3}$ (4) $42\frac{6}{7}$

- 108.** Ratio of total income to total expenditure of the company over the years is

- (1) 21 : 25 (2) 25 : 21
 (3) 26 : 21 (4) 25 : 22

Directions (109-113) : A watch company produces four different products. The sale of these products in lakhs during 2005 and 2010 are shown in the following bar diagram. Study the graph and answer the questions.

(SSC CGL Tier-II Exam. 21.09.2014)



- 109.** The sales in percentage of wrist watch in 2010 more than the sales of table clock in 2010 was nearly by

- (1) 26.7% (2) 27.7%
 (3) 28.7% (4) 21.7%

- 110.** The ratio of sales of stop watch in 2010 to the sale of table clock in 2005 is

- (1) 6 : 19 (2) 7 : 6
 (3) 19 : 6 (4) 7 : 19

- 111.** The sales of table clock in 2005 was less than the sales of wall clock in 2005 is nearly by

- (1) 70.05% (2) 69.05%
 (3) 68.05% (4) 62.05%

- 112.** During the period 2005-2010 the minimum rate of increase in sales is in the product of
 (1) Wrist watch (2) Table clock
 (3) Stop watch (4) Wall clock

- 113.** The sales have increased by nearly 135% from 2005 to 2010 in the product of

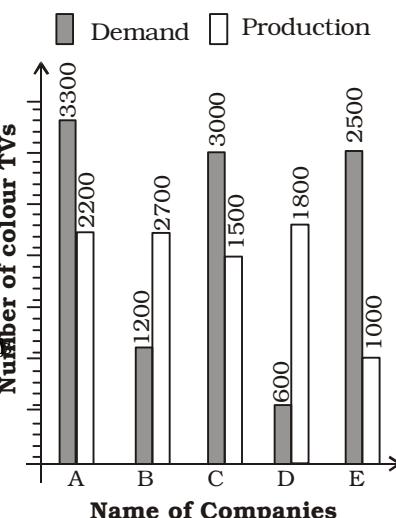
- (1) Table clock (2) Wrist watch
 (3) Stop watch (4) Wall clock

Directions (114-118) : Study the bar diagram and answer the following questions.

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

Demand and Production of colour TVs of five companies A, B, C, D and E.

(Number on the top of a bar is the number of colour



- 114.** The ratio of the number of companies having more demand than production to the companies having more production than demand, is

- (1) 2 : 3 (2) 4 : 1
 (3) 1 : 1 (4) 3 : 2

- 115.** The difference between average demand and average production of the five companies taken together is

- (1) 1400 (2) 400
 (3) 280 (4) 138

- 116.** The percentage of the demand of company D as compared to the demand of company E is

- (1) 12 (2) 24
 (3) 20 (4) 30

- 117.** The ratio of average demand to average production of companies B and D is

- (1) 1 : 5 (2) 2 : 5
 (3) 3 : 5 (4) 4 : 5

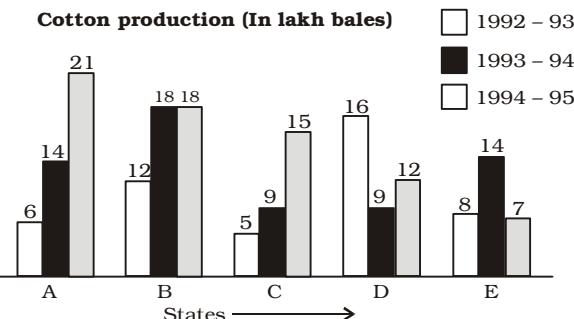
- 118.** The ratio of demand and production is maximum in factory

- (1) E (2) C
 (3) A (4) D

Directions (119-122) : Study the graph carefully and answer the following questions.

(SSC CHSL DEO & LDC Exam. 02.11.2014) (IInd Sitting)

STATISTICS AND DATA INTERPRETATION



119. The production of State D in 1993-94 is how many times its production in 1994-95 ?

- (1) 1.33 (2) 0.75
 (3) 0.56 (4) 1.77

120. Which of the following statement is false ?

- (1) State A and E showed the same production in 1993-94.
 (2) There was no improvement in the production of cotton in state B during 1994-95.
 (3) State A has produced maximum cotton during the given period.

(4) Production of state C and D together is equal to that of state B during 1993-94.

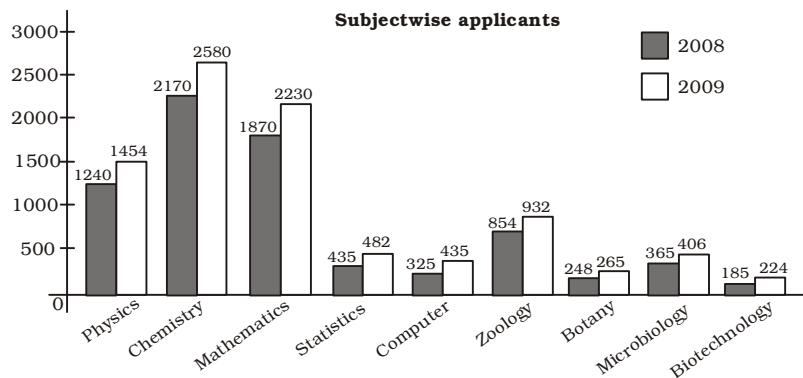
121. How many states showing below average production in 1992-93 showed above average production in 1993-94 ?

- (1) 4 (2) 2
 (3) 3 (4) 1

122. What is the average production of the four states in the year 1994-95 taken together ?

- (1) 12.3 (2) 14.6
 (3) 15.6 (4) 16.3

Directions (123-127) : The subjectwise number of applicants for the year 2008 and 2009 in a college is given in the following chart. Study the graph and answer the questions. (SSC CHSL DEO & LDC Exam. 02.11.2014) (IIInd Sitting)



CLEAR YOUR DOUBTS



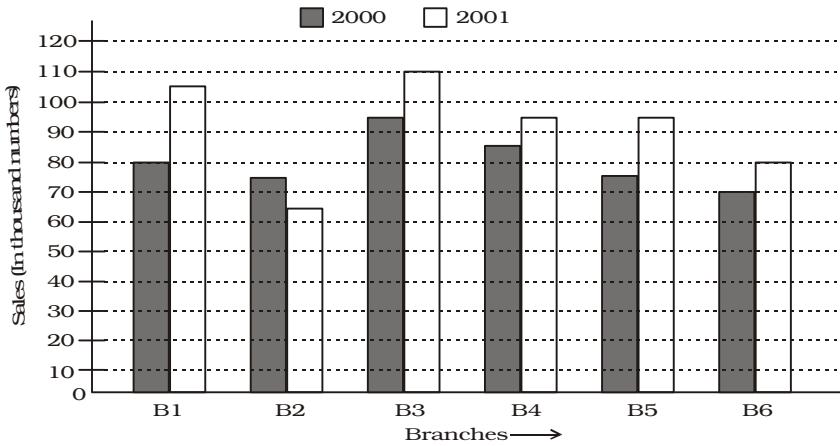
If you have any confusion/doubt regarding the published articles and other materials in the books and magazines of KIRAN PRAKASHAN, share it with us on



problems@kiranprakashan.com

Directions (128 – 131) : Sales of Books (in thousand numbers) from Six Branches – B1, B2, B3, B4, B5 and B6 of a publishing Company in 2000 and 2001. Study the graph and answer the questions.

(SSC CHSL DEO & LDC Exam. 9.11.2014)



STATISTICS AND DATA INTERPRETATION

- 128.** Total sale of branches B1, B3 and B5 together for both the years (in thousand) is
 (1) 250 (2) 310
 (3) 435 (4) 560

- 129.** Find the ratio of the total sales of branch B2 for both years to the total sales of branch B4 for both years.
 (1) 2 : 3 (2) 3 : 5
 (3) 4 : 5 (4) 7 : 9

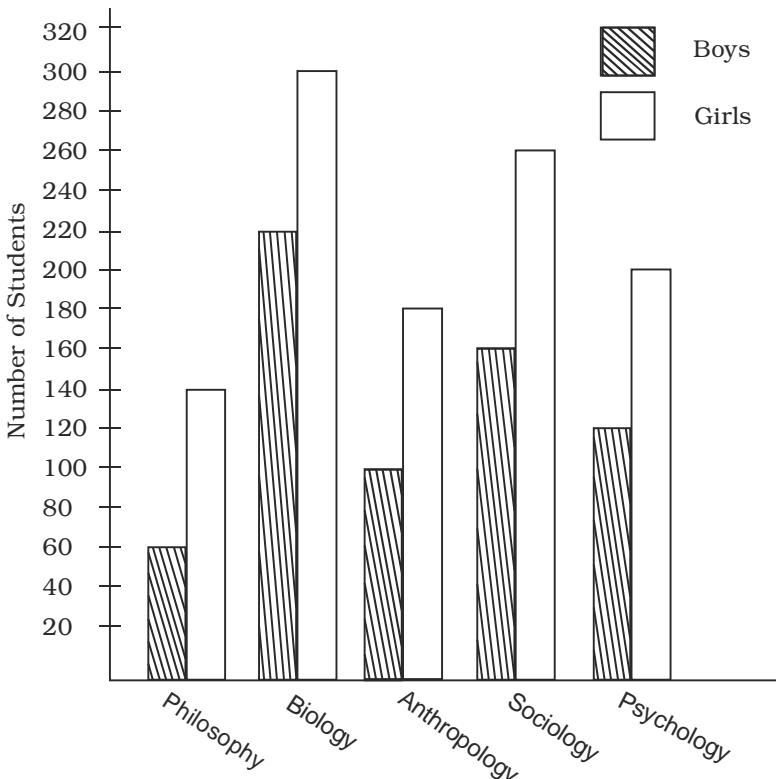
- 130.** The average sale of branches B1, B3 and B6 in 2000 is what percent of the average sale of branches B1, B2 and B3 in 2000?
 (1) 87.5 (2) 75
 (3) 77.5 (4) 82.5

- 131.** Find the percentage increase in the sales of books of branch B3 in the year 2001 than the branch B2.
 (1) 69.2 (2) 50.8
 (3) 40.9 (4) 65.7

Directions (132 - 136) : Study the bar diagram and answer the questions.

(SSC CHSL DEO & LDC Exam. 16.11.2014)

Total number of boys and girls in five different departments of a college



- 132.** The percentage of the girls from Biology Department compared to the total number of girls from all the other Departments together is
 (1) $37\frac{1}{2}$ (2) 37
 (3) $36\frac{1}{2}$ (4) $35\frac{1}{2}$

- 133.** The difference between the total number of boys and the total number of girls from all the Departments together is

- (1) 540 (2) 520
 (3) 460 (4) 440

- 134.** The average number of boys from all the departments together is
 (1) 123 (2) 132
 (3) 134 (4) 142

- 135.** The percentage of the boys from Biology Department compared to the total number of boys from all the Departments together is

- (1) $33\frac{1}{2}$ (2) 50

- (3) $33\frac{1}{3}$ (4) 30

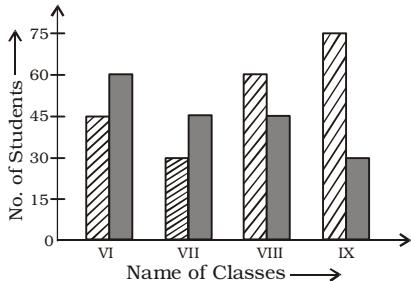
- 136.** The respective ratio of number of girls from Philosophy Department to the number of girls from Psychology Department is
 (1) 7 : 11 (2) 11 : 7
 (3) 7 : 10 (4) 6 : 11

Directions (137 – 141) : Study the double bar graph given below and answer the questions.

(SSC CHSL DEO Exam. 02.11.2014
(1st Sitting)

: No. of students participating in the school exhibition in the year 2013

: No. of students participating in the cultural events of school in the year 2013 of a particular school



- 137.** The class having maximum number of participants in exhibition is

- (1) Class IX (2) Class VIII
 (3) Class VII (4) Class VI

- 138.** The average of the number of students participating in cultural events is

- (1) 48.75 (2) 52.5
 (3) 45 (4) 50

- 139.** The average of the number of students participating in exhibition is

- (1) 48.75 (2) 52.5
 (3) 45 (4) 50

- 140.** The ratio of the participants in exhibition of class IX with the total participants of class IX is

- (1) 5 : 7 (2) 5 : 14
 (3) 1 : 4 (4) 3 : 5

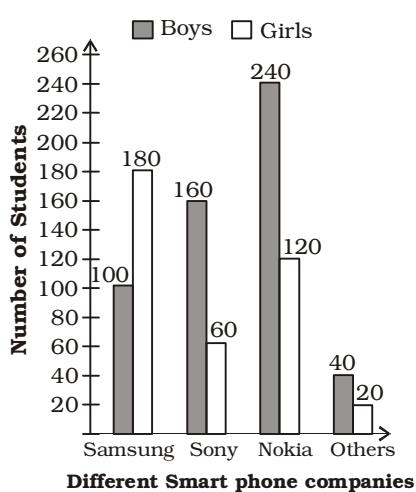
- 141.** The percentage of students of class VIII participating in cultural event out of total participants of cultural event is

- (1) 30% (2) 25%
 (3) 35% (4) 40%

STATISTICS AND DATA INTERPRETATION

Directions (142-145) : The following bar chart represents the number of first year B. Com. students of St Xavier's College using different companies' smart phones. Study bar chart and answer the questions.

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014
TF No. 999 KPO)



The bar chart representing the number of students using different smart phones.

142. The ratio of the number of boys to the number of girls using the smart phones of Samsung and Sony together is

- (1) 12 : 13 (2) 13 : 12
(3) 14 : 11 (4) 11 : 14

143. What percentage of boys are using the smart phones of Samsung?

- (1) 16.52% (2) 17.52%
(3) 18.52% (4) 15.52%

144. What percentage of girls are using the smart phones of Nokia?

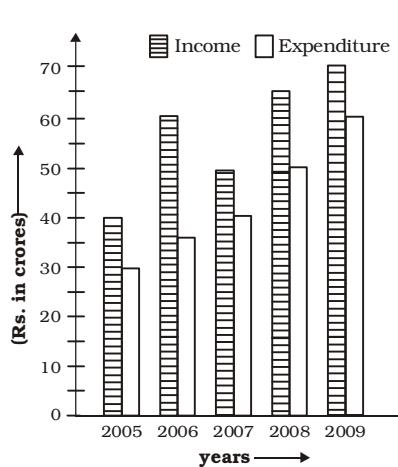
- (1) 33.58% (2) 32.58%
(3) 30.58% (4) 31.58%

145. The difference between the total number of students using smart phones of Samsung combined together and the total number of students using smart phones of Sony taken together is

- (1) 20 (2) 60
(3) 80 (4) 40

Directions (146-149) : Study the following graph which shows income and expenditure of a company over the years 2005 – 2009 and answer the questions.

(SSC CGL Tier-I Exam. 19.10.2014
TF No. 022 MH 3)



146. The difference in profit (Rs. in crores) of the company during 2006 and 2007 is

- (1) 10 (2) 15
(3) 20 (4) 25

147. In how many years was the income of the company less than the average income of the given years?

- (1) 4 (2) 3
(3) 2 (4) 1

148. The percentage increase in expenditure of the company from 2007 to 2008 is

- (1) 20 (2) 25
(3) 30 (4) 35

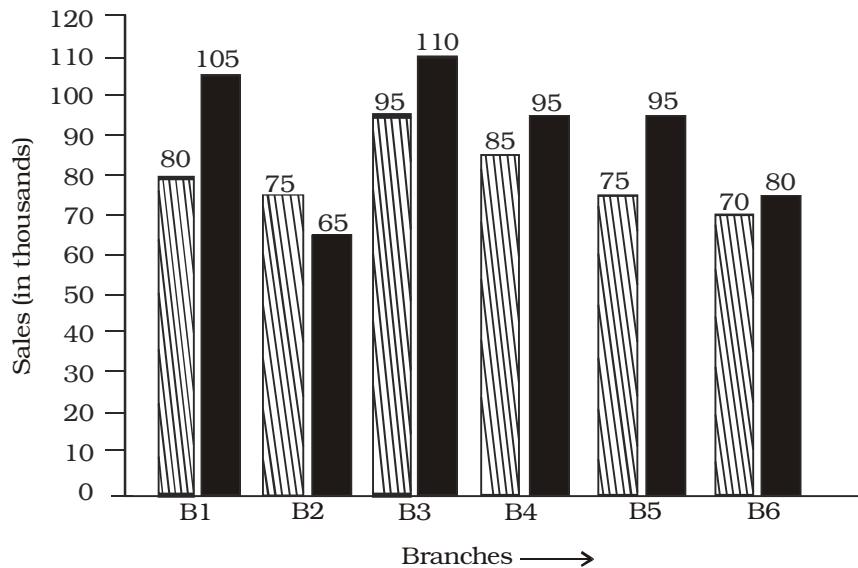
149. Profit of the company was maximum in the year

- (1) 2009 (2) 2008
(3) 2006 (4) 2005

Directions (150 - 154) : In the following bar diagram sales of books (in thousand numbers) from six branches – B1, B2, B3, B4, B5 and B6 of a publishing company in 2009 and 2010 have been shown. Study the graph and answer the questions.

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IInd Sitting (TF No. 545 QP 6)

2009 2010



150. The ratio of the total sales of branch B2 for both the years to the total sales of branch B4 for both the years is

- (1) 7 : 9 (2) 2 : 3
(3) 4 : 5 (4) 3 : 5

151. Total sales of branch B6 for both the years is x per cent of the total sales of branch B3 for both the years. The value of x is

- (1) 68.54% (2) 73.17%
(3) 71.11% (4) 75.55%

152. $x\%$ of the average sales of branches B1, B2 and B3 in 2010 is the average sales of branches B1, B3 and B6 in 2009. The value of x is

- (1) 77.5% (2) 87.5%
(3) 82.5% (4) 75%

153. The average sales of all the branches for the year 2009 is

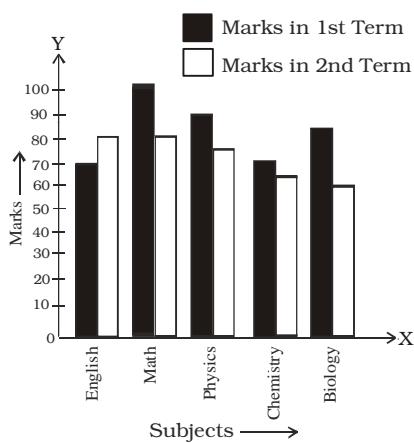
- (1) 73 (2) 83
(3) 80 (4) 88

STATISTICS AND DATA INTERPRETATION

- 154.** Total sales of branches B1, B3 and B5 together for both the years is
 (1) 250 (2) 310
 (3) 435 (4) 560

Directions (155 – 158) : Study the bar diagram and answer the given questions.

(SSC CGL Tier-II Exam, 12.04.2015
 (TF No. 567 TL 9)

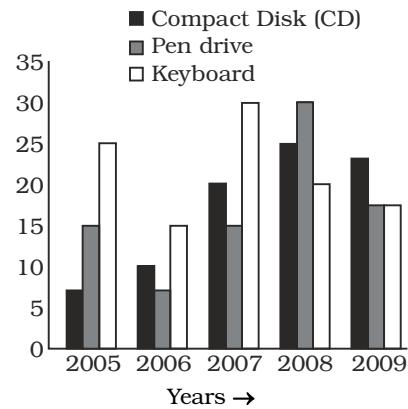


- 155.** Ratio of highest and lowest marks obtained in first term among all the subjects is
 (1) 7 : 9 (2) 9 : 7
 (3) 10 : 7 (4) 7 : 10

- 156.** Average marks obtained by the students for all subjects in second term is
 (1) 65 (2) 73
 (3) 62 (4) 72

Directions (157–161): Study the following graph which shows the production (in thousand) of different items, and answer the questions.

(SSC CGL Tier-II Exam, 2014 12.04.2015
 (Kolkata Region)
 (TF No. 789 TH 7)



- 157.** The total number of all products produced by the company in the year 2006 and 2008 together is
 (1) 107500 (2) 105700
 (3) 10750 (4) 1075

- 158.** The average number of pendrives produced by the company over all the years together is
 (1) 1700 (2) 170000
 (3) 17000 (4) 85000

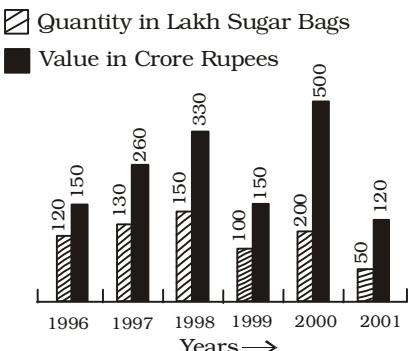
- 159.** The difference between the total number of CD and pen-drives produced by the company together in the year 2008 and the number of keyboards produced by the company in the year 2006 is
 (1) 3500 (2) 35000
 (3) 4000 (4) 40000

- 160.** The ratio between the number of keyboards produced by the company in the year 2006, 2007 and 2008 respectively is
 (1) 1 : 2 : 3 (2) 3 : 4 : 5
 (3) 3 : 6 : 4 (4) 3 : 4 : 6

- 161.** The respective ratio between the number of CDs produced by the company in the year 2009 and the number of keyboards produced by the company in the year 2005 is
 (1) 9 : 10 (2) 11 : 10
 (3) 10 : 9 (4) 10 : 11

Directions (162–165) : Study the bar diagram and answer the questions.

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015
 (Ist Sitting) (TF No. 8037731)



- 162.** Percentage fall in value from 2000 to 2001 is

- (1) 25% (2) 50%
 (3) 75% (4) 40%

- 163.** The difference between the bags exported in 1999 and 2000 was
 (1) 1,00,000,00
 (2) 1,50,000,00
 (3) 50,000,00
 (4) 2,00,000,00

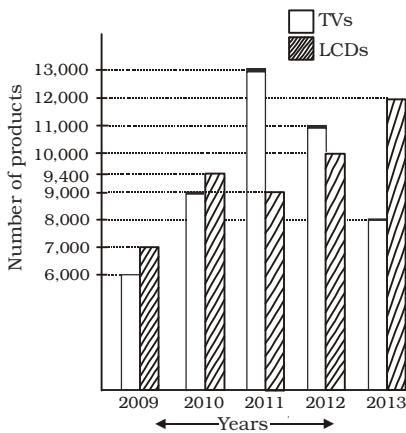
- 164.** Value per bag was minimum in the year
 (1) 2001 (2) 1999
 (3) 1996 (4) 1997

- 165.** The approximate percentage increase in quantity from 1997 to 1998 was
 (1) 26.9% (2) 27.8%
 (3) 26.5% (4) 27.3%

Directions (166–169) : Study the following bar diagram carefully and answer the following questions.

(SSC CGL Tier-I Exam, 09.08.2015
 (Ist Sitting) TF No. 1443088)

The number of the production of electronic items (TVs and LCDs) in a factory during the period from 2009 to 2013.



- 166.** The total number of products of electronic items is maximum in the year

- (1) 2009 (2) 2010
 (3) 2011 (4) 2013

- 167.** The ratio of production of LCDs in the year 2011 and 2013 is

- (1) 3 : 4 (2) 4 : 3
 (3) 2 : 3 (4) 1 : 4

- 168.** The difference between averages of production of TVs and LCDs from 2009 to 2012 is

- (1) 600 (2) 700
 (3) 800 (4) 900

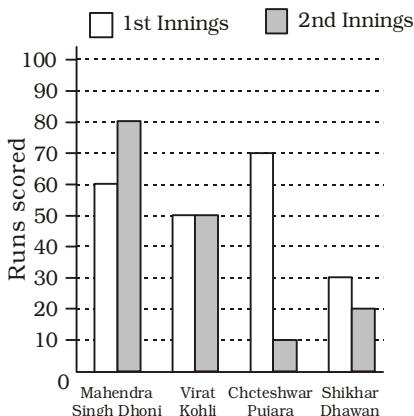
- 169.** The ratio of production of TVs in the years 2009 and 2010 is

- (1) 7 : 6 (2) 6 : 7
 (3) 2 : 3 (4) 3 : 2

STATISTICS AND DATA INTERPRETATION

Directions (170 – 173) : Given here is a multiple bar diagram of the scores of four players in two innings. Study the diagram and answer the questions.

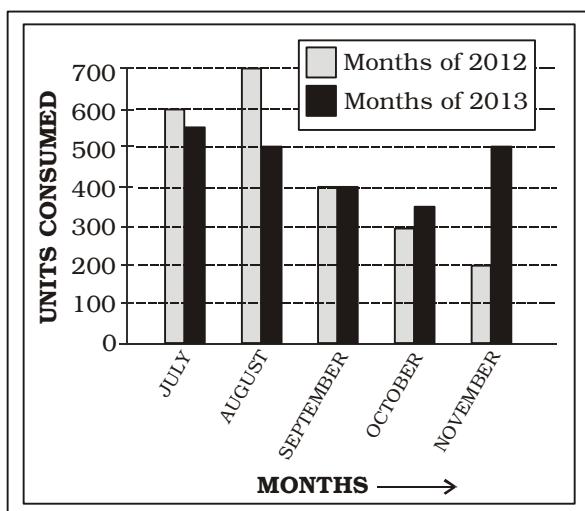
(SSC CGL Tier-I Exam, 16.08.2015
(Ist Sitting) TF No. 3196279)



Directions (174–177) : Study the following bar-diagram and answer the questions.

(SSC CGL Tier-I Exam, 16.08.2015 (IIInd Sitting) TF No. 2176783)

**Electricity units consumed by a family in two consecutive years during
July to November.**



- 174.** In how many months in 2012, the consumption of electric units was more than the average units consumption in that year ?

(1) 4 (2) 5
(3) 2 (4) 3

175. The average electric consumption by the family during these 5 months in 2013 is

(1) 470 units (2) 400 units
(3) 440 units (4) 450 units

- 170.** The average runs of two innings of the player who scored highest in average are :

(1) 70 (2) 80
(3) 85 (4) 75

171. The average runs in two innings of the player who has scored minimum in the second innings are:

(1) 30 (2) 60
(3) 50 (4) 40

172. The total scores in the first innings contributed by the four players is :

(1) 190 (2) 210
(3) 220 (4) 200

173. The average score in second innings contributed by the four players is :

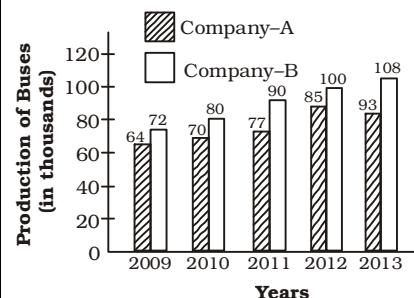
(1) 40 (2) 50
(3) 30 (4) 60

- decreased by 2.27%
 - found unaltered
 - increased by 2.22%

Directions (178–181): Study the following bar diagram carefully and answer the four questions.

(SSC CGL Tier-I
Re-Exam, 30.08.2015)

Production of buses of company A and company B over the given years.



- 178.** In which year for the company A the percentage increase of production of buses with respect to the previous year is maximum?

(1) 2010 (2) 2012
(3) 2011 (4) 2013

179. The average production (in thousand) of the company B over the years 2009, 2011, 2012 is

(1) 87.33 (2) 80.67
(3) 90.33 (4) 84

180. The average production (in thousand) of company A over the years 2010, 2011, 2012, 2013 is

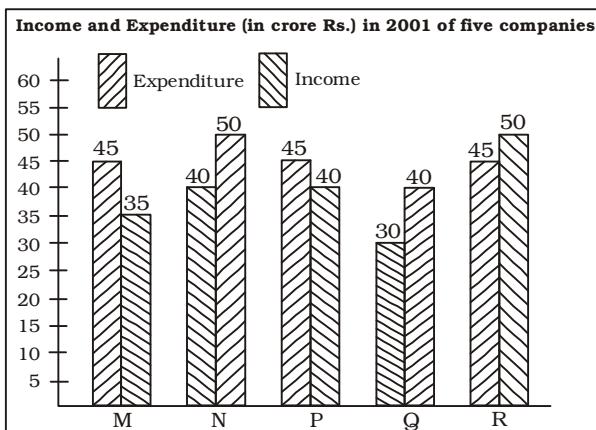
(1) 74 (2) 81.25
(3) 85.5 (4) 81

181. The ratio of the average production of company A in 2009 and 2010 to the average production of company B in the same years is
(1) 147 : 170 (2) 81 : 95
(3) 67 : 76 (4) 85 : 99

Directions (182 – 186) : Study the bar chart given below and answer the following questions :

(SSC CHSL (10+2) LDC, DEO
& PA/SA Exam, 15.11.2015
(Ist Sitting) TF No. 6636838)

STATISTICS AND DATA INTERPRETATION



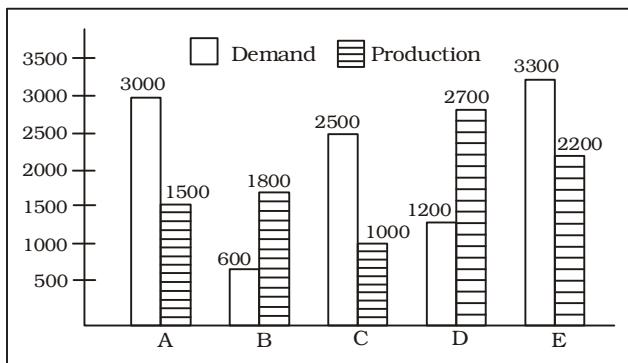
- 182.** In 2001, the approximate percentage of profit/loss of all the five companies taken together is equal to
 (1) 6.88% loss (2) 4.65% profit
 (3) 6.48% profit (4) 4% loss

183. If the income of company Q in 2001 was 10% more than that in 2000 and the company had earned a profit of 20% in 2000, then its expenditure in 2000 (in crores Rs.) was :
 (1) 34.34 (2) 28.28
 (3) 29.09 (4) 32.32

184. The company earning the maximum percentage of profit in the year 2001 is :

Directions (187-191) : The following chart represents Demand and Production for 5 companies ABCDE. On the basis of the graph answer the questions.

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IIInd Sitting) TF No. 7203752)



- (1) Q (2) M
 (3) N (4) P

185. The companies M and N together had a percentage of profit/loss of :
 (1) No loss and no profit
 (2) 12% loss (3) 10% loss
 (4) 10% profit

186. For company R, if the expenditure had increased by 20% in the year 2001 from the year 2000 and the company had earned profit of 10% in 2000, the company's income in 2000 was (in crore Rs.) :
 (1) 41.67 (2) 35.75
 (3) 37.25 (4) 38.5

- | Company | Production |
|---------|------------|
| D | 2700 |
| E | 3300 |
| A | 2200 |

- 190.** The difference between average demand and average production of the five companies taken together is :

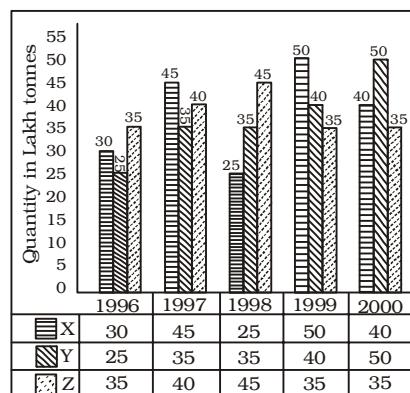
- (1) 400 (2) 280
 (3) 130 (4) 620

- 191.** The ratio of the number of companies having more demand than production to those having more production than demand is :

- (1) 4 : 1 (2) 2 : 2
 (3) 3 : 2 (4) 2 : 3

Directions (192-196) : The bar graph provided below gives the data of the production of paper (in lakh tonnes) by three different companies X, Y and Z over the years. Study the bar chart and answer the following questions.

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015
(Ist Sitting) TF No. 1375232)



- 192.** The percentage of production of company Z to the production of company Y is maximum in :
(1) 2000 (2) 1996
(3) 1999 (4) 1998

- 193.** The ratio of the average production of company X in the period 1998-2000 to the average production of company Y in the same period is :

- (1) 27 : 29 (2) 23 : 25
(3) 25 : 26 (4) 24 : 27

- years is maximum for which company?

- (1) X and Z (2) X
 (3) Z (4) Y

195. The percentage increase in the production of company Y from

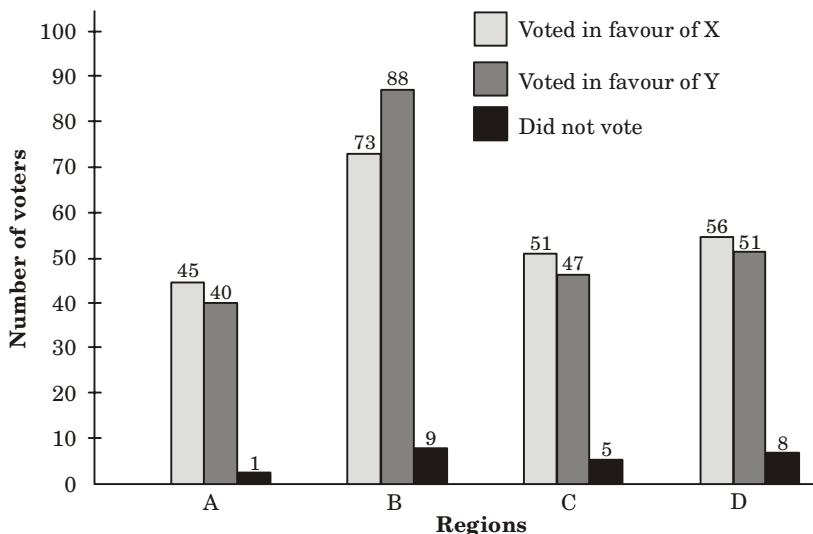
- 1996 to 1999 is :
 (1) 60% (2) 50%
 (3) 55% (4) 40%

- 196.** The difference between the production of company Z in 1998 and company Y in 1996 is :

STATISTICS AND DATA INTERPRETATION

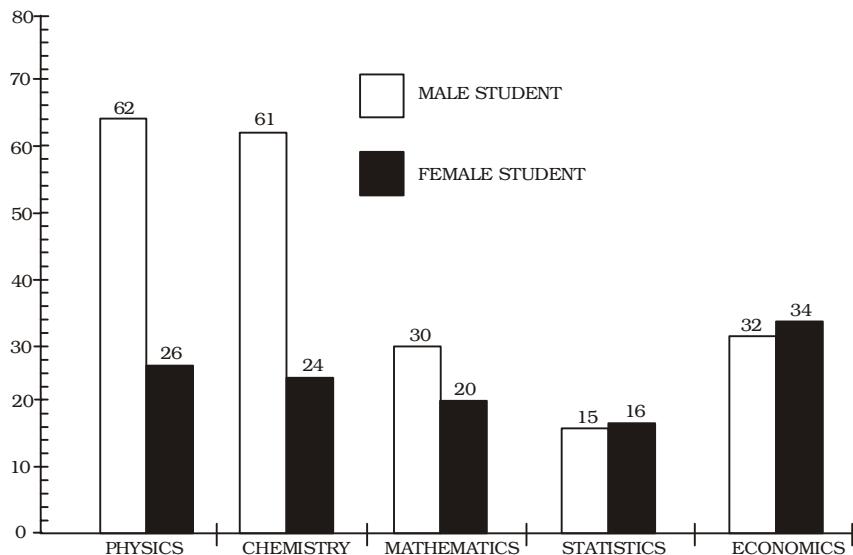
Directions (197–200) : A constituency is divided in four regions A, B, C and D. Two candidates X and Y contested the last election from that constituency. The adjoining graph gives the break-up of voting in the four regions. Study the graph and answer the following questions.

(SSC CGL Tier-I (CBE) Exam. 09.09.2016) (1st Sitting)



Directions (201–204) : The data given in Bar diagram relate to the department wise admission of 320 students to B.Sc. (Honours) first year classes of a certain college in the given five subjects. Study the graph and answer the questions.

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 20.03.2016) (IInd Sitting)



- 201.** The subject in which the difference in the number of male and female students is minimum is :
 (1) Economics (2) Physics
 (3) Statistics (4) Chemistry
- 202.** The difference of the choice of the subject between male and female students is maximum for the subject.

- (1) Physics (2) Statistics
 (3) Economics (4) Chemistry
- 203.** The total number of male students who got admitted in Mathematics and Economics as compared to the total number of female students getting admission in Mathematics and Economics is :

197. Approximately how much percent of voters voted in favour of X?
 (1) 45.4 (2) 47.5
 (3) 50 (4) 225

198. Approximately how much percent of voters did not caste their votes?
 (1) 4.9 (2) 4.5
 (3) 0.23 (4) 23

199. In region B, Y gets A% more votes than X. Find the value of A.
 (1) 24% (2) 21%
 (3) 19% (4) 15%

200. Nearly what percentage of his total votes did X receive from region B?
 (1) 30 (2) 31
 (3) 32 (4) 35

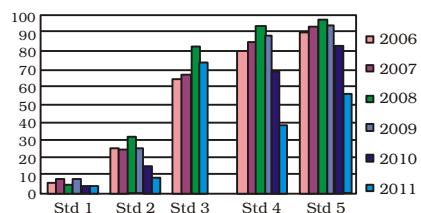
- (1) less by 17%
 (2) more by 4.2%
 (3) more by 14.8%
 (4) more by 12.8%

204. The subject which the female students are finding difficult as compared to other subjects is :
 (1) Statistics
 (2) Economics
 (3) Mathematics
 (4) Chemistry

Direction (205) : Study the following bar graph showing the percentage of children who can read at first grade level, grouped by their grade level in an Indian state.

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016) (Ist Sitting)

For example, in 2008, 82% of the children from Standard 3 could read a text from Standard 1. Now answer the following question based on this graph.



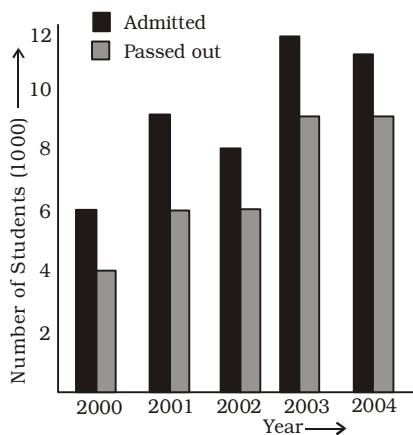
STATISTICS AND DATA INTERPRETATION

205. In the year 2010, what is the approximate value of average of all Std 1, 2, 3, 4, 5 children who could read the Std 1 text?

- (1) 49.2% (2) 57%
 (3) 33% (4) Data Insufficient

Direction (206–209) : The following figure shows the number of students (in thousands) admitted and passed out per year in a college during years 2000 to 2004. Study the figure and answer the questions.

(SSC CGL Tier-I (CBE) Exam. 29.08.2016) (IInd Sitting)



206. The percent increase in the number of students admitted in the year 2003 over that in 2001 is

- (1) 133.3 (2) 33.3
 (3) 40.3 (4) 66.7

207. During 2000 to 2003, the ratio of the total number of the students passed out to the total number of students admitted is

- (1) $\frac{17}{23}$ (2) $\frac{17}{6}$
 (3) $\frac{11}{23}$ (4) $\frac{5}{7}$

208. In which of the two years, the pass percentage of students was between 60 and 70 %?

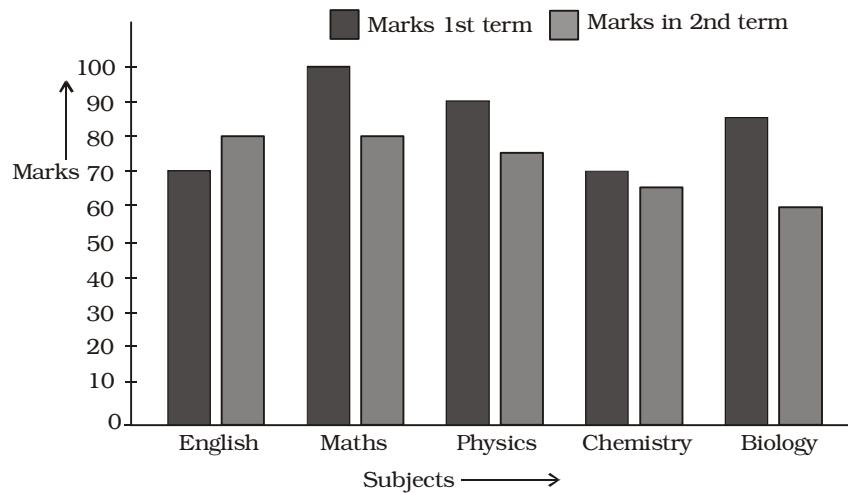
- (1) 2000 and 2001
 (2) 2003 and 2004
 (3) 2001 and 2002
 (4) None of these

209. The ratio of the number of students admitted in the year 2002 to the average of the number of students passed out in the years 2003 and 2004, is

- (1) 7 : 8 (2) 8 : 9
 (3) 9 : 8 (4) 8 : 7

Directions (210–213) : Study the bar diagram and answer the following questions.

(SSC CGL Tier-I (CBE) Exam. 30.08.2016) (Ist Sitting)



210. Average marks obtained in Physics for two terms is

- (1) 80.5 (2) 82.5
 (3) 72.5 (4) 83.5

211. Difference of marks obtained in both the terms by the students is maximum in

- (1) English
 (2) Physics
 (3) Biology
 (4) Mathematics

212. What is the percentage of marks obtained in Chemistry for both the terms?

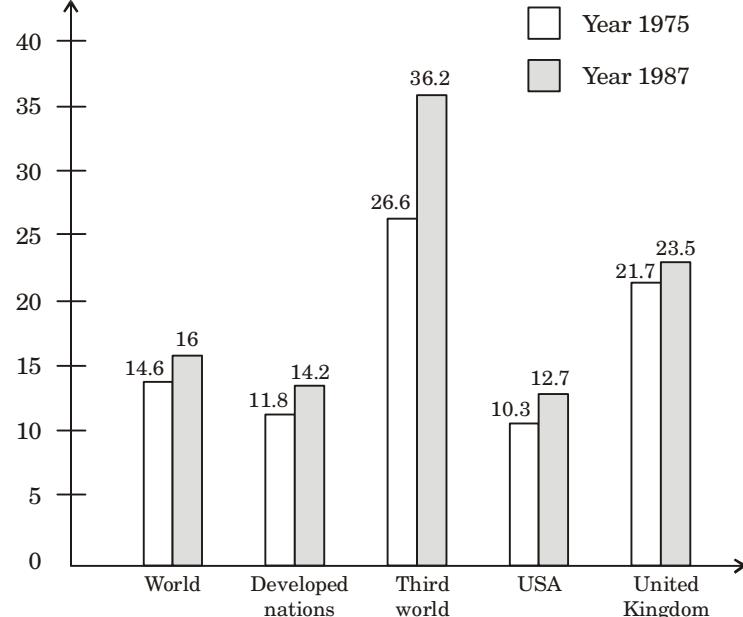
- (1) 76.5 (2) 56.7
 (3) 75.6 (4) 67.5

213. The ratio of the average of the marks obtained in Biology for two terms to the average of the marks obtained in English and Mathematics for first term only is

- (1) 43:92 (2) 39:42
 (3) 29:34 (4) 23:94

Directions (214–217) : Study the following Bar graph and answer the questions. The Bar Graph gives the annual rates of inflation in percentages for 1975 and 1987.

(SSC CGL Tier-I (CBE) Exam. 30.08.2016) (IInd Sitting)



STATISTICS AND DATA INTERPRETATION

- 214.** From 1975 to 1987, inflation rate increased in the third world countries approximately by
 (1) 10% (2) 20%
 (3) 30% (4) 36%
- 215.** The change in rate of inflation was least in which of the following ?
 (1) Developed Nations
 (2) United Kingdom
 (3) World (4) Third world
- 216.** Comparing the figures for USA vis-a-vis the developed nations, it can be concluded that.

- (1) USA had better control on inflation
 (2) Developed nations had better control on inflation
 (3) The inflation rate continues to be the same for USA and developed nations
 (4) No conclusions can be drawn
- 217.** In the year 1987, the inflation rate in the third world countries vis-a-vis the world jumped approximately by
 (1) 135% (2) 126%
 (3) 122% (4) 200%

- 218.** The total number of road accidents in the year 2009, 2011 and 2013 combined together is

- (1) 180000
 (2) 110000
 (3) 70000
 (4) 160000

- 219.** The respective ratio of the road accidents due to bus in the year 2008 to that by car in the year 2012 is

- (1) 2 : 1
 (2) 1 : 2
 (3) 2 : 3
 (4) 3 : 4

- 220.** The respective ratio between the accidents by cars in the year 2012, 2010 and 2008 is

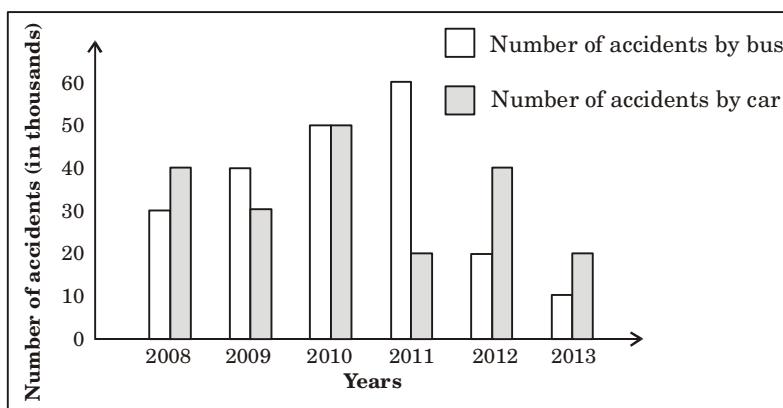
- (1) 2 : 5 : 4
 (2) 4 : 5 : 4
 (3) 4 : 3 : 2
 (4) 4 : 5 : 2

- 221.** The ratio of the averages of the road accidents due to buses to that by cars in the year 2008, 2011 and 2013 is

- (1) 4 : 5
 (2) 5 : 4
 (3) 5 : 1
 (4) 1 : 4

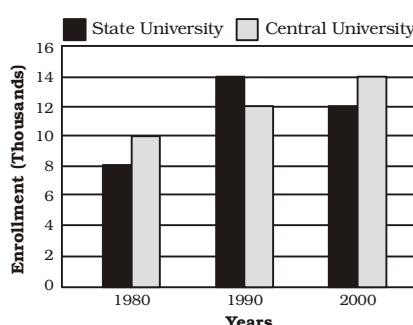
Directions (218–221) : The Bar graphs represents the number of road accidents due to bus and car during the years 2008–2013. Study the graph and answer the questions.

(SSC CGL Tier-I (CBE) Exam. 31.08.2016) (IIInd Sitting)



Directions (222–225) : Study the following bar graph carefully and answer the questions.

(SSC CGL Tier-I (CBE) Exam. 04.09.2016) (IIInd Sitting)



- 222.** In 1990, how many more students were enrolled at State University than at Central University?

- (1) 1505 students
 (2) 1650 students

- (3) 2000 students
 (4) 1980 students

- 223.** Total enrolments in both State University and Central University during the years 1980, 1990 and 2000 is

- (1) 80000
 (2) 66000
 (3) 70000
 (4) 76000

- 224.** The ratio of the total enrolments in the years 1980 and 2000 at the State University and Central University is

- (1) 4 : 5
 (2) 2 : 3
 (3) 6 : 5
 (4) 5 : 6

- 225.** The tuition fee at State University in the year 2000 was Rs.6500 per enrolment. What was the total revenue collected from the tuition fee

at State University during that year?

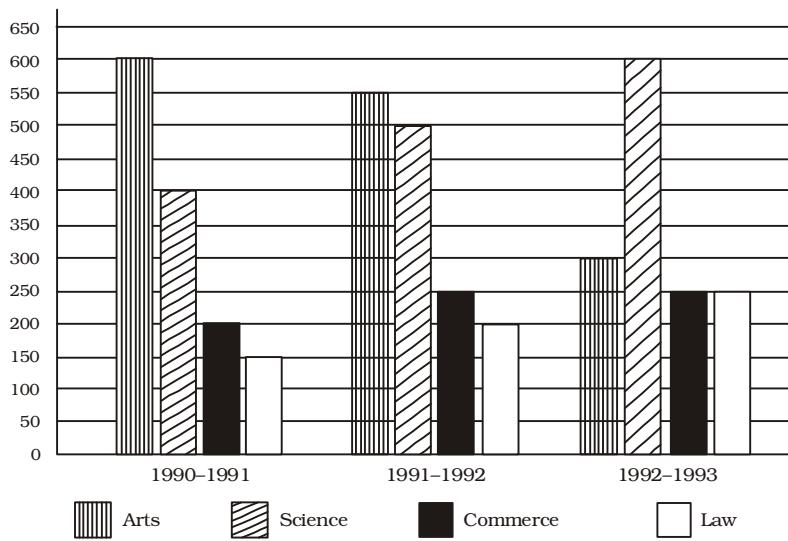
- (1) Rs.80,000,000
 (2) Rs.78,000,000
 (3) Rs.65,000,000
 (4) Rs.56,000,000

Directions (226–229) : Shown below is the multiple bar diagram depicting the changes in the student's strength of a college in four faculties from 1990–91 to 1992–93. (Scale 1 cm = 100)

(SSC CGL Tier-I (CBE) Exam. 04.09.2016) (IIIrd Sitting)

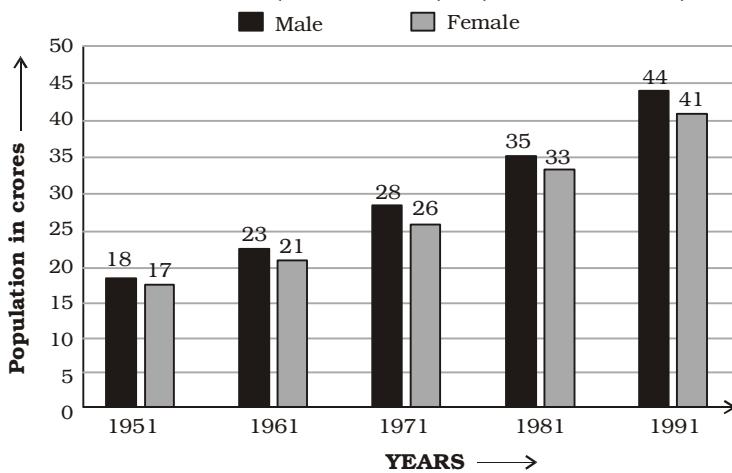
Read Every Month
RENU GENERAL KNOWLEDGE
& WORLD VISION
(Hindi & English Medium)

STATISTICS AND DATA INTERPRETATION



Directions (230-233) : The bar graph shows the number of males and females (in crores) in India during 1951-1991. Read the graph and answer the following questions

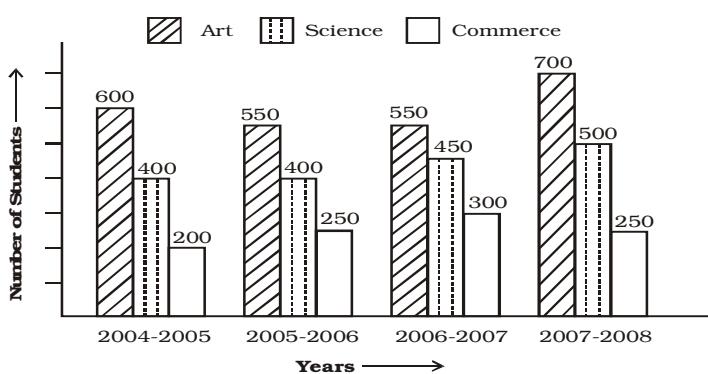
(SSC CGL Tier-I (CBE) Exam. 06.09.2016 (IIInd Sitting)



230. What was the approximate percentage of female population in India during 1991 ?

Directions (234-237) : Student strengths of a college in Arts, Science and Commerce from 2004-2005 to 2007-2008 session are shown in the following bar graph. Study the graph and answer the questions that follow.

(SSC CGL Tier-I (CBE) Exam. 08.09.2016 (IIInd Sitting)



226. A regular decrease in student's strength was in the faculty of

- Arts
- Science
- Commerce
- Law

227. How much per cent was the increase in science students in 1992-93 over 1990-91?

- 50%
- 150%
- $\frac{2}{3}\%$
- 75%

228. The respective ratio of the number of commerce students to the number of law students from 1990-91 to 1992-93 is :

- 6 : 7
- 7 : 6
- 14 : 1
- 2 : 8

229. During which year the strength of arts faculty was minimum ?

- 1990-91
- 1991-92
- 1992-93
- None of these

- 48.23
- 48.02
- 48.03
- 48.33

231. What was the approximate number of males in India in 1971 per thousands females ?

- 913
- 1075
- 1077
- 1175

232. What is the ratio of the number of females in India in 1961 per thousand males to the number of males in India in 1991 per thousand females?

- 943 : 1077
- 1077 : 943
- 1073 : 913
- 913 : 1073

233. Assuming that the rate of increase in the total population in India during 1991-2001 remains the same as that was during the period 1981-1991, estimate the total population in India in 2001.

- 105.62 crores
- 106.25 crores
- 106.52 crores
- 105.26 crores

234. The ratio of average number of students in Science to the average number of students in Commerce is :

- 10 : 7
- 7 : 4
- 12 : 5
- 48 : 35

235. The increase in the number of Arts students in 2007-2008 session over that in 2005-2006 session is :

- 25%
- 21.42%
- 27.27%
- 37.5%

236. Approximate percentage of students in Science stream during the session 2006-2007 is :

- 42.31%
- 40.91%
- 41.26%
- 31.42%

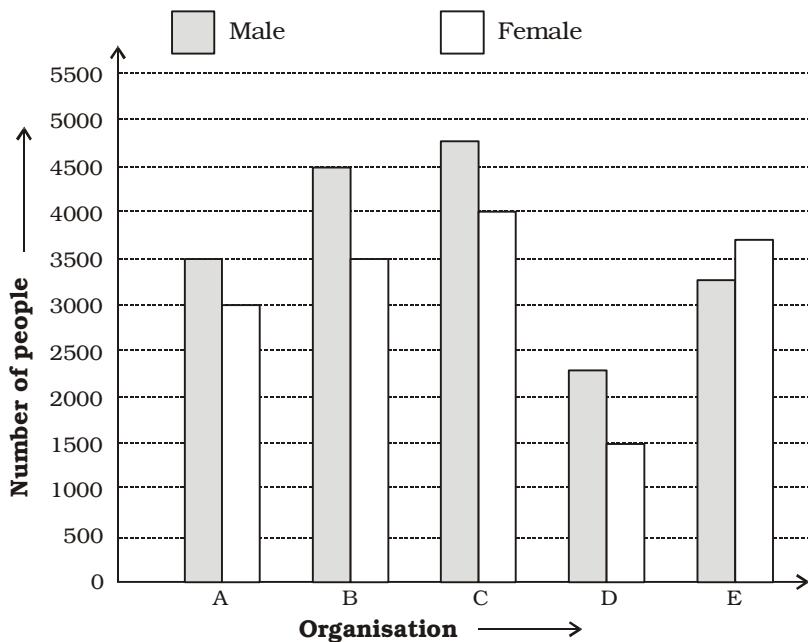
STATISTICS AND DATA INTERPRETATION

- 237.** Percentage increase in total number of students in 2007-2008 session over that in 2004-2005 session

- sion is approximately
 (1) 29.71 (2) 25.65
 (3) 10.56 (4) 20.83

Directions (238-242) : The following bar-diagram shows total number of males and females in five different organisations. Study it carefully to answer the questions.

(SSC CGL Tier-II (CBE) Exam. 12.01.2017)



- 238.** What is the difference between the total number of females and the total number of males from all the organisations together?

- (1) 2005 (2) 2050
 (3) 2500 (4) 2055

- 239.** By how much percentage is the average number of females from all the organisations together is more than the number of males in organisation 'D'?

- (1) 30% (2) 38%
 (3) 40% (4) 45%

- 240.** What is the ratio of the number of females from the organisations B and C to the number of males from the organisations D and E?

- (1) 12 : 11 (2) 12 : 15
 (3) 11 : 15 (4) 15 : 11

- 241.** Males from organisations A and B together form what per cent of total number of males from organisations C, D and E together?

- (1) 78.04% (2) 87.44%
 (3) 47.08% (4) 74.08%

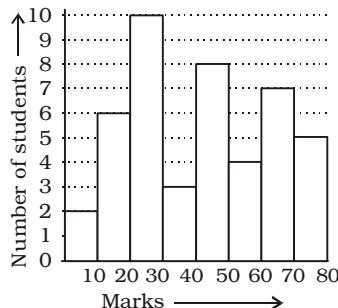
- 242.** What is the ratio of average number of females from the organisations A, B and C to the average number of males from the organisations C, D and E?

- (1) 42 : 41 (2) 41 : 42
 (3) 40 : 41 (4) 41 : 40

TYPE-VI

Directions (1-5) : The histogram shows the marks obtained by 45 students of a class. Look at the histogram and answer the questions.

(SSC CPO (SI, ASI & Intelligence Officer) Exam. 28.08.2011 (Paper-I))



- 1.** How many students have obtained marks 50 and above ?

- (1) 9 (2) 10
 (3) 11 (4) 16

- 2.** If the pass mark be 30, what is the number of failures ?

- (1) 2 (2) 6
 (3) 18 (4) 20

- 3.** If the pass mark be 30, what is the percentage of successful students ?

- (1) 75% (2) 60%
 (3) 50% (4) 40%

- 4.** How many students have obtained marks less than 10 ?

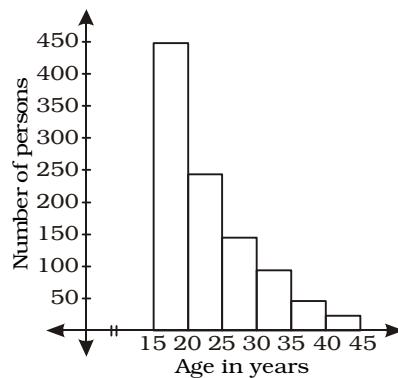
- (1) 2 (2) 10
 (3) 1 (4) 4

- 5.** How many students have obtained 30 or more marks but less than 40 ?

- (1) 3 (2) 4
 (3) 5 (4) 6

Directions (6-10) : Study the following histogram and answer the questions.

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IIInd Sitting))



- 6.** The total number of persons in the age group of 15 years to 45 years is :

- (1) 450 (2) 800
 (3) 1000 (4) 500

- 7.** The number of persons in the age group 20 – 30 years is :

- (1) 475 (2) 400
 (3) 300 (4) 700

- 8.** The ratio of the number of persons between the age group of 20 – 25 and 30 – 35 is :

- (1) 1 : 3 (2) 2 : 1
 (3) 10 : 3 (4) 6 : 1

- 9.** The ratio of maximum population in an age group to the total number of persons under study is :

- (1) 4 : 5 (2) 9 : 10
 (3) 9 : 20 (4) 2 : 5

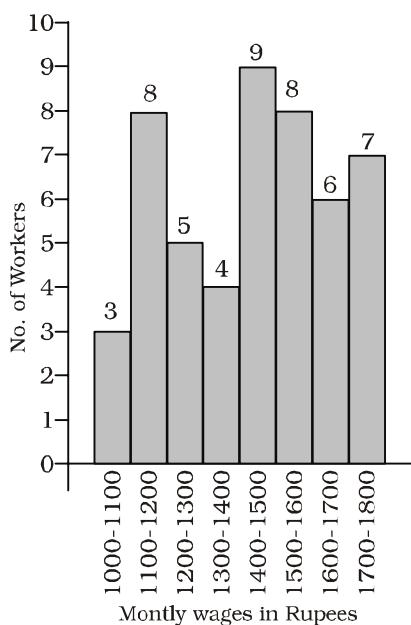
STATISTICS AND DATA INTERPRETATION

- 10.** The percentage of population under study which is in the age group of 40 - 45 is :
(1) 2.5% (2) 3.5%
(3) 1.5% (4) 5%

Directions (11-14) : Study the bar-graph and answer the following questions.

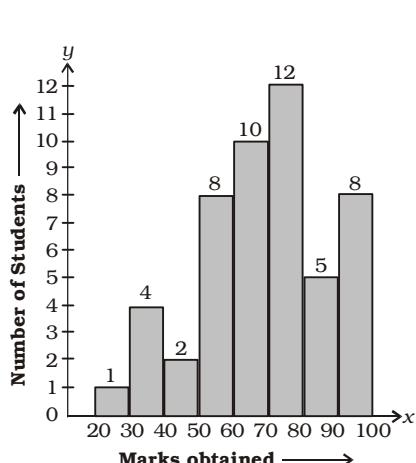
(SSC Assistant Grade-III Exam.
11.11.2012 (1Ind Sitting)

**Bar-graph showing the wages
of workers in a factory**
Monthly wages in Rupees



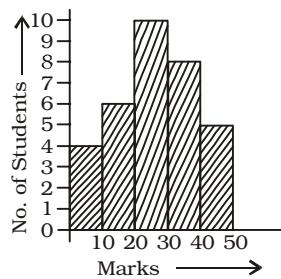
Directions (15-16) : The Histogram shown the marks of 50 students in an examination. Examine the diagram and answer the questions. [Marks are given in integers only].

**(SSC Multi-Tasking Staff Exam.
10.03.2013, Ist Sitting : Patna)**



Directions (17-20) : Study the following Histogram and answer the following questions.

(SSC Graduate Level Tier-I
Exam. 21.04.2013)



- 17.** The total number of students involved in the data is
(1) 33 (2) 32
(3) 43 (4) 42

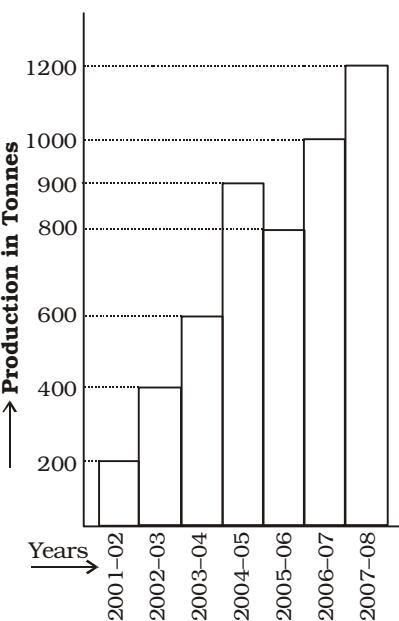
18. The maximum number of students got the marks in the interval of
(1) 10 – 20 (2) 20 – 30
(3) 30 – 40 (4) 40 – 50

19. The least number of students got the marks in the interval
(1) 40 – 50 (2) 20 – 30
(3) 10 – 20 (4) 0 – 10

20. The ratio of the students obtaining marks in the first and the last interval is
(1) 5 : 4 (2) 6 : 5
(3) 4 : 5 (4) 3 : 4

Directions (21– 24) : Study the graph carefully and answer the questions.

(SSC Graduate Level Tier-I
Exam. 19.05.2013 Ist Sitting)



The graph shows production of an item (in tonnes) during certain years

- 21.** The production in 2006-07 in comparison to the production in 2002-03 increased by
 (1) 150% (2) 110%
 (3) 120% (4) 125%

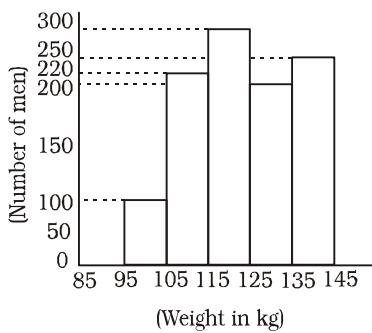
22. The production decreased from 2004-05 to 2005-06 by
 (1) $11\frac{1}{9}\%$ (2) $8\frac{1}{9}\%$
 (3) $9\frac{1}{9}\%$ (4) $10\frac{1}{9}\%$

23. The year in which production increased the lowest as compared to the previous year is
 (1) 2007 – 08 (2) 2003 – 04
 (3) 2004 – 05 (4) 2006 – 07

24. The production from 2003 – 04 to 2007 – 08 increased by
 (1) 125% (2) 50%

(3) 75% (4) 100%

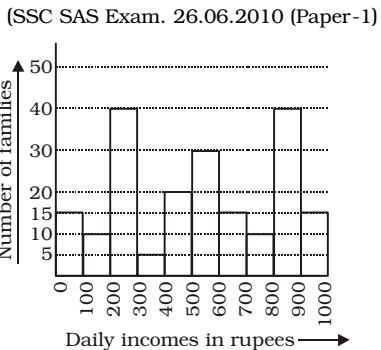
STATISTICS AND DATA INTERPRETATION



- 25.** Average number of men per interval who participated in this survey is
 (1) 200 (2) 180
 (3) 214 (4) 194

(SSC Graduate Level Tier-II Exam. 29.09.2013)

Directions (26-30) : The histogram, given below, shows the number of families of a locality having various daily incomes, as obtained by a survey. Observe the graph and answer the questions based on it.



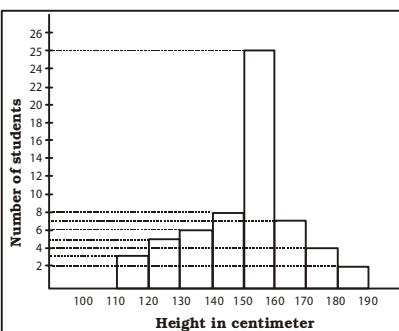
- 26.** In all, how many families were surveyed ?
 (1) 235 (2) 220
 (3) 200 (4) 195
- 27.** The number of families, whose daily incomes are ₹ 800 or above, is
 (1) 50 (2) 55
 (3) 65 (4) 80
- 28.** The number of families, whose daily incomes are below ₹ 200, is
 (1) 25 (2) 20
 (3) 15 (4) 10
- 29.** The number of families, whose daily incomes are between ₹ 500 and ₹ 800, is
 (1) 35 (2) 40
 (3) 45 (4) 55

- 30.** What per cent of families have their daily incomes less than ₹ 500 ?

- (1) 90% (2) 45%
 (3) 30% (4) 20%

Directions (31-33) : Following histogram depicts the range of heights of students in a class of 60 students. Study the same and answer the questions.

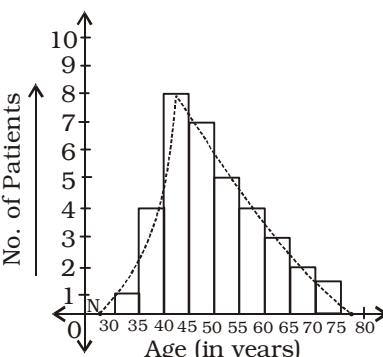
(SSC CGL Tier-I Re-Exam. (2013)
 27.04.2014)



- 31.** The number of students having height more than 150 cms is
 (1) 25 (2) 8
 (3) 38 (4) 13
- 32.** The number of students with their heights between 130 to 150 cms is
 (1) 8 (2) 6
 (3) 14 (4) 22
- 33.** Group which contains maximum number of students is
 (1) 130 – 140 (2) 150 – 160
 (3) 140 – 150 (4) 160 – 170

Directions (34 – 38) : The diagram shows the age-distribution of the patients admitted to a hospital on a particular day. Study the diagram and answer the questions.

(SSC CHSL DEO & LDC Exam. 9.11.2014)



- 34.** Number of patients of age between 55 years to 60 years, who got admitted to the hospital on that day is
 (1) 6 (2) 4
 (3) 24 (4) 8

- 35.** Total number of patients of age more than 55 years, who got admitted to the hospital is
 (1) 4 (2) 7
 (3) 9 (4) 10

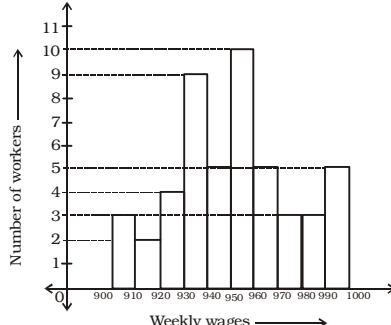
- 36.** Number of patients of age more than 40 years and less than 55 years, who got admitted to the hospital on that day is
 (1) 20 (2) 30
 (3) 15 (4) 12

- 37.** Percentage of patients of age less than 45 years, who got admitted to the hospital on that day is approximately equal to
 (1) 14% (2) 20%
 (3) 37% (4) 62%

- 38.** About 11% of the patients who got admitted to the hospital on that particular day were of age
 (1) either between 35 years and 40 years or between 55 years and 60 years
 (2) between 60 years and 65 years
 (3) between 35 years and 40 years
 (4) between 35 years and 40 years and between 55 years and 60 years.

Directions (39 – 43) : Study the following histogram of wage distribution of different number of workers and answer the given questions.

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014 , Ist Sitting
 (TF No. 333 LO 2)



- 39.** Number of workers who earn more than Rs. 950 is
 (1) 40 (2) 31
 (3) 26 (4) 16

- 40.** Number of workers who earn less than Rs. 950 is
 (1) 23 (2) 26
 (3) 16 (4) 31

- 41.** Total number of workers surveyed is
 (1) 44 (2) 40
 (3) 49 (4) 39

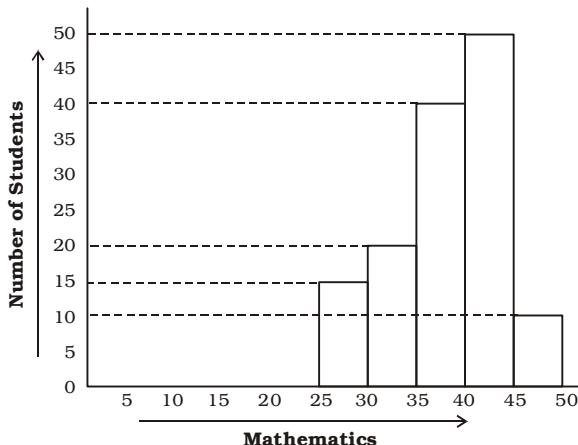
- 42.** The number of workers earning more than Rs. 940 but less than Rs. 960 is
 (1) 15 (2) 16
 (3) 23 (4) 26

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- 43.** The percentage of workers who earn between Rs. 950 to Rs. 960 is
 (1) 25.5% (2) 20.4% (3) 17.6% (4) 13.25%

Directions (44–47) : Study the following histogram of marks in mathematics (out of 50) of students in a class and answer the following questions.

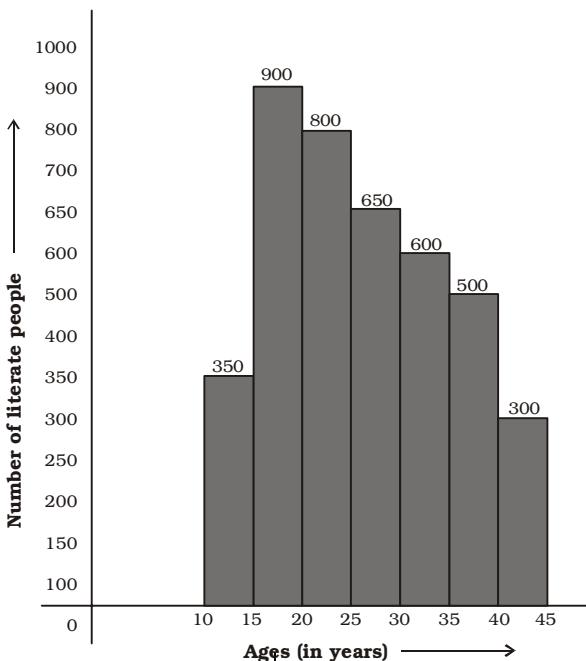
(SSC CGL Tier-I (CBE) Exam. 07.09.2016 (IIInd Sitting)



- 44.** If the pass marks in maths is 31, the number of students who failed in maths is :
 (1) 10 (2) 15 (3) 20 (4) 25
- 45.** The total number of students in the class is :
 (1) 120 (2) 125 (3) 130 (4) 135
- 46.** The percentage of number of passed students is (31 is the pass marks)
 (1) $85\frac{8}{9}\%$ (2) $86\frac{8}{9}\%$
 (3) $87\frac{8}{9}\%$ (4) $88\frac{8}{9}\%$
- 47.** If the students have got the marks out of 50 and if A+ grade has been declared for above 90%, then the number of students who have got A+ grade is :
 (1) 10 (2) 20 (3) 30 (4) 40

Directions (48–51) : Study the following histogram of data related to literate people of different age groups and answer the questions given below.

(SSC CGL Tier-I (CBE) Exam. 09.09.2016 (IIInd Sitting)



- 48.** Total number of literate people in the age group 15 to 45 years is
 (1) 2800 (2) 3700 (3) 4050 (4) 2350

- 49.** The number of literate people in the age group of 20 to 35 years is
 (1) 2050 (2) 1250 (3) 2150 (4) 1700

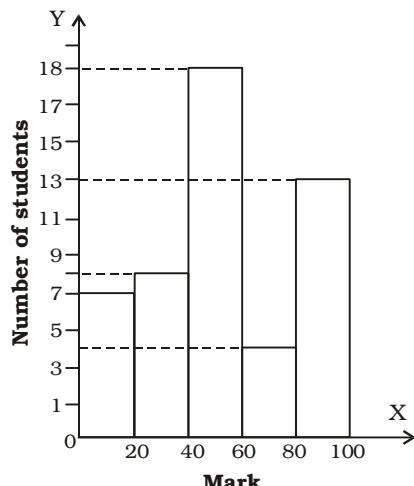
- 50.** The percentage of the literate people in the age group 30 to 45 years is

- (1) 39% (2) 33.33%
 (3) 46.25% (4) 66.66%

- 51.** The respective ratio of literate people in the age group of 20 to 35 years to that in the age group of 30 to 45 years is
 (1) 40 : 20 (2) 27 : 41
 (3) 41 : 27 (4) 42 : 26

Directions (52–55) : Study the histogram of marks (in Mathematics) distribution of 50 students of class IX and answer the following questions.

(SSC CGL Tier-I (CBE) Exam. 10.09.2016 (IIIrd Sitting)



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- 52.** The number of students who have secured marks less than 60 is :

(1) 12 (2) 15
(3) 33 (4) 7

- 53.** The average marks of the students are

(1) 53.2 (2) 45.5
(3) 60.2 (4) 55.5

- 54.** The number of students who have scored between 39 and 80 is :

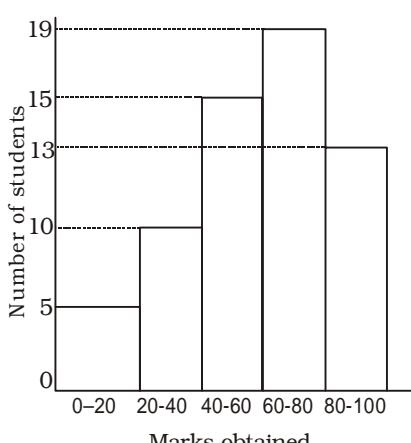
(1) 22 (2) 18
(3) 37 (4) 15

- 55.** The percentage of students who have secured marks more than 59 is:

(1) 13 (2) 17
(3) 34 (4) 26

Directions (56-57) : In each of the following questions, the following histogram shows the relationship between the marks obtained by the students and the number of students in an examination. Study the histogram and answer the questions.

(SSC Multi-Tasking Staff Exam. 30.04.2017)



- 56.** The percentage of students who obtained 40 marks or less is

(1) 25 (2) less than 25, but not 15
(3) more than 24 (4) 15

- 57.** The ratio of the number of students who obtained 60 or more marks to that of students who obtained 60 or less marks is

(1) 15 : 16 (2) 15 : 19
(3) 14 : 17 (4) 16 : 15

TYPE-VII

Directions (1-5) : A survey of film watching habits of people living in five cities P, Q, R, S and T is summarised below in a table. The column I in the table gives percentage of film-watchers in each city who see only one film a week. The column II gives the total number of film-watchers who see two or more films per week.

(SSC CGL Prelim Exam. 04.07.1999)

(Second Sitting)

Read the table and answer the following questions.

City	I	II
P	60	24,000
Q	20	30,000
R	85	24,000
S	55	27,000
T	75	80,000

- 1.** How many film-watchers in city R see only one film in a week ?

(1) 24850 (2) 36000
(3) 136000 (4) 160000

- 2.** Which city has the highest number of film watchers who see only one film in a week?

(1) P (2) R
(3) S (4) T

- 3.** A city with the lowest number of film-watchers is :

(1) P (2) Q
(3) R (4) S

- 4.** The highest number of film-watchers in any given city is :

(1) Q (2) R
(3) S (4) T

- 5.** The total number of all film-watchers in the five cities who see only one film in a week is

(1) 113000 (2) 425200
(3) 452500 (4) 500000

Directions (6-10) : The table given here shows production of five types of cars by a company in the year 1989 to 1994. Study the table and answer questions.

(SSC CGL Prelim Exam. 27.02.2000 (IInd Sitting) & (SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting)

PRODUCTION OF CARS BY A COMPANY							
Year→ Type↓	1989	1990	1991	1992	1993	1994	Total
P	8	20	16	17	21	6	88
Q	16	10	14	12	12	14	78
R	21	17	16	15	13	8	90
S	4	6	10	16	20	31	87
T	25	18	19	30	14	27	133
Total	74	71	75	90	80	86	476

- 6.** In which year the production of cars of all types taken together was **approximately** equal to the average of the total production during the period?

(1) 1989 (2) 1991
(3) 1993 (4) 1994

- 7.** In which year the total production of cars of types P and Q together was equal to the total production of cars of types R and S together?

(1) 1990 (2) 1991
(3) 1994 (4) None of the above

- 8.** During the period 1989-94, in which type of cars was a continuous increase in production?

(1) P (2) Q
(3) R (4) S

- 9.** The production of which type of car was 25% of the total production of all types of cars during 1993?

(1) S (2) R
(3) Q (4) P

- 10.** The percent increased in total production of all types of cars in 1992 to that in 1991 was :

(1) 15% (2) 20%
(3) 25% (4) 30%

Directions (11-15) : Following table gives the population of a locality from 1988 to 1992. Read the table and answer the questions.

(SSC CGL Prelim Exam. 24.02.2002
(Ist Sitting & ssc chsl deo
Exam. 02-11-2014)

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Years	Men	or Women	Children	Total	Increase (+) decrease (-) over preceding year
1988	65104	60387	—	146947	—
1989	70391	62516	—	—	+ (11630)
1990	—	63143	20314	153922	—
1991	69395	—	21560	—	- (5337)
1992	71274	659935	23789	16098	—

- 11.** The number of children in 1988 is :
 (1) 31236 (2) 125491
 (3) 14546 (4) 21456
- 12.** The total population in 1989 is :
 (1) 144537 (2) 158577
 (3) 146947 (4) 149637
- 13.** Number of children in 1989 is :
 (1) 25670 (2) 14040
 (3) 13970 (4) 15702
- 14.** Number of women in 1991 is :
 (1) 57630 (2) 56740
 (3) 52297 (4) 62957
- 15.** Increase or decrease of population in 1992 over 1991 is :
 (1) - (12413) (2) + (12413)
 (3) + 155661 (4) + 7086

Directions (16-20) : Study the table carefully and answer the questions given below.

(SSC CGL Prelim Exam. 08.02.2004
(Second Sitting)

*Yearly production (in thousands)
of scooters in different factories.*

Factory	1985	1986	1987	1988	1989
P	20	15	24	13	17
Q	16	23	41	20	15
R	14	21	30	16	12
S	25	17	15	12	22
T	40	32	39	41	35
Total	115	108	149	102	101

- 16.** In which year, the production of scooters of all factories was equal to the yearly average number of scooters produced during 1985-89 ?
 (1) 1985 (2) 1986
 (3) 1987 (4) 1988
- 17.** Which factory/factories showed a decrease of 25% in the production of scooters in 1989 as compared to 1988 ?

(In lakhs of ₹)			
XYZ Co. Pvt. Ltd.			
Year	Total Sales	Gross Profit	Net Profit
1990	351.6	155.5	54.2
1991	407.9	134.3	42.6
1992	380.1	149.9	38.9
1993	439.7	160.5	50.3
1994	485.9	203.3	65.8

- 18.** The ratio of the production of scooters by factory P to that by factory T in 1985 is
 (1) 2 : 3 (2) 1 : 2
 (3) 3 : 2 (4) 2 : 1
- 19.** In which year, the total production of scooters was maximum ?
 (1) 1989 (2) 1986
 (3) 1987 (4) 1985
- 20.** In which year the total production of scooters of all factories was 20% of the total production of scooters during 1985-1989 ?
 (1) 1988 (2) 1985
 (3) 1986 (4) 1989

Directions (21-24) : Study the following table and answer the questions based on it :

(SSC CGL Prelim Exam. 13.11.2005 (1st Sitting))

- 21.** In which year the difference between the total sales and the gross profit is the least ?
 (1) 1990 (2) 1991
 (3) 1992 (4) 1993
- 22.** The total sales in 1993 is approximately what per cent of the total sales of 1990 ?
 (1) 75% (2) 85%
 (3) 110% (4) 125%
- 23.** Which years show increase in all categories simultaneously i.e., total sales, gross profit and net profit as compared to the previous year ?
 (1) 1993 and 1994 both
 (2) 1994 and 1992 both
 (3) 1992 and 1993 both
 (4) 1990 and 1991 both
- 24.** The per cent increase in the gross profit was the maximum in which year as compared to the previous one ?
 (1) 1991 (2) 1992
 (3) 1993 (4) 1994

Directions (25-28) : Study the table and answer the questions:

(SSC CGL Prelim Exam. 04.02.2007 (IIInd Sitting))

The table given below shows the highest and average marks of a class in four subjects in four years. The maximum marks in each subject are 100.

Year	SUBJECTS			
	English		Maths	
	Highest	Average	Highest	Average
1993	80	70	94	60
1994	82	65	85	62
1995	71	56	92	68
1996	75	52	91	64

- 25.** What is the overall average of marks in the four subjects in the year 1995 ?
 (1) 63 (2) 64
 (3) 65 (4) 60
- 26.** Supposing that there were 40 students in science in the year 1995, how much total of marks

- did they receive combined together?
 (1) 2800 (2) 2720
 (3) 2560 (4) 3000
- 27.** In which year, the difference between the highest and the average marks in Mathematics was maximum ?

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- (1) 1995 (2) 1993
 (3) 1994 (4) 1996

28. In which year, the difference between the highest and average marks in Social Science was the least ?

- (1) 1996 (2) 1995
 (3) 1994 (4) 1993

Directions (29-32) : The table given below depicts the export of a commodity through four ports in the years 1998 and 1999.

Study the table and answer the questions.

(SSC CGL Prelim Exam. 27.07.2008 (1st Sitting)

Port	Export in 1998 (in crore rupees)	Export in 1999 (in crore rupees)
A	57	61
B	148	160
C	229	234
D	146	150

29. The percentage increase in the export of the commodity from the year 1998 to 1999 was the highest from which port ?

- (1) A (2) B
 (3) C (4) D

30. What was the change in the aggregate export of the commodity in the year 1999 as compared to the year 1998 ?

- (1) Nearly 4.3% increase
 (2) Nearly 4.3% decrease
 (3) Nearly 0.04% increase
 (4) Nearly 0.04% decrease

31. What was the average increase in the export of the commodity from the ports in the year 1999 as compared to the year 1998 ?

- (1) ₹ 82500000
 (2) ₹ 80000000
 (3) ₹ 75000000
 (4) ₹ 62500000

32. The percentage increase in the export of the commodity from the year 1998 to 1999 was the lowest from which port ?

- (1) A (2) B
 (3) C (4) D

Directions (33-36) : A survey of movie going habits of city dwellers from 5 cities A, B, C, D and E is given below. The first column gives the percentage of viewers in each city who watch less than two movies a week. The second column gives the total num-

ber of viewers who view two or more movies per week. Study the table and answer the questions.

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IInd Sitting (North Zone)

City	I		II	
	A	B	C	D
A	60	2400		
B	20	3000		
C	85	2400		
D	55	2700		
E	75	8000		

33. How many vieweres in city C watch less than two movies a week ?

- (1) 2040 (2) 13600
 (3) 16000 (4) 3600

34. The city with the lowest number of movie watchers is

- (1) City E (2) City D
 (3) City B (4) City C

35. The highest number of movie watchers in any given city (in the survey) is

- (1) 36000 (2) 32000
 (3) 6000 (4) 16000

36. Which two cities have the same number of movie watchers ?

- (1) C and E (2) C and D
 (3) A and B (4) D and A

Directions (37-40) : Number of toys of five types (A to E) manufactured over the years (in thousands) is given below. Study the table and answer the following questions.

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IInd Sitting (East Zone)

Type	A	B	C	D	E
Year					
2002	200	150	78	90	65
2003	150	80	100	105	70
2004	180	175	92	110	85
2005	195	160	120	125	75
2006	220	185	130	135	80

37. The approximate percentage increase in production of D type of toys from 2003 to 2005 was

- (1) 5% (2) 19%
 (3) 29% (4) 25%

38. The percentage drop in production of A type of toys from 2002 to 2004 was

- (1) 10% (2) 20%
 (3) 25% (4) 30%

39. The approximate percentage increase of the production of all types of toys from 2005 to 2006 was

- (1) 9% (2) 10%
 (3) 11% (4) 12%

40. The difference of the average number of toys (in thousands) of the type B and C, manufactured over the years, was

- (1) 52 (2) 66
 (3) 68 (4) 72

Directions (41-44) : Study the following table which shows the number of students appeared and passed in different streams in a University and answer the questions given below it

(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (Delhi Zone)

Year	Engineering		Medical		Management		Commerce	
	App eared	Pass	App eared	Pass	App eared	Pass	App eared	Pass
2001	324	289	469	246	96	69	1467	1310
2002	356	312	430	364	74	62	1246	1129
2003	284	212	384	326	124	102	1387	1176
2004	310	246	395	298	106	92	1180	1074
2005	426	382	424	382	92	74	1562	1326
2006	380	286	466	405	78	63	1374	1207

41. Approximately what per cent of students appearing in medical, passed in 2003 ?

- (1) 75% (2) 85%
 (3) 78% (4) 88%

42. Approximately what per cent of total students appearing in 2004, appeared in commerce stream?

- (1) 55.3% (2) 64.4%
 (3) 52.5% (4) 59.3%

43. The number of students appearing in all streams was minimum in the year

- (1) 2002 (2) 2003
 (3) 2004 (4) 2006

44. The number of students passing in all streams was maximum in the year.

- (1) 2001 (2) 2005
 (3) 2006 (4) 2004

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Directions (45-48) : The following table shows the production of food grains (in million tonnes) in a State for the period 1988 to 1992. Read the table and answer the following questions.

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (East Zone)

Year	Production in million tonnes				Total
	Wheat	Rice	Maize	Other Cereals	
1988	580	170	150	350	1250
1989	600	220	234	400	1454
1990	560	240	228	420	1448
1991	680	300	380	460	1820
1992	860	260	340	500	1960
Total	3280	1190	1332	2130	7932

45. During 1990, the percentage of decrease in production of maize as against the previous year was:

- (1) 2.63% (2) 2.56%
 (3) 2.71% (4) 2.47%

46. In 1991, the increase in production over the previous year was maximum for:

- (1) Wheat (2) Rice
 (3) Maize (4) Other Cereals

47. The increase in the production of other cereals (over the previous

year) was minimum during the year :

- (1) 1989 (2) 1990
 (3) 1991 (4) 1992

48. During 1992, the percentage of increase in the production of wheat, over the previous year was:

- (1) 26.47% (2) 20.92%
 (3) 23.67% (4) 18.74%

49. Different choices made by a group of 200 students are given below in percentage. The number of students who have taken neither Science nor Commerce is

51. The number of people who read only English newspapers.

- (1) 975 (2) 654
 (3) 1086 (4) 221

52. The total number of people surveyed are

- (1) 2040 (2) 1086
 (3) 12961 (4) 1936

Directions (53-56) : The following table shows the productions of food-grains (in million tons) in a state for the period 1999 - 2000 to 2003 - 2004. Read the table and answer the questions.

(SSC CAPFs SI & CISF ASI Exam. 23.06.2013)

Percentage of Students in different streams				
Name of Streams	Intake Ratio			
Science	29%			
Arts	29%			
Commerce	31%			
Home Science	6%			
Others	5%			

- (1) 80 (2) 120
 (3) 60 (4) 40

(SSC Multi-Tasking Staff Exam. 17.03.2013, IInd Sitting)

Directions (50) : The table given below shows production of five types of cars by a company from the year 1998 to 2003. Study the table and answer the question.

Years Types	1998	1999	2000	2001	2002	2003	Total
P	10	18	16	15	11	18	88
Q	14	12	13	12	11	14	76
R	16	20	14	13	15	12	90
S	5	8	12	14	20	31	90
T	26	18	24	20	23	21	132
Total	71	76	79	74	80	96	476

In which year the production of cars of all types taken together was approximately equal to the average of the total production during the period:

- (1) 1999 (2) 2000
 (3) 2002 (4) 1998

(SSC Graduate Level Tier-I Exam. 21.04.2013)

Directions (51-52) : The following table gives the result of a survey based on newspaper reading habits. Study the table and answer the questions.

(SSC Constable (GD) Exam. 12.05.2013 Ist Sitting)

Income Group (Salary/ Income per month)	Does not read news-papers	Reads news-papers published in regional languages only	Reads only English paper	Reads both in regional and English languages
Below ₹ 5,000	162	271	123	52
₹ 5,000 – ₹ 10,000	13	285	206	82
Above ₹ 10,000	21	209	325	187

53. In 2002 – 2003, the percentage increase in the production of barley as compared to the previous year was :

- (1) 14.20% (2) 17.85%
 (3) 18.75% (4) 7.90%

54. During the period 1999 - 2000 to 2003 – 2004, x per cent of the total production is production of wheat. The value of x is about :

- (1) 12.6 (2) 37.4
 (3) 37.8 (4) 20.2

55. In the year 2003 – 2004, the increase in production was maximum over the previous year for :

- (1) Rice
 (2) Barley
 (3) Other cereals
 (4) Wheat

56. The difference of average production of rice and the average production of barley over the years is (in million tonnes) :

- (1) 50 (2) 60
 (3) 80 (4) 40

Directions (57-60) : The following questions are based on the table given below which represents the distance (in km) travelled by two persons A and B in the same direction :

(SSC Section Officer (Commercial Audit) Exam. 16.11.2003)

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Hour	Distance Travelled (in Km)	
	A	B
1st	20	25
2nd	30	40
3rd	20	35
4th	15	25
5th	25	35
6th	15	10
7th	25	25
8th	35	15
9th	20	25
10th	30	45

- 57.** B's average speed (km/hour) during the first four hours is
 (1) 21.25 (2) 22
 (3) 31.25 (4) 32

- 58.** The ratio of A's speed during the first five hours and the last five hours is
 (1) 25 : 22 (2) 22 : 25
 (3) 15 : 22 (4) 20 : 21

- 59.** What is the distance (in km) between A and B at the end of 8th hour?
 (1) 30 (2) 25
 (3) 15 (4) 12

- 60.** The distance between A and B is maximum at the end of
 (1) 2 hours (2) 3 hours
 (3) 4 hours (4) 5 hours

Directions (61-64) : Study the following table and answer the questions given below.

(SSC CHSL DEO & LDC Exam.
 11.12.2011 (1st Sitting (East Zone))

Annual income of five schools. (Figures in '000 rupees)

Source of Income	Schools				
	A	B	C	D	E
Tuition Fee.	120	60	210	90	120
Term Fee	24	12	45	24	30
Donation	54	21	60	51	60
Grants	60	54	120	42	55
Miscellaneous	12	3	15	3	15
Total	270	150	450	210	280

- 61.** For school E, what per cent of the income from miscellaneous is the income from donation ?
 (1) 25% (2) 40%
 (3) $\frac{1}{4}\%$ (4) 400%

- 62.** Which school has the highest percentage of income from tuition fee out of its total income ?

- (1) A (2) B
 (3) C (4) D

- 63.** In case of how many schools, is the income by way of tuition fee, is less than four times of term fee ?

- (1) 0 (2) 1
 (3) 2 (4) 3

- 64.** Which school has the lowest ratio of income by way of grants and tuition fee ?

- (1) E (2) B
 (3) C (4) D

Directions (65-69) : Refer to the following table. Read the table and answer the questions.

(SSC CGL Prelim Exam.: 24.02.2002 (Second Sitting))

Food Grains Production in a country in 1999 (in lakh tons)					
State	Rice	Wheat	Jowar	Pulses	Others
P	45	103	—	27	29
Q	48	86	73	19	15
R	59	32	67	14	31
S	41	37	59	21	15
T	37	22	41	13	11
U	68	15	12	—	18
V	57	8	7	12	10
W	38	28	31	22	45

- 65.** Which State had the highest grain production ?

- (1) P (2) Q
 (3) R (4) S

- 66.** What was the proportion of rice production to wheat production in the country ?

- (1) 1 : 1 (2) 0.8 : 1
 (3) 1.2 : 1 (4) 2 : 1

- 67.** Jowar was the most important food grain in the State/States :

- (1) Q, R, S (2) Q
 (3) R, S (4) R, S, T

- 68.** State P alone accounted for approximately what percentage of wheat production in the country ?

- (1) 73% (2) 50%
 (3) 41% (4) 30%

- 69.** If the average per hectare yield of rice in the country was 30 tons, then the area (approx.) under rice cultivation during the year was approx. (in lakh hectares)

- (1) 1.5 (2) 8
 (3) 13 (4) 40

Directions (70-74) : Read the following table and answer the questions below it:

(SSC CGL Prelim Exam. 24.02.2002 (Middle Zone) & (SSC CGL Prelim Exam. 13.11.2005) (IInd Sitting))

Loans Disbursed by Four Banks in crores of ₹ during the years

Banks	Rupees (In crores)			
	Years	1995	1996	1997
A	18	23	45	30
B	27	33	18	41
C	29	29	22	17
D	13	19	28	32
Total	87	104	113	120

- 70.** In which year the disbursement of loans by all the banks combined together was nearest to the average disbursement of loans over the years ?

- (1) 1995 (2) 1996
 (3) 1997 (4) 1998

- 71.** What was the percentage increase of disbursement of loans of all banks together from 1997 to 1998 ?

- (1) 6% (2) $6\frac{22}{113}\%$
 (3) $6\frac{11}{113}\%$ (4) $7\frac{11}{113}\%$

- 72.** In which year was the total disbursement of loans of banks A and B exactly equal to the total disbursement of loans of banks C and D ?

- (1) 1995 (2) 1996
 (3) 1998 (4) None of these

- 73.** In which of the following banks, there was a continued increase in loan disbursement throughout the years ?

- (1) A (2) B
 (3) C (4) D

- 74.** In which bank was the loan disbursement more than 30% of the disbursement of all banks combined together in 1998 ?

- (1) A (2) B
 (3) C (4) D

Directions (75-79) : A table showing the percentage of the total population of a State by age groups for the year 1991 is given below. Answer the questions given below it.

(SSC CGL Prelim Exam. 11.05.2003 (Ist Sitting))

STATISTICS AND DATA INTERPRETATION

Age group (in years)	Per cent
up to 15	30.00
16 – 25	17.75
26 – 35	17.25
36 – 45	14.50
46 – 55	14.25
56 – 65	5.12
66 & above	1.13
Total	100.00

75. Which age group accounts for the maximum population in the State?

- (1) 16 – 25 (2) 26 – 35
(3) 36 – 45 (4) 56 – 65

76. Out of every 4200 persons, the number of persons below 26 years is :

- (1) 2006 approx.
(2) 1260 approx.
(3) 746 approx.
(4) 515 approx.

77. There are 200 million people below 36 years. How many millions

(approx.) people are in the age group 56 – 65 ?

- (1) 30.07 (2) 15.75
(3) 12.72 (4) 59.30

78. If there are 10 millions people in the age group 56 years and above, what is the difference between the number of people in the age group 16 – 25 and 46 – 55 ?

- (1) 6.8 millions
(2) 5.6 millions
(3) 28.4 millions
(4) 34.7 millions

79. If the difference between the number of people in the age groups (46 – 55) and (26 – 35) is 11.75 millions, then the total population of the State is approximately :

- (1) 360.23 millions
(2) 391.67 millions
(3) 400 millions
(4) 460.67 millions

82. The number of girls whose height is above 150 cm is

- (1) 22 (2) 29
(3) 86 (4) 97

83. Average height (in cm) of the girls whose heights are 155cm and above is about

- (1) 158.7 (2) 159.8
(3) 160.4 (4) 162.6

Directions (84-85) : The table shows the percentage of total population of a city in different age groups. Study the table and answer the questions.

(SSC CHSL DEO & LDC Exam.
10.11.2013, IIInd Sitting)

Age group	Percent
Up to 15	20.00
16 – 25	18.25
26 – 35	16.75
36 – 45	16.25
46 – 55	15.00
56 – 65	12.50
66 and above	1.25

Directions (80-81) : Study the following table and answer the questions.

(SSC CHSL DEO & LDC Exam. 27.10.2013 IIInd Sitting)

Year	Percentage of Candidates Qualified under discipline					Total Number of Candidates qualified
	Arts	Science	Commerce	Agriculture	Engineering	
2006	24	40	19	09	08	780
2007	15	42	18	13	12	650
2008	20	45	20	08	07	500
2009	15	45	16	14	10	620
2010	19	35	15	19	12	900
2011	18	42	14	12	14	850

80. The decrease in the number of candidates qualified under Arts discipline from 2010 to 2011 was

- (1) 11 (2) 18
(3) 42 (4) 69

81. The difference in the average number of candidates qualified in Science discipline per year from 2006 to 2008 and the average number of candidates qualified in the same discipline from 2009 to 2011 was

- (1) 47 (2) 57
(3) 74 (4) 141

Height (in cm)	Number of girls
less than 140	4
less than 145	11
less than 150	29
less than 155	40
less than 160	46
less than 165	51

84. If there are 22 million people below 36 years, then the number of people (in millions) in the age group (56 – 65) is

- (1) 5 (2) 5.5
(3) 3 (4) 3.5

85. If the difference between the number of people in the age groups (46 – 55) and (16 – 25) is 0.975 million, then the total population (in millions) of the city is

- (1) 27 (2) 30
(3) 22 (4) 25

Directions (86-88) : The following table gives zonewise survey report of the people of a country who take coffee. Study the table and answer the questions.

(SSC CGL Tier-I Exam. 19.10.2014)

Take coffee	Zone			
	North	East	West	South
More than 3 times a day	410	310	700	1450
1 to 3 times a day	1220	830	1250	1120
Twice a week	1640	710	950	420
Only once a week	620	540	530	350
Never	950	430	620	50

STATISTICS AND DATA INTERPRETATION

- 86.** The percentage of people of south zone who take coffee at least once a day is close to
 (1) 33.51 (2) 42.72
 (3) 75.81 (4) 80.82
- 87.** The percentage of people from non-west zone who take coffee 'only once a week' is approximately
 (1) 11 (2) 12
 (3) 13 (4) 14

- 88.** The ratio of the total number of people surveyed who take coffee more than 3 times a day to the total number of people who do not take coffee at all is
 (1) 1 : 1.4 (2) 1.4 : 1
 (3) 1.5 : 1 (4) 1 : 1.1

- 89.** The ratio of the total number of students scoring marks less than 50% to that of scoring marks exactly 50% is
 (1) 50 : 3
 (2) 25 : 2
 (3) 25 : 4
 (4) 35 : 2

- 90.** Which school has the highest number of students scoring exactly 50% marks ?

- (1) D
 (2) E
 (3) B
 (4) A

- 91.** The total number of students scoring 50% or more marks is
 (1) 1250 (2) 875
 (3) 775 (4) 675

Directions (89–91): Study the following table and answer the questions.

(SSC CGL Tier-I Exam. 19.10.2014 TF No. 022 MH 3)

School	No. of students scoring marks less than 50%	Percentage of students scoring marks more than 50%	No. of students appeared
A	240	55	600
B	220	40	400
C	300	20	375
D	280	10	350
E	210	25	300

Directions (92 - 95) : The following questions are based on the table given below which shows production of the number of scooters by a company during the first half of 1992. Study the table and answer the questions.

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014 , Ist Sitting TF No. 333 LO 2)

Production of Scooters by a Company during first half of 1992

Month Type	January	February	March	April	May	June
X	25	25	18	40	20	15
Y	25	27	50	45	30	20
Z	25	27	15	25	30	20
T	25	26	25	0	30	35
Total	100	105	108	110	110	90

- 92.** In which month, was the production of all types of scooters the lowest ?
 (1) January (2) February (3) March (4) June

Directions : (96–100) : The table given below shows the statistics of top 10 scoresrs in IPL 2016. Few entries are missing in the table. Here INN, AVG, and SR stands for innings played, batting average, and batting strike rate respectively. Based on the table answer the following question :

(SSC CPO SI & ASI, Online Exam. 06.06.2016) (IIInd Sitting)

(Strike rate = Runs/ balls faced × 100) (AVG = Runs/ INN - NOT OUT)

Player	INN	Runs	Not Out	Balls Faced	AVG	SR	4s	6s
Virat Kohli	12	752	3	508		148.03	60	28
AB de Villiers	12	597	2	344	59.7	173.55	51	32
David Wamer	12	567	2		56.7	155.77		23
Ajinkya Rahane	13	461		364	46.1		50	9
Rohit Sharma	13	459	3	351	45.9	130.77	45	
GautamGambhir	12	449	2	360	44.9	124.72	50	5
Shikhar Dhawan	12	402		352	50.25	114.2		4
Quinton de Kock	11	385	1	266	38.5		47	12
Murali Vijay	12	378	1	315	34.36		44	6
Ambati Rayudu	12	334	1	278	30.36	120.14	28	12

- 93.** In which month, did the company produce equal number of all types of scooters ?

- (1) January (2) March
 (3) May (4) June

- 94.** The total number of scooters produced by the company, during the first half of 1992 is

- (1) 90 (2) 143
 (3) 623 (4) 197

- 95.** In which two months, was the number of scooters produced by the company the same ?

- (1) January, February
 (2) April, May
 (3) January, March
 (4) January, May

- 96.** How many total balls were faced by Warner ?

- (1) 331 (2) 364
 (3) 423 (4) 286

- 97.** Approximately by what percent strike rate of Rahane is greater/ lower than strike rate of Kock ?

- (1) 12% greater (2) 12% lower
 (3) 10% greater (4) 10% lower

- 98.** How many runs were scored by hitting sixes taking all the players together ?

- (1) 780 (2) 880
 (3) 786 (4) 886

- 99.** By what percent approximately is the batting average of Virat Kohili more than that of Gautam Gambhir ?

- (1) 80 (2) 85
 (3) 75 (4) 70

STATISTICS AND DATA INTERPRETATION

- 100.** What is the difference between the strike rate of Murali Vijay and that of Rohit Sharma ?

(1) 10.77 (2) 12.75 (3) 30.77 (4) 15.35

Directions (101-105) : Study the table and answer the questions.

The number of 5 types of cycles manufactured by a company over the years is given below :

(SSC CGL Tier-I (CBE) Exam. 03.09.2016 (IIInd Sitting)

Years	Types of Cycles (in 1000)				
	A	B	C	D	E
1997	200	150	78	90	65
1998	150	180	100	105	70
1999	180	175	92	110	85
2000	195	160	120	125	75
2001	220	185	130	135	80

- 101.** What was the approximate percentage of increase in production of 'D' type of the cycle from 1998 to 2000?

(1) 10 (2) 19
(3) 15 (4) 17

- 102.** In the case of which type of cycles was total production of the given 5 years the maximum ?

(1) A (2) B
(3) C (4) D

- 103.** What was the percentage drop in production of A type cycle from 1997 to 1999?

(1) 10 (2) 25
(3) 20 (4) 15

- 104.** The production of E type of cycle in 2001 was what per cent of production of B type in 2000?

(1) 40 (2) 50
(3) 45 (4) 25

- 105.** Refer the following data table and answer the following question.

	Cumulative production
January	590
February	1240
March	1940
April	2610
May	3050
June	3420

How many cars were manufactured in the months of April and May?

(1) 810 (2) 1370
(3) 5660 (4) 1110

(SSC CHSL (10+2) Tier-I (CBE)
Exam. 15.01.2017) (IIInd Sitting)

- 108.** Refer the below data table and answer the following Question.

	Cumulative production
January	480
February	1050
March	1630
April	1970
May	2670
June	3330

The polygon shows cumulative production of cars manufactured in the month starting from January. How many cars were manufactured in the months of April and May ?

(1) 1040 (2) 1360
(3) 920 (4) 4640
(SSC CHSL (10+2) Tier-I (CBE)
Exam. 16.01.2017) (IIInd Sitting)

- 109.** Refer the below data table and answer the following Question.

Day of the week	Distance jogged (in kms)
Monday	3
Tuesday	2
Wednesday	2.5
Thursday	5
Friday	1
Saturday	2.5
Sunday	4

If 400 calories are burnt by jogging 5 km, how many calories were burnt in the given week?

(1) 1650 calories
(2) 1550 calories
(3) 1500 calories
(4) 1600 calories
(SSC CHSL (10+2) Tier-I (CBE)
Exam. 15.01.2017) (IIInd Sitting)

- 107.** Refer the following data table and answer the following question.

Items	Yearly Expense in Rs. lakhs
Raw	
Materias	11
Labour	7
Rent	5
Interest	3
Taxes	3

Expenditure on raw materials and taxes is what percent of total expenses?

(1) 55.53 per cent
(2) 41.03 per cent
(3) 33.78 per cent
(4) 48.28 per cent
(SSC CHSL (10+2) Tier-I (CBE)
Exam. 15.01.2017) (IIInd Sitting)

If 400 calories are burnt by jogging 5km, how many calories were burnt in the given week ?

(1) 1410 calories
(2) 1360 calories
(3) 1310 calories
(4) 1260 calories
(SSC CHSL (10+2) Tier-I (CBE)
Exam. 16.01.2017) (IIInd Sitting)

- 110.** Refer the below data table and answer the following Question.

Items	Yearly Expense in Rs. lakhs
Raw Materials	12
Labour	6
Rent	3
Interest	4
Taxes	3

Raw Materials and Interest are what per cent of total expenses ?

(1) 49.89 per cent
(2) 42.64 per cent
(3) 64.39 per cent
(4) 57.14 per cent
(SSC CHSL (10+2) Tier-I (CBE)
Exam. 16.01.2017) (IIInd Sitting)

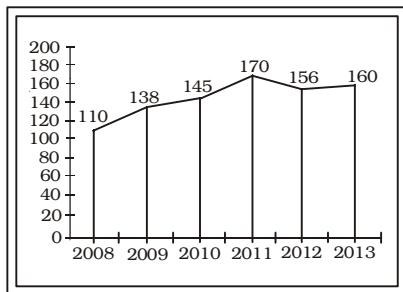
STATISTICS AND DATA INTERPRETATION

TYPE-VIII

Directions (1 - 3) : Study the following frequency polygon and answer the questions.

Given a line graph showing the number of students passed in Higher Secondary Examination in a school over the years 2008 to 2013.

(SSC CGL Tier-I Exam, 09.08.2015
(IInd Sitting) TF No. 4239378)



1. The average of passed students in the years 2008, 2009, 2012 approximately is

- (1) 134.32
- (2) 134.41
- (3) 134.56
- (4) 134.67

2. The increase in percentage of passed students from 2008 to 2011 approximately is

- (1) 55%
- (2) 50.5%
- (3) 54.5%
- (4) 53.05%

3. The decrease in percentage of passed students from 2011 to 2012 approximately is

- (1) 8.25% (2) 8.27%
- (3) 8.24% (4) 8.22%

Directions (4 – 5) : Study the following data and answer the questions.

(SSC Constable (GD) Exam, 04.10.2015, 1st Sitting)

The score of students of a class are given as follows :

IQ Score	80-90	90-100	100-110	110-120	120-130	130-140
No. of Students	6	9	16	13	4	2

4. Number of students whose IQ score is 140 is

- (1) undeterminable from given data
- (2) 2
- (3) 1 (4) 0

5. The number of students whose IQ score is 100 and more is

- (1) 29 (2) 35
- (3) 36 (4) 46

6. In the following table year wise ratio of number of taxable and non-taxable products produced by a company has been shown. The total production of the company increases by 10% every year.

Year	Taxable : Non-Taxable
2010	5 : 3
2011	4 : 1
2012	2 : 3
2013	4 : 5
2014	5 : 4

Find the ratio of taxable products produced in year 2011 and 2012 and non-taxable products produced in years 2011 and 2012.

- (1) 3 : 2 (2) 62 : 43
- (3) 43 : 62 (4) 2 : 3

(SSC CPO Exam. 06.06.2016)
(Ist Sitting)

■ SHORT ANSWERS ■

TYPE-I

1. (2)	2. (1)	3. (4)	4. (1)
5. (3)	6. (4)	7. (2)	8. (3)
9. (2)	10. (2)	11. (1)	12. (3)
13. (1)	14. (2)	15. (4)	16. (3)
17. (1)	18. (3)	19. (2)	20. (4)
21. (3)	22. (2)	23. (3)	24. (4)
25. (4)	26. (1)	27. (2)	28. (3)
29. (3)	30. (1)	31. (1)	32. (1)
33. (3)	34. (4)	35. (3)	36. (2)
37. (1)	38. (2)	39. (1)	40. (2)
41. (2)	42. (4)	43. (2)	44. (1)
45. (2)	46. (3)	47. (2)	48. (1)
49. (3)	50. (2)	51. (1)	52. (3)
53. (4)	54. (1)	55. (2)	56. (4)
57. (3)	58. (3)	59. (4)	60. (2)
61. (3)	62. (3)	63. (1)	64. (3)
65. (4)	66. (1)	67. (1)	68. (2)
69. (3)	70. (1)	71. (2)	72. (3)
73. (2)	74. (2)	75. (3)	76. (1)

77. (4)	78. (3)	79. (1)	80. (1)
81. (3)	82. (2)	83. (4)	84. (2)
85. (4)	86. (1)	87. (2)	88. (2)
89. (1)	90. (2)	91. (3)	92. (3)
93. (3)	94. (1)	95. (2)	96. (4)
97. (1)	98. (4)	99. (4)	100. (2)
101. (3)	102. (1)	103. (3)	104. (2)
105. (3)	106. (4)	107. (2)	108. (1)
109. (4)	110. (3)	111. (4)	112. (1)
113. (3)	114. (4)	115. (2)	116. (4)
117. (3)	118. (4)	119. (1)	120. (4)
121. (1)	122. (4)	123. (1)	124. (1)
125. (1)	126. (3)	127. (1)	128. (4)
129. (2)	130. (3)	131. (1)	132. (2)
133. (*)	134. (4)	135. (3)	136. (1)
137. (3)	138. (4)	139. (1)	140. (4)
141. (1)	142. (2)	143. (2)	144. (4)
145. (3)	146. (2)	147. (3)	148. (3)
149. (2)	150. (1)	151. (1)	152. (2)
153. (2)	154. (2)	155. (4)	156. (1)
157. (1)	158. (1)	159. (*)	160. (*)
161. (1)	162. (1)	163. (1)	164. (1)
165. (1)	166. (4)	167. (3)	168. (3)
169. (3)	170. (4)	171. (1)	172. (2)
173. (2)	174. (1)	175. (1)	176. (2)
177. (1)	178. (4)	179. (4)	180. (4)
181. (4)	182. (4)	183. (1)	184. (2)
185. (2)	186. (1)	187. (2)	188. (1)
189. (4)	190. (2)	191. (4)	192. (3)
193. (1)	194. (3)	195. (3)	196. (2)
197. (3)	198. (1)	199. (1)	200. (3)
201. (4)	202. (2)	203. (1)	204. (3)
205. (1)	206. (4)	207. (2)	208. (4)
209. (2)	210. (4)	211. (1)	212. (4)
213. (2)	214. (1)	215. (3)	216. (4)
217. (3)	218. (2)	219. (2)	220. (2)
221. (1)	222. (3)	223. (1)	224. (1)
225. (2)	226. (1)	227. (4)	228. (1)
229. (1)	230. (2)	231. (2)	232. (3)
233. (1)	234. (2)	235. (2)	236. (3)
237. (4)	238. (2)	239. (2)	240. (4)
241. (2)	242. (2)	243. (4)	244. (4)
245. (1)	246. (3)	247. (3)	248. (2)

Importance : Race is an applied concept and to understand different aspects, this chapter is separately introduced.

Scope of questions : The asked and expected questions are related to race of persons, horses, boats, or competitions of swimming and ships or steamers.

Way to success : Practice these questions after understanding the different definitions and rules.

IMPORTANT POINTS

SOME IMPORTANT POINTS :

Here, Race refers to human race, horse race, boat **race** or swimming.

The field/ground/way at which these races are conducted is called **race course**.

The place from where the race starts is called **initial point/starting point**.

The place where the race ends is called winning point/finishing point.

"Start of d metres" : If two runners A and B are running a race such that A starts earlier than B and B starts running when A has already travelled a distance of d metres then it says A has a head start of d metres..

If initial point is A and B is 12m leading from A, then we can say that A gives the 12m of start to B.

Start of 't' seconds : If two runners A and B are running a race such that B starts running 't' seconds later than A we say A has a head start of 't' seconds.

Won by d metres : If two runners A and B are running a race such that when A reaches the finishing point and B still has to cover d metres to reach the final point then it is said that A won the race by 'd' metres.

Won by 't' seconds : If two runners A and B are running a race such that B reaches the final point 't' seconds later than A then it is said that A won the race by 't' seconds.

Rule 1 : Circular Races : Let L is the length of circular track and speed of A and B are a and b respectively.

When both of them are running in same direction	When both of them are running in opposite direction
Time taken to meet 1st time	$\frac{L}{(a - b)}$
Time taken to meet 1st time at starting point	$\text{LCM of } \left\{ \frac{L}{a}, \frac{L}{b} \right\}$
	$\text{LCM of } \left\{ \frac{L}{a - b}, \frac{L}{b - c} \right\}$

When three people A, B and C are running in the same direction around a circular track with respective speed a, b and c:

Time taken to meet 1st time.	$\text{LCM of } \left\{ \frac{L}{a - b}, \frac{L}{b - c} \right\}$
Time taken to meet 1st time at starting point.	$\text{LCM of } \left\{ \frac{L}{a}, \frac{L}{b}, \frac{L}{c} \right\}$

Rule 2 : The length (L) of race course required to cover a lead of 'x' :

$$L = x \left(\frac{1}{1 - \frac{1}{n}} \right) \text{ or, } L = \frac{nx}{n-1}$$

Where, $n = \frac{\text{Speed of faster person}}{\text{Speed of slower person}}$

Rule 3 : If in a race of length L, the time taken by A and B be t_A and t_B ($t_B > t_A$), then the distance (d) by which A beats B is given by,

$$d = \left(\frac{L}{t_B} \right) (t_B - t_A)$$

or, $d = B's \text{ speed} \times (t_B - t_A)$

Rule 4 : If in a race of length L, A can give B a start of 'b' and C a start of 'c' then the start that B can give C

$$= L \left(\frac{c-b}{L-b} \right)$$

Rule 5 : If A gives B a start of distance 'd' and still beats him by time 't' in a race of length 'L'. then B's speed is

$$S_B = \frac{\frac{L-d}{L}}{t} = \frac{\text{Distance covered by B}}{\text{Total time taken by B}}$$

Where, S_A : A's speed

Rule 6 : If in a race of length L_1 , A beats B by a distance ' d_1 ' In a race of length L_2 , B beats C by a distance ' d_2 ' Then, in a race of length L_3 , the distance (d) by which A beats C is ,

$$d = \frac{(l_1 l_2 l_3) - (l_1 - d_1)(l_2 - d_2)l_3}{l_1 l_2} \text{ And,}$$

$$\text{When } l_1 = l_2 = l_3 = l, \text{ then } d = \frac{l^2 - (l - d_1)(l - d_2)}{l}$$

Rule 7 : A and B walk around a circle of circumference 'P' with speeds S_A and S_B respectively. If they start simultaneously from the same point, the time after which they will be together again for the first time

$$= \frac{P}{S_A - S_B} = \frac{\text{Circumference}}{\text{Relative Speed}}$$



QUESTIONS ASKED IN PREVIOUS SSC EXAMS

TYPE-I

1. If $\log(0.57) = 1.756$ then the value of $\log 57 + \log(0.57)^3 + \log \sqrt{0.57}$ is :

 (1) 0.902 (2) 1.902
 (3) 1.146 (4) 2.146
(SSC CGL Prelim Exam. 04.07.1999 (First Sitting))
2. If $\log_{10} 2 = 0.3010$ and $\log_{10} 7 = 0.8451$, then the value of $\log_{10} 2.8$ is :

 (1) 0.4471 (2) 1.4471
 (3) 2.4471 (4) 3.4471
(SSC CGL Prelim Exam. 04.07.1999 (Second Sitting))
3. If $\log_{10} 2 = 0.3010$ is given, then $\log_2 10$ is equal to :

 (1) 0.3010 (2) 0.6990
 (3) $\frac{1000}{301}$ (4) $\frac{699}{301}$
(SSC CGL Prelim Exam. 27.02.2000 (First Sitting))
4. The simplified form of $\left(\log \frac{75}{16} - 2 \log \frac{5}{9} + \log \frac{32}{243}\right)$ is :

 (1) $\log 2$ (2) $2 \log 2$
 (3) $\log 3$ (4) $\log 5$
(SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))
5. If $\log 2 = 0.3010$, then $\log 5$ equals :

 (1) 0.3010 (2) 0.6990
 (3) 0.7525 (4) Given $\log 2$, it is not possible to calculate $\log 5$
(SSC CGL Prelim Exam. 27.02.2000 (Second Sitting))

TYPE-II

1. Out of 450 students of a school 325 play football, 175 play cricket and 50 neither play football nor cricket. How many students play both football and cricket ?

 (1) 50 (2) 100
 (3) 75 (4) 225
(SSC CGL Prelim Exam. 08.02.2004 (First Sitting))
2. If the number of items of a set A be $n(A) = 40$, $n(B) = 26$ and $n(A \cap B) = 16$, then $n(A \cup B)$ is equal to

 (1) 30 (2) 40
 (3) 50 (4) 60
(SSC CGL Tier-II Exam. 21.09.2014)

3. If the Universal Set

$U = \{1, 2, 3, 4, 5, 6, 7, 8\}$ and $A = \{1, 2, 3, 4\}$, then A^C is equal to
 (1) $\{5, 6, 7, 8\}$ (2) $\{5, 6, 1, 2\}$
 (3) $\{5, 6, 2, 3\}$ (4) $\{5, 6, 3, 4\}$
(SSC CHSL DEO & LDC Exam. 16.11.2014)

TYPE-III

1. A die with faces numbered from 1 to 6 is thrown twice. The probability, that the numbers shown up differ by 2, is

(1) $\frac{1}{9}$ (2) $\frac{2}{9}$
 (3) $\frac{3}{9}$ (4) $\frac{4}{9}$

(SSC CPO S.I. Exam. 07.09.2003)

2. A coin is tossed thrice. The probability that exactly two heads show up is

(1) $\frac{1}{8}$ (2) $\frac{2}{8}$
 (3) $\frac{3}{8}$ (4) $\frac{4}{8}$

(SSC CPO S.I. Exam. 05.09.2004)

2. There are 222 red balls in a basket. A boy takes out 6 red balls from it and replaces them by 12 white balls. He continues to do so till all the red balls are replaced by white balls. Determine the number of white balls put in the basket.

(1) 444 (2) 111
 (3) 333 (4) 222
(SSC Multi-Tasking Staff Exam. 30.04.2017)

TYPE-IV

1. For a certain month, the dates of three of the Sundays are even numbers. Then, the 15th of that month falls on a

 (1) Thursday (2) Friday
 (3) Saturday (4) Sunday
(SSC Delhi Police S.I. (SI) Exam. 19.08.2012)

TYPE-V

1. A wall-clock takes 9 seconds in ringing at 9 O'clock. The time, it will take in ringing at 11 O'clock, is

[Note : The wall-clock rings 9 times at 9 O'clock and 11 times at 11 O'clock.]

(1) 10 seconds
 (2) 11 seconds
 (3) 11.25 seconds
 (4) 10.80 seconds
(SSC CPO S.I. Exam. 05.09.2004)

2. A wall clock gains 2 minutes in 12 hours, while a table clock loses 2 minutes every 36 hours. Both are set right at 12 noon on Tuesday. The correct time when both show the same time next would be

(1) 12.30 at night, after 130 days
 (2) 12 noon, after 135 days
 (3) 1.30 at night, after 130 days
 (4) 12 midnight, after 135 days

(SSC Graduate Level Tier-II Exam. 16.09.2012)

3. From 9.00 AM to 2.00 PM, the temperature rose at a constant rate from 21°C to 36°C . What was the temperature at noon ?

(1) 27°C (2) 30°C
 (3) 32°C (4) 28.5°C
(SSC CHSL DEO & LDC Exam. 04.11.2012, 1st Sitting)

4. The length of a minute hand of a clock is 7cm. The area swept by the minute hand in 30 minutes is :

(1) 210 sq.cm (2) 154 sq.cm
 (3) 77 sq.cm (4) 147 sq.cm
(SSC CHSL DEO & LDC Exam. 04.11.2012, 1st Sitting)

5. The minute hand of a big wall-clock is 35cm long. Taking

$\pi = \frac{22}{7}$, length of the arc, its extremity moves in 18 seconds is :

(1) 11 cm (2) 1.1 cm
 (3) 6.6 cm (4) 6 cm
(SSC CHSL DEO & LDC Exam. 04.11.2012, 1st Sitting)

MISCELLANEOUS

- 6.** If a clock strikes appropriate number of times at each hour, how many times will it strike a day?

(1) 300 (2) 156
 (3) 68 (4) 78

(SSC Graduate Level Tier-II Exam. 29.09.2013)

- 7.** The angle between the hands of a clock when the time is 3:20 is

(1) 6° (2) 10°
 (3) 20° (4) 12°

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 21.06.2015 IIInd Sitting)

- 8.** If a clock started at noon, then the angle turned by hour hand at 3.45 PM is

(1) $117\frac{1}{2}^\circ$ (2) $104\frac{1}{2}^\circ$
 (3) $97\frac{1}{2}^\circ$ (4) $112\frac{1}{2}^\circ$

(SSC CGL Tier-I Exam. 09.08.2015 (Ist Sitting) TF No. 1443088)

- 9.** The angle between the minute hand and hour hand of a clock when the time is 7:20 is equal to

(1) 45° (2) 90°
 (3) 100° (4) 120°

(SSC CGL Tier-I Re-Exam. 30.08.2015)

TYPE-VI

- 1.** If a machine consumes $\frac{k}{5}$ kilowatts of power every t hours, how much power in kilowatts, will three such machines consume in 10 hours?

(1) $\frac{k}{t}$ (2) $\frac{6t}{k}$
 (3) $\frac{6k}{t}$ (4) $\frac{t}{k}$

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IIInd Sitting))

- 2.** I walk a certain distance and ride back taking a total time of 37 minutes. I could walk both ways in 55 minutes. How long would it take me to ride both ways?

(1) 30 minutes (2) 19 minutes
 (3) 37 minutes (4) 20 minutes

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IIInd Sitting))

- 3.** A piece of cloth measured with a metre stick, one cm short, is 100 metres long. Reckoning the metre stick as being right, the actual length of the cloth (in cm) is

(1) 3,900 (2) 9,900
 (3) 8,000 (4) 6,100

(SSC CGL Tier-I Exam. 26.10.2014)

- 4.** A man having height 169 cm is standing near a pole. He casts a shadow 130 cm long. What is the length of the pole if it gives a shadow 420 cm long?

(1) 550 cm (2) 589 cm
 (3) 323 cm (4) 546 cm

(SSC CGL Tier-I Exam. 26.10.2014)

- 5.** 11 friends went to a hotel and decided to pay the bill amount equally. But 10 of them could pay ₹60 each, as a result 11th has to pay ₹50 extra than his share. Find the amount paid by him.

(1) ₹ 105 (2) ₹ 110
 (3) ₹ 115 (4) ₹ 120

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014 TF No. 999 KPO)

- 6.** 2 km 5 m is equal to

(1) 2.05 km (2) 2.5 km
 (3) 2.005 km (4) 2.0005 km

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 21.06.2015 (Ist Sitting) TF No. 8037731)

- 7.** For Rs. 25,500, a furniture shop sells 3 computer tables and 5 chairs OR 2 computer tables and 9 chairs. If one wants to buy a set of only 1 computer table and 1 chair, how much does he need to pay?

(1) Rs. 1,500 (2) Rs. 5,100
 (3) Rs. 6,000 (4) Rs. 7,500

(SSC CPO SI, ASI Online Exam. 05.06.2016) (IIInd Sitting)

- 8.** Every Sunday, Gin jogs 3 miles. For he rest of the week, each day he jogs 1 mile more than the previous day. How many miles Gin jogs in 2 weeks?

(1) 42 (2) 63
 (3) 84 (4) 98

(SSC CGL Tier-I (CBE) Exam. 30.08.2016) (IIInd Sitting)

- 9.** Three runners A, B and C run a race, with runner A finishing 12 metres ahead of runner B and 18 metres ahead of runner C, while runner B finishes 8 metres ahead of runner C. Each runner travels the entire distance at a constant speed. The length of the race is

(1) 36 metres (2) 48 metres
 (3) 60 metres (4) 72 metres

(SSC CGL Tier-II (CBE) Exam. 30.11.2016)

- 10.** An hour-long test has 60 problems. If a student completes 30 problems in 25 minutes, then the required seconds he has taken on average for computing each of

the remaining problems is

(1) 70 seconds
 (2) 50 seconds
 (3) 40 seconds
 (4) 30 seconds

(SSC CGL Tier-II (CBE) Exam. 30.11.2016)

- 11.** A gun is fired at a distance of 1.7 km from Ram and he hears the sound after 25 seconds. The speed of sound in metre per second is :

(1) 60 (2) 62
 (3) 64 (4) 68

(SSC CGL Tier-I (CBE) Exam. 29.08.2016 (IST Sitting))

- 12.** The amount of extension in a spring is proportional to the weight hung on it. If the weight of 5 kgs produces an extension of 0.4 cm, what weight would produce an extension of 5 cm?

(1) 6.25 kgs. (2) 62.5 kgs.
 (3) 4 kgs. (4) 40 kgs.

(SSC CGL Tier-I (CBE) Exam. 04.09.2016 (IIInd Sitting))

- 13.** A man walks 1 km. on 1st day, 2 km. on 2nd day, 3 km. on 3rd day and so on. The total distance the man covers in 10 days is :

(1) 40 km. (2) 50 km.
 (3) 55 km. (4) 58 km.

(SSC CGL Tier-I (CBE) Exam. 04.09.2016 (IIIrd Sitting))

- 14.** A box weighs 8.5 kg when full of sand and weighs 5.5 kg when it is half filled with sand. The weight of the empty box is :

(1) 5 kg. (2) 6 kg.
 (3) 2.5 kg. (4) 4.5 kg.

(SSC CGL Tier-I (CBE) Exam. 06.09.2016 (IIInd Sitting))

SHORT ANSWERS

TYPE-I

1. (1)	2. (1)	3. (3)	4. (1)
5. (2)			

TYPE-II

1. (2)	2. (3)	3. (1)	

TYPE-III

1. (2)	2. (3)	2. (1)	

TYPE-IV

1. (3)			