



**CHANDIGARH UNIVERSITY**  
**“DEPARTMENT OF CAREER DEVELOPMENT”**  
**Quantitative Ability**

1.  $\log_{x^2}(81-24x) = 1$ ; solve for x.  
A]  $x = 3$  or  $-7$                       B]  $x = 3$  or  $-27$                       C]  $x = 9$  or  $-67$                       D]  $x = 67$  or  $3$

**Ans - B**

Solution -  $\log_{x^2}(81-24x) = 1$

$$81 - 24x = (x^2)^1$$

$$x^2 + 24x - 81 = 0$$

$$x^2 + 27x - 3x - 81 = 0$$

$$x(x+27) - 3(x+27) = 0$$

$$(x+27)(x-3) = 0$$

$$x = 3 \text{ or } -27$$

2. A detergent powder company is having a contest. Each pack of 1kg contains one of the letters B, A, M and O. In every 20 packs, there are four Bs, five As, ten Ms and one O. What is the probability that a pack will have a B?

A]  $\frac{1}{4}$

B]  $\frac{1}{2}$

C]  $\frac{1}{5}$

D]  $\frac{1}{20}$

**Ans - C**

Solution- 20 packs contain 4 B's

The probability that 1 pack will have a B is  $\frac{4}{20}$  or  $\frac{1}{5}$ .

3. A jar contains 5 white, 8 red, 2 blue and 3 black balls. Find the probability that a ball drawn at random is red or blue.

A]  $\frac{4}{9}$

B]  $\frac{5}{9}$

C]  $\frac{2}{7}$

D]  $\frac{1}{5}$

**Ans- B**

Solution- Total number of balls in the bag =  $5 + 8 + 2 + 3 = 18$

Number of red or blue balls in the bag =  $8 + 2 = 10$

$$\text{Probability} = \frac{10}{18} = \frac{5}{9}$$

4. Which smallest number should be multiplied by 45 so that it will have 3 distinct prime factors?

A] 2

B] 3

C] 5

D] 7

**Ans- A**

Solution- Prime factors of 45 are  $3 \times 3 \times 5$  i.e. 3 and 5.

The smallest number to be multiplied by 45 so that it may have 3 distinct prime factors is 2.

Number become 90 ( $45 \times 2$ ) and factors are  $2 \times 3 \times 3 \times 5$ .

5. The LCM and HCF of two numbers are 2970 and 30 respectively. Prime factors of the product of two numbers are:

A] 2, 3, 5, 11

B] 2, 3, 7, 11

C] 2, 4, 5, 11

D] 2, 3, 7, 13

Ans- A

Solution- LCM = 2970; HCF = 30

Factors of LCM =  $2 \times 3 \times 3 \times 3 \times 5 \times 11$  and of HCF =  $2 \times 3 \times 5$

Product of two numbers = Product of LCM and HCF of the numbers  
 $= 2 \times 3 \times 3 \times 3 \times 5 \times 11 \times 2 \times 3 \times 5$

6. Let P be the greatest number that will divide 522, 762 and 1482, leaving the same remainder in each case. What is the sum of the digits in P?

A] 4

B] 6

C] 8

D] 10

Ans- B

Solution- Numbers 522, 762 and 1482 leaves same remainder when divided by a common number.

Number = HCF of  $(1482-762)$ ,  $(762-522)$  and  $(1482 - 522)$   
 $= \text{HCF of } (720, 240 \text{ and } 960) = 240$

Sum of the digits =  $2 + 4 + 0 = 6$

7. Which number should be subtracted from 876905 so that it can be divisible by 8?

A] 1

B] 2

C] 3

D] 4

Ans- A

Solution- Divisibility test for 8  $\Rightarrow$  if last 3 – digits of number is divisible by 8 then the complete number is divisible by 8.

Number = 876905 is divisible by 8 if 905 is divisible by 8.

$$\begin{array}{r} 113 \\ 8 \overline{) 905} \\ \underline{-8} \phantom{00} \\ 10 \phantom{00} \\ \underline{-8} \phantom{00} \\ 25 \phantom{00} \\ \underline{-24} \phantom{00} \\ 1 \phantom{00} \end{array}$$

As remainder is 1; 1 should be subtracted from given number to make it divisible by 8.

8. The value of a in  $\log_a 0.0196 = 2$  is

A] 0.14

B] 1.4

C] 0.7

D] 0.07

Ans- A

Solution-  $\log_a (0.0196) = 2$

$0.0196 = a^2$

$\frac{196}{10000} = a^2$

$\sqrt{\frac{196}{10000}} = a$

$a = \frac{14}{100} = 0.14$

9. Convert 4.3333..... into p/q form

A]  $\frac{39}{9}$

B]  $\frac{39}{10}$

C] 39

D] None of the above

Ans- A

Solution- Let  $x = 4.333.....$  (1)

Multiply both sides by 10

$10x = 43.333.....$  (2)

Subtract (1) from (2)

$9x = 39$

$x = \frac{39}{9}$

10. A, B and C are three students who attend the same tutorial classes. If the probability that on a particular day exactly one out of A and B attends the class is  $\frac{7}{10}$ ; exactly one out of B and C attends is  $\frac{4}{10}$ ; exactly one out of C and A attends is  $\frac{7}{10}$ . If the probability that all the three attend the class is  $\frac{9}{100}$ , then find the probability that at least one attends the class.

A]  $\frac{46}{100}$

B]  $\frac{63}{100}$

C]  $\frac{74}{100}$

D]  $\frac{99}{100}$

Ans- D

Solution- Probability of at least one attending the class = 1 - probability of none attending

Let probability of A, B and C attending the class be a, b, c respectively.

Thus, probability of not attending the class by A, B and C is (1 - a), (1 - b) and (1 - c) respectively.

$$\begin{aligned} \text{The probability of exactly one of A or B attending} &= a(1 - b) + b(1 - a) = \frac{7}{10} \\ &= a + b - 2ab = \frac{7}{10} \end{aligned} \quad (1)$$

$$\text{Similarly, for B or C} = b + c - 2bc = \frac{4}{10} \quad (2)$$

$$\text{And, for C or A} = c + a - 2ca = \frac{7}{10} \quad (3)$$

$$\text{Probability of all three attending (i.e. } abc) = \frac{99}{100} \quad (4)$$

$$\text{From (1), (2) and (3): } 2(a + b + c - ab - bc - ca) = \frac{7}{10} + \frac{4}{10} + \frac{7}{10} = \frac{18}{10} = \frac{9}{5}$$

$$a + b + c - ab - bc - ca = \frac{9}{10}$$

$$\text{Probability of none attending} = (1 - a)(1 - b)(1 - c) = 1 - a - b - c + ab + bc + ca - abc$$

$$\text{Probability of none attending} = 1 - (a + b + c - ab - bc - ca + abc)$$

$$\text{Probability of none attending} = 1 - \left(\frac{9}{10} + \frac{99}{100}\right) = \frac{1}{100}$$

$$\text{Probability of at least one attending} = 1 - \text{probability of none attending}$$

$$\text{Probability of at least one attending} = 1 - \frac{1}{100} = \frac{99}{100}$$

11. If  $a = 2$  and  $b^2 - ab = -1$  then what is the value of  $\log_{(a+b)}(a^3 + b^3)$ ?

A] 1

B] -1

C] 2

D] -2

Ans- C

Solution-  $a = 2$ ;  $b^2 - ab = -1$

$$b^2 - 2b + 1 = 0 \quad (\text{given } a = 2)$$

$$(b - 1)^2 = 0$$

$$b = 1$$

$$\log_{(a+b)}(a^3+b^3) = ?$$

$$\text{Put values: } \log_{(1+2)}(1^3+2^3) = \log_3(1+8) = \log_3(9) = \log_3(3^2) = 2\log_3(3) = 2$$

Alternatively;

$$a^3+b^3 = (a+b)(a^2+b^2-ab)$$

$$\begin{aligned}\log_{(a+b)}(a+b)(a^2+b^2-ab) &= \log_{(a+b)}(a+b) + \log_{(a+b)}(a^2+b^2-ab) \\ &= 1 + \log_3(4-1) = 1 + 1 = 2\end{aligned}$$

12. What is the largest power of 20 contained in 100!?

A] 56

B] 1

C] 24

D] 2

Ans- C

$$\text{Solution- } 20 = 5 \times 4 = 5 \times 2^2$$

$$\begin{aligned}\text{Largest power of 2 in } 100! &= \left[\frac{100}{2}\right] + \left[\frac{100}{4}\right] + \left[\frac{100}{8}\right] + \left[\frac{100}{16}\right] + \left[\frac{100}{32}\right] + \left[\frac{100}{64}\right] \\ &= 50 + 25 + 12 + 6 + 3 + 1 = 97\end{aligned}$$

[ ] = only integer part is to be considered.

$$\text{Highest power of 4 in } 100! = 2^{97} = (2^2)^{48} \times 2 \implies 48 \text{ times}$$

$$\text{Highest power of 5 in } 100! = \left[\frac{100}{5}\right] + \left[\frac{100}{25}\right] = 20 + 4 = 24 \text{ times}$$

So, power of 20 in 100! = least of the powers = 24.

13. 16 men complete one – fourth of a piece of work in 12 days. What is the additional number of men required to complete the work in 12 more days?

A] 48

B] 36

C] 30

D] 16

Ans- D

Solution- 16 men can complete one – fourth of the work in 12 days i.e.  $M_1 = 16$ ,  $D_1 = 12$  and

$$W_1 = \frac{1}{4}$$

$M_2 = ?$ ,  $D_2 = 12$  more days i.e. 24 days and  $W_2 = 1$

Acc to chain rule:  $M_1 \times D_1 \times W_2 = M_2 \times D_2 \times W_1$

$$16 \times 12 \times 1 = M_2 \times 24 \times \frac{1}{4}$$

$$M_2 = 32 \text{ men}$$

So, in order to complete the work in 12 more days (32 - 16) 16 more men will be needed.

14. An air conditioner can cool the hall in 40 minutes while another takes 45 minutes to cool under similar conditions. If both air conditioners are switched on at same instance, then how long will it take to cool the room?

A] About 22 minutes

B] About 20 minutes

C] About 30 minutes

D] About 25 minutes

Ans- A

Solution-  $\frac{1}{40}$  part cool by first AC in 1 minute

$\frac{1}{45}$  part cool by second AC in 1 minute

$$\frac{17}{360} = \frac{1}{40} + \frac{1}{45} = \text{part cool by both AC in 1 minute.}$$

$$\text{Total time} = \frac{360}{17} = 21.2 \approx \text{About 22 minutes}$$

15. A vendor purchases binder clips at 12 for Rs. 60. How many clips should he sell for Rs. 60 to earn a profit of 20%?

A] 5                                      B] 8                                      C] 6                                      D] 10

Ans- D

Solution- Cost of 12 clips = Rs. 60

Profit = 20%

Selling Price of clips =  $CP \times \frac{120}{100} = 60 \times \frac{120}{100} = \text{Rs. } 72$

Selling Price of 12 clips = Rs. 72

Rs. 72 is the selling price of 12 clips.

Rs. 60 will be the selling price of  $\frac{12}{72} \times 60 = 10$  clips

16. A bag is full of 20 bananas and no other fruit. Rajeev draws a fruit from the bag. What is the probability that he will draw a banana?

A] 1                                      B] 0                                      C]  $\frac{1}{2}$                                       D] None of these

Ans- A

Solution- As any drawn fruit will be a banana so the probability of drawing a banana is 1

17. What is the value of  $(0.027)^{\frac{1}{3}}$ ?

A] 0.3                                      B] 0.03                                      C] 0.003                                      D] None of these

Ans- A

Solution-  $(0.027)^{\frac{1}{3}}$

$$\sqrt[3]{0.027} = \sqrt[3]{\frac{27}{1000}} = \frac{3}{10} = 0.3$$

18. What is the probability of getting an even sum of score in a throw of 2 dice?

A]  $\frac{1}{3}$                                       B]  $\frac{17}{36}$                                       C]  $\frac{1}{4}$                                       D]  $\frac{1}{2}$

Ans- D

Solution- The total outcome when two dice are rolled is 36.

We need the outcomes with the even sum i.e. 2, 4, 6, 8, 10, 12.

Cases when sum is 2 = (1,1) i.e. 1

Cases when sum is 4 = (1,3), (2,2), (3,1) i.e. 3

Cases when sum is 6 = (1,5), (2, 4), (3, 3), (4, 2), (5, 1) i.e. 5

Cases when sum is 8 = (2, 6), (3, 5), (4, 4), (5, 3), (6, 2) i.e. 5

Cases when sum is 10 = (4, 6), (5, 5), (6, 4) i.e. 3

Cases when sum is 12 = (6,6) i.e. 1

Favorable cases = 1 + 3 + 5 + 5 + 3 + 1 = 18

$$\text{Probability} = \frac{18}{36} = \frac{1}{2}$$

19. The possibility that a student passes a subject A, B or C is 98%. The probability that he or she passes A is 41%, B is 59%. The probability that he or she passes A and B is 15%, A and C is

25% and B and C is 20%. The probability that he or she passes all the three subjects is 14%.  
What is the probability that he or she passes subject C?  
A] 0.44%                      B] 50%                      C] 44%                      D] 38%

**Ans- C**

Solution- Given:  $A = 41$ ,  $B = 59$ ,  $A \cup B \cup C = 98$ ,  $A \cap B = 15$ ,  $B \cap C = 20$ ,  $C \cap A = 25$ ,  $A \cap B \cap C = 14$   
We know that;  
 $A \cup B \cup C = A + B + C - A \cap B - B \cap C - C \cap A + A \cap B \cap C$   
 $98 = 41 + 59 + C - 15 - 20 - 25 + 14$   
 $C = 44$

20. The rate at which a sum will become 10 times itself in 20 years at simple interest is:  
A] 45%                      B] 50%                      C] 47.50%                      D] 49%

**Ans- A**

Solution- Let Principal be Rs. X  
Amount = Rs. 10x  
S.I. = (A - P) Rs. 9x  
 $S. I. = \frac{P * R * T}{100}$   
 $9x = \frac{x * R * 20}{100}$   
 $R = 45\%$

21. The largest number that always divides the difference of a three – digit number and the number formed by reversing its digits is:  
A] 1                      B] 3                      C] 9                      D] 11                      E] 99

**Ans- E**

Solution- Let the digits at hundreds, tens and unit place be x, y and z respectively.  
The number will be  $100x + 10y + z$   
On reversing the positions, number will be  $100z + 10y + x$   
On subtracting, we get  $((100x + 10y + z) - (100z + 10y + x)) = 99x - 99z = 99(x - z)$   
The largest number dividing the difference is 99.

22. A shopkeeper offers 'Buy 1, Get 1 Free' offer on a T – shirt marked at Rs. 2, 400. If after a sale, the shopkeeper earns a profit of 33.33% then what is the actual price of the T- shirt?  
A] Rs. 900                      B] Rs. 800                      C] Rs. 1200                      D] Rs. 1, 000                      E] Rs. 1, 500

**Ans- A**

Solution- The shopkeeper sold two T-shirts for Rs. 2400  
Selling Price of one T-shirt = Rs. 1200  
Profit = 33.33%  
 $\text{Cost Price} = S.P. * \frac{100}{100 + P\%} = 1200 * \frac{100}{100 + 33.33} = 1200 * \frac{100}{133.33} = 1200 * \frac{3}{4} \approx \text{Rs. 900}$

23. Find the number to be multiplied by  $(-6)^{-1}$ , so as to get  $(-8)^{-1}$  as the product?  
A]  $\frac{3}{4}$                       B]  $-\frac{3}{4}$                       C]  $\frac{4}{3}$                       D]  $-\frac{4}{3}$

Ans- A

Let the number multiplied be x

$$(-6)^{-1} * x = (-8)^{-1}$$

$$x = \frac{(-8)^{-1}}{(-6)^{-1}} = \left(\frac{-8}{-6}\right)^{-1} = \left(\frac{4}{3}\right)^{-1} = \frac{3}{4}$$

24.  $(17^3 * 17^{\frac{5}{2}} * (17^3)^{\frac{3}{2}} * (17^{\frac{10}{7}} * (17^5)^{\frac{3}{35}} * (17^6)^{\frac{1}{7}})^{-1} =$   
A]  $17^{\frac{51}{7}}$                       B]  $17^{\frac{43}{7}}$                       C] 175                      D] 1712                      E] 1

Ans- A

Solution-  $(17^3 * 17^{\frac{5}{2}} * (17^3)^{\frac{3}{2}} * (17^{\frac{10}{7}} * (17^5)^{\frac{3}{35}} * (17^6)^{\frac{1}{7}})^{-1}$   
 $17^3 * 17^{\frac{5}{2}} * (17^3)^{\frac{3}{2}} * (17^{\frac{10}{7}} * 17^{5 * \frac{3}{35}} * 17^{6 * \frac{1}{7}})^{-1}$   
 $(17^{3 + \frac{5}{2} + \frac{9}{2}} * (17^{\frac{10}{7} + \frac{3}{7} + \frac{6}{7}})^{-1}$   
 $17^{\frac{20}{2}} * 17^{\frac{19}{7} * (-1)} = 17^{10} * 17^{-\frac{19}{7}} = \frac{17^{10}}{17^{\frac{19}{7}}} = 17^{10 - \frac{19}{7}} = 17^{\frac{51}{7}}$

25. Find the value of p which satisfies the relation  $\log_2(p - 1) + 2 = \log_2(3p + 1)$ .  
A] 1                      B] 3                      C] 5                      D] 7

Ans- B

Solution-  $\log_2(p - 1) + 2 = \log_2(3p + 1)$   
 $2 = \log_2(2^2)$   
Thus,  $\log_2(p - 1) + \log_2(2^2) = \log_2(3p + 1)$   
 $\log_2((p - 1) * (2^2)) = \log_2(3p + 1)$   
 $(p - 1)(2^2) = 3p + 1$   
 $4p - 4 = 3p + 1$   
 $4p - 3p = 1 + 4$   
 $p = 5$

26. Namita has 4.2 kg of flour. She has been asked to make 5 cup cakes out of every  $\frac{1}{2}$  kg of flour.  
How many cup cakes can she bake out of the flour she has?  
A] 21                      B] 24                      C] 30                      D] 42

Ans- D

Solution- 0.5 kg flour can make 5 cup cakes i.e. one cup cake can be made using 100 gm of flour.  
4.2 kg or 4200 gm flour can make  $(\frac{4200}{100}) = 42$  cup cakes.

27. There are four prime numbers written in ascending order of magnitude. The product of the first three is 385 and that of the last three is 1001. Find the first number.  
A] 5                      B] 7                      C] 11                      D] 17

Ans- A

Solution- Factors of 385 = 5 \* 7 \* 11

Factors of 1001 =  $7 \times 11 \times 13$   
 First prime number = 5

28. What is the value of the expression  $4^{23} \times 5^{20} \times 6^{-2} \times 3^2 \times 5^{-5} \times 2^{-46} \times 5^{-10} \times 11^0 \times 5^{-5}$ ?
- A]  $\frac{5^{10}}{4}$     B]  $\frac{1}{4}$     C] 4    D]  $5^{10}$

Ans- B

$$\text{Solution- } \frac{4^{23} \times 5^{20} \times 3^2 \times 11^0}{6^2 \times 5^5 \times 2^{46} \times 5^{10} \times 5^5} = \frac{(2^2)^{23} \times 5^{20} \times 3^2 \times 1}{(3 \times 2)^2 \times 5^{5+10+5} \times 2^{46}} = \frac{2^{46} \times 5^{20} \times 3^2 \times 1}{2^2 \times 3^2 \times 5^{20} \times 2^{46}} = \frac{1}{2^2} = \frac{1}{4}$$

29. Which number should be subtracted from 321 so that it becomes prime?
- A] 2    B] 4    C] 6    D] 9

Ans- B

Solution- To make 321 a prime number by subtracting a number from it, we have a number of possibilities (any number between 1 to 320). In this case, we solve the question with the help of options.

By carefully analyzing the options, only when option b i.e. 4 is subtracted from 321, we get a prime number i.e. 317.

30. A person buys a mobile phone for Rs. 7, 500 and sold it for Rs. 6, 000. What is the loss percentage?
- A] 0.05    B] 0.1    C] 0.15    D] 0.2

Ans- D

Solution- Cost Price = Rs. 7500

Selling Price = Rs. 6000

Loss = (CP - SP) = Rs. 1500

$$\text{Loss\%} = \frac{\text{Loss}}{\text{CP}} \times 100 = \frac{1500}{7500} \times 100 = 20\% \text{ or } 0.2$$

31. What will be the value of x in the expression  $[72^2 - 28^2 = 50x]$ ?
- A] 44    B] 46    C] 86    D] 88

Ans- D

$$\begin{aligned} \text{Solution- } (72^2 - 28^2) &= (72 + 28)(72 - 28) = 50x \\ &= 100 \times 44 = 50x \\ x &= 88 \end{aligned}$$

32. What is the value of  $\log 2205$ ?
- Given that  $\log 5 = a$ ,  $\log 7 = b$  and  $\log 3 = c$ .
- A]  $2b - a - 2c$     B]  $a + 2b + 2c$     C]  $2a - b + 2c$     D]  $a - 2b + 2c$     E]  $a + 2b - 2c$

Ans- B

Solution-  $\log(2205) = ?$

$$\text{factors of } 2205 = 3 \times 3 \times 5 \times 7 \times 7 = 3^2 \times 5 \times 7^2$$



$$\begin{aligned}
 \log(3^2 \times 5 \times 7^2) &= \log(3^2) + \log(5) + \log(7^2) \\
 &= 2 \cdot \log(3) + \log(5) + 2 \cdot \log(7) \\
 &= 2c + a + 2b
 \end{aligned}$$

33. In how many ways can the digits 2, 3, 5, 7 and 9 be placed to form a three – digit number so that the higher order digit is always greater than the lower order digits? (Assume digits are all different)
- A] 8                                      B] 9                                      C] 10                                      D] 15

Ans- C

Solution- Digit at hundred's place is always greater than the digit at ten's as well as unit's place.

Possible numbers for hundred's place = 9, 7 and 5

If we select '9' at hundred's place, other places can have four possibilities (2, 3, 5 and 7)

i. e.  ${}^4C_2 = 6$

If we select '7' at hundred's place, other places can have three possibilities (2, 3 and 5)

i. e.  ${}^3C_2 = 3$

If we select '5' at hundred's place, other places can have two possibilities (2 and 3)

i. e.  ${}^2C_2 = 1$

Total possibilities =  $6 + 3 + 1 = 10$  ways.

34. A goods carriage of length 2 km, headed to Srinagar from Punjab was running at a speed of 30 Km/hr. it crosses a tunnel which is 58 km long with that speed. Find the time taken by the goods carriage to cross the tunnel.
- A] 4 hours                                      B] 3 hours                                      C] 2 hours                                      D] 1 hour

Ans – C

Solution- Total distance covered = length of carriage + length of tunnel =  $2 + 58 = 60$  km

Speed = 30 km/h

Time taken =  $\frac{\text{Distance}}{\text{Speed}} = \frac{60}{30} = 2$  hours

35. Wagonar car was in rage two years back and it costs Rs. 5, 60, 000 then. Now, however, with many new hi-tech cars coming into the market, the price of the car has dipped to Rs. 4, 00, 000. Find the decrease in price of the cars as a percentage of the old price.
- A] 28%                                      B] 28.57%                                      C] 40%                                      D] 71.42%

Ans- B

Solution- Depreciate in price  $(5, 60, 000 - 4, 00, 000) = \text{Rs. } 1, 60, 000$

Percentage decrease in price =  $\frac{1,60,000}{5,60,000} \times 100 = \frac{200}{7} = 28.57\%$

36. A home security system provides a security codes for a door, which consist of five buttons. Code may be generated by pressing any one button, any two, any three, any four, or all five buttons. How many such codes are possible?
- A] 32                                      B] 5                                      C] 31                                      D] 10

Ans- C

Solution- Where the code consists of only 1 digit. We could have 5 possible codes  
 Where the code consists of 2 digits. Since all the digits have to be keyed in at once there is no possibility of repetition. Both the digits have to be unique. So for the first digit we have 5 options and for the second we have 4 options.  $5 \times 4 = 20$ . However, we have considered the different orders as well which we need to convert back into the unordered combinations by dividing by  $2!$ .  $20/2 = 10$  possible codes

Where the code consists of 3 digits. Using the principles mentioned in statement 2 we have  $5 \times 4 \times 3/3! = 10$  possible codes

Where the code consists of 4 digits. We have  $5 \times 4 \times 3 \times 2/4! = 5$  possible codes

Where the code consists of 5 digits. We have  $5 \times 4 \times 3 \times 2 \times 1/5! = 1$  possible codes

Summing up we have  $5 + 10 + 10 + 5 + 1 = 31$

OR

$5C1 + 5C2 + 5C3 + 5C4 + 5C5 = 5 + 10 + 10 + 5 + 1 = 31$ .

37. 8 friends A, B, C, D, E, F, G, H are to be seated around a round table. Find the probability that A and B never sit next to each other.

A]  $2/7$

B]  $5/7$

C]  $3/8$

D]  $5/8$

Ans- B

Solution-  $P(\text{never seat together}) = 1 - P(\text{seat together})$

CIRCULAR PERMUTATION  $= (n-1)! = 7!$

A and B can interchange their positions in  $2!$  ways.

the no. of favourable cases is  $(n-2)! \cdot 2! = 6! \cdot 2!$

$P(\text{seat together}) = 6! \cdot 2! / 7!$

$= 6! \cdot 2! / 7 \cdot 6!$

$= 2! / 7 = 2/7$

$P(\text{never seat together}) = 1 - (2/7)$

$= (7-2) / 7$

$= 5/7$

38. In a match awards are given to each of 11 members of the team and a trophy to the team. In all winning team gets 2.75 kg weight awards. If the weight of the match winning trophy is 1.275kg, what is the weight of the award given to each player?

A] 200grams

B] 150 grams

C] 124 grams

D] 134 grams.

Ans- D

Solution- Total weight of all the awards for winning team is  $2.75\text{kg} = 2750\text{gms}$

trophy weight is  $1.275\text{kg} = 1275\text{gms}$

now rest weight  $= 2750 - 1275 = 1475\text{gms}$

rest weight divided in 11 players is

$= 1475/11 = 134.09\text{ gms} \approx 134\text{ gms}$

39. A trend was observed in the growth of the population in Saya islands. The population tripled every month. Initially the population of the Saya Island was 100. What would be its

population after 4 months?

A]  $100 \cdot 4^3$

B]  $100 \cdot 3^4$

C]  $100 \cdot 3^3$

D]  $(100 \cdot 3)^4$

Ans- B

Solution- Initially  $\rightarrow 100$

After first month  $\rightarrow 100 \cdot 3$

After second month  $\rightarrow 100 \cdot 3 \cdot 3$

After third month  $\rightarrow 100 \cdot 3 \cdot 3 \cdot 3$

After fourth month  $\rightarrow 100 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \Rightarrow 100 \cdot 3^4$

40. Find the value of  $\log 1 + \log 2 + \log 3$

A] 1

B] 2

C] 3

D] None of the

above

Ans- D

Solution-  $\log 1 + \log 2 + \log 3 = 0 + 0.3010 + 0.4771 = 0.77815125038$

41. What is the value of  $\log_3(1.5) + \log_3(6)$ .

A] 2

B] 2.7

C] 1.8

D] None of the

above

Ans- A

Solution-  $\log_3(1.5 \cdot 6) = \log_3(9) = \log_3(3^2) = 2$

42. When 40 is subtracted from 50% of a number, the result is 50% of 500. Find one-tenth of the number.

A] 29

B] 58

C] 75

D] 87

Ans- B

Solution-  $0.5x - 40 = 250$

so  $x = 580$

now  $1/10$ th of 580 is 58

43. What is the greatest positive power of 5 that divides 30! Exactly.

A] 5

B] 6

C] 7

D] 8

Ans- C

Solution-  $30/5 = 6$  ;  $6/5 = 1$ ;

Adding the quotients, its  $6 + 1 = 7$

So highest power of 5 in  $30! = 7$

44. If the sum of squares of two numbers is 164 and their HCF and LCM 2 and 40 respectively. Then the numbers are.
- A] 4,8                      B] 4,10                      C] 8,10                      D] 10,12

Ans- C

**Solution-** As we know product of two nos. =their H.C.F\*L.C.M

So,  $x * y = 2 * 40 = 80$

and  $x^2 + y^2 = 164$

So,  $(x+y)^2 = x^2 + y^2 + 2 \cdot x \cdot y$

$$=164+2*80=324$$

So,  $x+y=18$

Now on solving, the nos. are 8 and 10.

45. What is the least number by which 16,800 must be divided to get a number which is perfect square?
- A) 42                      B) 24                      C) 21                      D) 40

Ans- A

**Solution-  $16,800/42=400$**

$$400 = (20)^2$$

Ans-42

46. Which of the options is equivalent to the expression  $\ln(2x+5)(3x+2)^2$ .
- A]  $\ln(2x+5) + 2 \ln(3x+2)$
- B]  $2\ln(6x^2+19x+10)$
- C]  $\ln(2x+5)+\ln(3x+2)+\ln 2$
- D]  $2[\ln(2x+5)+\ln(3x+2)]$

Ans- A

Solution-  $\ln(a \cdot b^2) = \ln a + \ln b^2 = \ln a + 2 \ln b$

so  $\ln((2x+5) \cdot (3x+2)^2) = \ln(2x+5) + 2\ln(3x+2)$

47. A number which when divided by 5 leaves remainder 2. When the square of the number is divided by 5, the remainder will be.
- A) 4                      B) 2                      C) 1                      D) 3

Ans- A

Solution- So the number is something like (p,say)->  $5x + 2$

so the square of the number is  $(p+2)^2 \rightarrow 25x^2 + 20x + 4 \Rightarrow 5(5x^2 + 4x) + 4$

so  $p2 \% 5 = 4$  always

48. Ravi has a bag full of 10 nestle and 5 Cadbury chocolates. Out of these he draws two chocolates. What is the probability that he would get at least one nestle chocolate.  
A)  $\frac{19}{21}$                       B)  $\frac{3}{7}$                       C)  $\frac{2}{21}$                       D)  $\frac{1}{3}$

A] 19/21

B] 3/7

C] 2/21

D]  $1/3$

Ans- A

Solution- Total number sample space two chocolates can be drawn in the way of  $n(S) = {}^{15}C_2 = 105$

At least one to be nestle..  $n(E) = {}^{10}C_1 \times {}^5C_1 + {}^{10}C_2 \times {}^5C_0 = 95$   
 $P(E) = 95/105 = 19/21$

49. What should be multiplied to 2880 to make it a perfect square?

- A] 2                                  B] 3                                  C] 5                                  D] 7

Ans- C

Solution- Step 1==  $288 \times 10$

Step 2==  $144 \times 2 \times 2 \times 5$

Step 3==  $12 \times 12 \times 2 \times 2 \times 5$  if perfect square==  $12 \times 12 \times 2 \times 2 \times 5 \times 5$

So answer is 5 we have to multiply it by 5 to make it as a perfect square.

50. The list price of an electric iron is Rs300.If two successive discounts of 15% and 10% are allowed its selling price will be.

- A] RS 229.50                  B] Rs 231.50                  C] Rs 232.50                  D] Rs 234.50  
E] None of these

Ans- A

Solution-  $300 \times 15/100 = 45$

$300 - 45 = 255$

$255 \times 10/100 = 25.5$

$255 - 25.5 = 229.50$

51. A box contains 10 balls numbered 1 through 10. Anuj, anisha and amit pick a ball each, one after the other each time replacing the ball. What is the probability that anuj picks a ball numbered less than that picked by anisha , who in turns picks lesser number ball than amit.

- A] 3/25                                  B] 1/6                                  C] 4/25                                  D] 81/400

Ans- A

Solution- The balls are numbered as 1,2,3,4,5,6,7,8,9 and 10.

If 1 numbered ball picks up by Anuj then Anisha will picks up 2 or 3 or 4 or ..... or 10 = 9 ways.

like this,

2 numbered ..... = 8 ways.

3 numbered ..... = 7 ways.

.

.

.

9 numbered..... = 1 way

So, number of ways that Anuj picks a ball numbered less than that picked by Anisha =

The probability =  $120/1000 = 3/25$

- Ans- C

D] 7,77,700

Ans- B

D] 80

Ans- B

So  $8x - 4x = 200$  then  $x = 50$

- D] 0.25

Ans- A

Solution- Original total cost=3496;  
but he got for 2999;  
loss is 14%  
that is ans: 0.14

56. In a team party the manager, the supervisor, and the module lead want to sit together. Also the developer and the consultant need to sit together for some discussion. In how many ways can a total of 20 team members be seated around a round table?

A] 19!                      B] 16!                      C]  $16!/(3! 2!)$                       D] 16!5!  
E]  $16!2!3!$

Ans- E

Solution- Manager, supervisor module sit together= consider as one person  
In same way developer and consultant considered as one person.  
Total =  $16! * 3! * 2$

57. 40% of the company staff are females. What is the probability that a set of 7 records of the employees taken at random from the cupboard has 2 records of female staff?

A]  ${}^7P_2 * (0.40)^5 * (0.60)^2$                       B]  ${}^7P_2 (0.40)^2 * (0.60)^5$   
C]  ${}^7C_2 (0.40)^2 * (0.60)^5$                       D]  ${}^7C_2 (0.40)^5 (0.60)^2$

Ans- C

Solution- Using  $nCr p^r q^{n-r}$  we get  ${}^7C_2 (0.40)^2 * (0.60)^5$

58. 6 interns and 2 managers working together can do five times the work that an intern and a manager can do. Calculate the ratio of the working capacities of an intern and the manager.

A] 3:1                      B] 1:3                      C] 2:3                      D] 3:2                      E] 2:5

Ans- B

Solution-  $6I + 2M = 5(I + M)$   
 $I = 3M$   
 $I/M = 1/3$

59. A group is analyzing quality control problems. Suppose that the probability of a defective shape is 0.03 and the probability of a defective paint job is 0.60. What is the probability of non-defective items?

A] 0.09                      B] 0.18                      C] 0.32                      D] 0.03  
E] None of these.

Ans- E

Probability of non-defective shape is  $1 - .03 = 0.97$   
 probability of non-defective pant is  $1 - 0.06 = 0.94$   
 so the probability of non-defective item is  $.97 * .94 = .9118$

60. A single letter is chosen at random from the word "ADMINISTRATION". Which of the following is not a mutually exclusive event?
- A] Choosing one the A's  
 B] Choosing an A or a D  
 C] Choosing an A or a vowel.  
 D] Choosing an A or a consonant.

Ans- C

Solution- (because A itself is a vowel).

61. Find the greatest 5-digit number that is exactly divisible by 3, 4, 5 and 7.
- A] 99940  
 B] 99960  
 C] 99970  
 D] 99990

Ans- B

Solution-  $99999 / \text{LCM}(3,4,5,7) = 99999 / 420 = 238$  ( quotient)  
 $238 * 420 = 99960$

62. What is the LCM of 3, 2.7 and .09?
- A] 0.27  
 B] 2.7  
 C] 27  
 D] 2700

Ans- C

Solution- With equal number of decimal places, the given number 3.00, 2.70, .09  
 L.C.M. of 300, 270, 9 is 2700  
 Therefore L.C.M. of given number is 27.00

63. There are 5 clients and 5 consultants in a round table meeting. In how many ways can the clients be seated such that no consultant is next to the other consultant?
- A]  $5! 6!$   
 B]  $4! 4!$   
 C]  $4! 5!$   
 D]  $9!$   
 E]  ${}^{10}C_5 5! 4!$

Ans- C

Solution- Circular permutation concept..... $(n-1)! n!$  i.e.  $(5-1)! * 5!$   
 $= 4! * 5!$

64. Evaluate  $\log_5 {}^3 17^6$
- A]  $2 \log_5 17$   
 B]  $\log_5 17$



C]  $\log_5 17^{18}$   
E]  $2\log_{125} 17$

D]  $0.5\log_{17} 5$

Ans- A

Solution-  $\frac{6}{3} \log_5 17$   
 $2 \log_5 17$

65. A company decides to reorganize its financial transaction files and put all such files into various drawers. In how many ways can 7 files be put into drawers, if any number of files can be put in each drawer?

A]  $7^3$

B]  ${}^7P_3$

C]  $7!/4!$

D]  $3^7$

E]  ${}^7C_3$

Ans- D

Solution- Each file can be put in either of the three drawers. First have three options and same as with others. So total no of ways  $3^7$

66. In how many ways can a person arrange 6 blue notepads, 7 red notepads and 9 yellow notepads in his shelf?

A]  ${}^{22}P_6 \cdot {}^{16}P_7 \cdot {}^9P_9$

B]  ${}^{22}C_7 \cdot {}^{16}C_6 \cdot {}^9C_9$

C]  ${}^{22}P_{22} / ({}^9P_9 \cdot {}^6P_6 \cdot {}^7P_7)$

D]  ${}^{22}C_{22} / (9! \cdot 6! \cdot 7!)$

E]  $22! \cdot 6! \cdot 7! \cdot 9!$

Ans- C

Solution- Total notepad are 22, and repetition of colours of notebook is there so,  
 ${}^{22}P_{22} / ({}^9P_9 \cdot {}^6P_6 \cdot {}^7P_7)$

67. In AMY Company, the probability that an employee takes a sick leave as well as a casual leave in a month is 0.15. The probability that an employee takes a sick leave in a month is 0.45. What is the probability that the employee would take a casual leave given that he would take a sick leave?

A] 0.33

B] 0.42

C] 0.66

D] 0.7

Ans- A

Solution-  $P(\text{employee takes casual leave given he takes sick leave}) = P(\text{employee takes casual and sick leave}) / P(\text{he takes a sick leave})$   
 $= 0.15 / 0.45 = 1 / 3 = 0.33$

68. A panel received 70 white papers for review and approval. White paper can be rejected if the content is found to be copied from any source. The white paper content should be a good quality work, well documented as per standards and should have proofs of the research. From last year's record analysis, the probability that a white paper will be published was 94%. What is the probability that out of 5 white papers taken at random from this year's lot, 4 will get published taking into consideration, last year's performance?
- A] 0.3  
 B]  ${}^5C_4(0.06)^4 \cdot (0.94)$   
 C]  ${}^5P_4(0.06)^4 \cdot (0.94)$   
 D]  ${}^5C_4(0.94)^4 \cdot (0.06)$   
 E]  ${}^5P_4(0.94)^4 \cdot (0.06)$

Ans- D

Solution- A panel received 70 white papers, Binomial Theorem

$${}^nC_r \cdot P^r \cdot (1-P)^{n-r}$$

$${}^5C_4(.94)^4(1-.94)$$

$${}^5C_4(.94)^4 \cdot (0.06)$$

69. The value of 343 raised to the power  $\log_7 16$  is :  
 A] 4,096  
 B] 2,401  
 C] 343  
 D] 7

Ans- A

Solution- The value of 343

$$\log_7 16 = \log_7 7^3 \cdot 16^3$$

$$\log_{343} 4096$$

70. A trend was observed in the growth of population in Saya islands. The population tripled every month. Initially, the population of Saya Islands was 100. What would be its population after 4 months?  
 A]  $100 \cdot 4^3$   
 B]  $100 \cdot 3^4$   
 C]  $100 \cdot 3 \cdot 4$   
 D]  $(100^3)^4$

Ans- C

Solution- Because,  $100 \cdot 3$  it is tripled so for first month it will be 300 similarly we have to do for other 3 months also so it is  $100 \cdot 3 \cdot 4$

71. What number should be added to 306 so that it becomes prime?  
 A] 3  
 B] 5  
 C] 9  
 D] 13

Ans- B

Solution- 311 is a prime number

$$\text{Therefore, } 306 + 5 = 311$$

So, 5 is added to the number

72. Which number is divisible by 11?

A] 2,118

B] 2,116

C] 2,114

D] 2,112

Ans- D

Solution- The no is divisible by 11 if the difference of the digits at odd place and even places is zero. So in 2112  $\rightarrow (2+1)-(1+2)=0$   
Therefore it is divisible by 11

73. A teacher asks the student to solve for x, where the given expression is:

$$(a/b)^{x-1} = (b/a)^{x-3} \text{ Find } x.$$

A] 1

B] 2

C]  $\frac{1}{2}$

D] 4

Ans- B

Solution-  $(a/b)^{x-1} = (b/a)^{x-3} = (a/b)^{-x+3}$   
 $x-1 = -x+3$   
 $2x=4$   
 $x=2$

74. Two pizzas of equal sizes are divided into 4 and 6 parts respectively. Deepti ate 2 slices of first pizza and Ritu ate 2 slices of second pizza. Who ate more and by what fraction?

A] Deepti,  $\frac{1}{6}$  more

B] Ritu,  $\frac{1}{5}$  more

C] Deepti,  $\frac{1}{3}$

D] Ritu,  $\frac{1}{2}$  more

Ans- A

Solution- Two pizzas of equal sizes  
Deepti =  $\frac{2}{4}$  part of pizza =  $\frac{1}{2}$   
Ritu =  $\frac{2}{6} = \frac{1}{3}$  part of pizza  
Deepti-ritu =  $(\frac{1}{2}) - (\frac{1}{3}) = \frac{1}{6}$   
Deepti,  $\frac{1}{6}$  more

75. Ram and Ravi were playing with a paper phone, frustums of which are attached to each other by 95 m long string. If both start moving in opposite directions at a speed of 18 m/min and 20 m/min respectively, after how many minutes will both have to stop?

A] 2 min

B] 2.5 min

C] 3 min

D] 3.5 min

Ans- B

Solution- As they are moving in opposite directions distance after each minute is  $18+20 = 38$  m  
Max permissible distance = 95 m  
After 2.5 mins distance =  $2.5 * 38 = 95$  m

76. If  $764xy$  is divisible by 90, then what is the value of  $x+y$ ?

A] 1

B] 3

C] 5

D] 6

Ans- A

Solution- For a number to be divisible by 90 it must be divisible by 9 & 10 both  
So for a given number  $764xy$ ,  $y=0$  &  $764x$  should be divisible by 9 so  $x=1$   
hence  $x+y=1+0=1$

77. The causes of productivity loss are to be written around a circle in the annual report. In how many ways can an analyst write them around the circle, if the number of causes is 5?
- A]  $5!$                       B]  ${}^5C_5$                       C]  ${}^5P_5$                       D]  $4!$   
E]  ${}^4C_4$

Ans-D

Solution- In circular arrangement, no of ways is  $(n-1)!$   
 $n=5$   
so  $(n-1)!=4!$

78. Rahul played well in this season. His current batting average is 51. If he scores 78 runs in today's match, his batting average will become 54. How many matches had he played in this season?
- A] 8                      B] 10                      C] 9                      D] 6

Ans- A

Solution -Let  $x$ = no of matches played  
 $51x+78=54(x+1)$   
 $\Rightarrow 3x=24$   
 $\Rightarrow x=8$

79. Swapan has kept RS. 2000 at 15 % simple interest in a bank for two years. If she had kept the same amount at compound interest for two years. How much extra she would have earned?
- A] 35                      B] 45                      C] 30                      D] 40

Ans- B

Solution- Swapan has kept Rs 2000  
 $S.I = \frac{P \times R \times T}{100}$   
 $P(1+\frac{r}{100})^T - P = 2000(1+\frac{15}{100})^2 - 2000 = 645$   
Therefore  $645-600=45$

80. What is the value of  $\log_{10}a + \log_{10}(b+1)$ ?
- A]  $\log_{10}a$                       B]  $\log_{10}b$                       C]  $\log_{10}(ab+a)$                       D]  $\log_{10}(a+b+1)$

Ans- C

Solution-  $\log_{10} a + \log_{10} (b+1)$

$\log_{10}(a(b+1)) = \log_{10}(ab+a)$

81. What are the values of X and Y in 72X23Y for it to be perfectly divisible by 88?

A] X=1 & Y=5

B] X=7 & Y=5

C] X=3 & Y=2

D] X=7 & Y=2

Ans- D

Solution- 72X23Y has to be divisible by 8 and 11.

For divisibility by 8, last three digits must be divisible by 8. Therefore Y = 2.

For divisibility by 11, difference between the sum of even and odd digits should be equal to 0 or multiple of 11. Therefore X = 7.

82. If  $\log_x \left( \frac{1}{343} \right) = -3$ , then the value of x is equal to:

A] 3

B] 7

C] -7

D] -3

Ans- B

Solution-  $1/343 = x^{-3}$  ;  $7^{-3} = x^{-3}$  ;  $x = 7$

83. If  $\log_{10} 2 = 0.3010$ , find the value of  $\log_{10} 25$ .

A] 1.2

B] 1.3

C] 1.4

D] 1.5

Ans- C

Solution —  $\log_{10} 25 = \log_{10}(100/4) = \log_{10} 100 - \log_{10} 4 = 2 - 2 * 0.3010 = 1.4$

84. Log 3600 is equal to

A]  $2\log 6 + 1$

B]  $6\log 2 + 1$

C]  $2\log 6 + 2$

D]  $6\log 2 + 2$

Ans- C

Solution-  $\log(36 * 100) = \log 36 + \log 100 = 2 \log 6 + 2$

85. The average of 7 numbers is 50. The average of first three of them is 40, while average of last three is 60. What must be the remaining number?

A] 65

B] 55

C] 50

D] 45

Ans- C

Solution- Sum of numbers =  $50 * 7 = 350$

Sum of first three number = 120

Sum of last three number = 180

So, fourth term =  $350 - 300 = 50$

86. What is the remainder if  $8^{25}$  is divided by 7?

A] 25

B] 8

C] 1

D] 0

Ans- C

Solution- It is in the form  $(a + 1)^n/a$   
So, remainder will always be 1.

87. The HCF of two numbers is 16. Which one of the following can never be their LCM?  
A]64                      B]78                      C]112                      D]128

Ans- B

Solution- 78 can never be its LCM. IF its HCF is 16 .

88. When price of a pair of shoe is decreased by 10%, the number of pairs sold increased by 20%. What is the net effect on sales?  
A]8% decrease              B] 10% decrease              C]10% increase              D]8% increase

Ans- D

Solution-  $X \times 90/100 \times 120/100 = X \times 108/100$ . So net effect is 8% increase.

89. Ajay, Abhijeet and Ramesh are eligible to be captain of the cricket team. Shaïd , John , Shisir and Nitin are eligible to be co-captain. How many possible outcomes are there for choosing a captain and a co-captain?  
A]12                      B]7                      C]9                      D]16

Ans- A

Solution- Captain can be chosen in 3 ways.  
Co-captain can be chosen in 4 ways.  
So, possible outcomes are  $3 \times 4 = 12$ .

90. If a coin with both heads is tossed, then probability of obtaining a tail is:  
A]0                      B]  $\frac{1}{2}$                       C] $\frac{1}{3}$                       D]1

Ans- A

Solution- If both side of coin is having Head. So, probability of obtaining a tail is zero.

91. Which of the following number should be added to 3651 so that it is divisible by 21?  
A]1                      B]2                      C]3                      D]4

Ans- C

Solution- 3651 has to be divisible by 3 and 7.  
For divisibility by 3, sum of digits must be divisible by 3. Therefore 3 must be added to 3651 to make it divisible by 3.

92. Mumbai Rajdhani takes 16 hours to reach Mumbai from Delhi while Swaraj express takes 20 hours. The ratio of speed of both the train:

A]1:4

B]4:5

C]5:4

D]3:2

Ans- C

Solution- Speed is inversely proportional to time taken. Ratio of time taken is 4:5 by Rajdhani and Swaraj resp. So, ratio of speed will be 5:4.

93. In how many ways can the digits 2,3,5,7 and 9 be placed to form a three digit number so that higher order digit is always greater than lower order digits? (Assume digits are all different)

A] 8

B]9

C]10

D]15

Ans- C

Solution- This can be done in 10 ways: 975, 973, 972, 953, 952, 932, 753, 752, 732, 532.

94. What will be the value of A and B:  $A8 + 96 = 1AB$

A]A=2, B=4

B]A=4, B=2

C]Inconsistent data

D]Insufficient data

Ans- A

Solution-  $A8 + 96 = 1AB$ . A =2 & B =4 satisfy the above equation.

95. Which of the following is greatest among the four given values of x?

A] $x = \sqrt{15}$

B] $x = \sqrt[3]{25}$

C] $x = \sqrt[4]{125}$

D] $x = \sqrt[12]{625}$

Ans- A

Solution-  $X = \sqrt{15}$  is the greatest among four.

96. Three successive discount of 6% ,10% and 15% are equal to a single discount of

A]25%

B]28.9%

C]31%

D] 28.09%

Ans- D

Solution- Applying successive %age method:

$$-6-10+(60/100) = -15.4\%$$

$$-15.4 -15 +(15*15.4)/100 = 28.09\%$$

97. If A varies jointly as B and cube of C. When A = 200, when B = 5 and C=2. Find A, when B= 6 and C = 3?

A]810

B]950

C]1070

D]1160

Ans- A

Solution-  $A = k*B*C^3$  ; putting the values we get k=5.

Now putting B=6, C=3 & k=5. Then A = 810.

98. A multiplex conducted a random survey of the movie goers to determine their preference in movies. Of the 50 people surveyed, 35 preferred comedies. What is the probability that any movie goer will buy a ticket of comedy movies?  
 A]  $7/10$                       B]  $3/10$                       C]  $6/10$                       D]  $4/10$

Ans- A

Solution- Probability = favourable case/ total sample space  
 $= 35/50 = 7/10$

99. Simplify:  $0.3434..... + 0.696969..... + 0.8080 - 0.4444..... - 0.333333..... - 0.07070.....$   
 A] 2                      B] 1.5                      C] 1.1489                      D] 0                      E] 1

Ans- E

Solution- Simplifying  $34/99 + 69/99 + 80/99 - 44/99 - 33/99 - 7/99$  we get 1 as answer.

100. The printed price on a book is Rs.400, a bookseller offers a 10% discount on it. If he still earns a profit of 20%, then the cost price of the book is:  
 A] Rs.280                      B] Rs.352                      C] Rs.360                      D] Rs.300

Ans- D

Solution- Printed price = 400 , Discount = 10%  
 Therefore, selling price =  $(400 \times 90)/100 = 360$   
 Cost Price \*  $120/100$  = Selling Price ; C.P. =  $36000/120 = 300$

101. There are 2 bags A and B. Bag A contains 6 red flowers and 3 pink flowers whereas Bag B contains 2 red flowers and 7 pink flowers. One flower is chosen from a bag randomly. What is the probability that the flower chosen is pink?  
 A]  $4/9$                       B]  $1/3$                       C]  $5/4$                       D]  $5/9$

Ans- D

Solution- Picking up a ball from Bag A =  $\frac{1}{2} \times \frac{3}{9}$  .  
 From Bag B =  $\frac{1}{2} \times \frac{7}{9}$  .  $(\frac{3}{18}) + (\frac{7}{18}) = \frac{5}{9}$ .

102. If the roots of the equation  $x^2 - ax + b = 0$  differ by 4 , then which of the following is true?  
 A]  $\log(a+4) + \log 4 = \log b + \log(a-4)$                       B]  $2 \log(a+4) - \log 4 = \log b$   
 C]  $2 \log(a-4) - \log 4 = \log b$                       D]  $\log(a+4) - \log 4 = \log b - \log(a-4)$

Ans- D

Solution- Let the roots be y and y+4.  
 Sum of roots=a and product of root=b. putting these values in option d satisfy the equation.

103. What are the numbers of ways of seating 7 candidates for an interview around a round table if all 4 women want to sit together?



A]4! 3!  
E) 7C3 7!

B]4! 4!

C]7!

D]7C4 .4! 3!

Ans- B

Solution- 4 women wants to sit together out of 7 members so it can be done in 4! Ways.  
Now 4 women can be arranged in 4! Ways. So, 4!\*4! Is the answer.

104. In how many ways can 12 similar toys be equally divided among 4 kids?  
A](12C3)<sup>4</sup> B](12C3)<sup>4</sup>(3P3)<sup>4</sup> C]12C3. 4 D]12C3.9C3.6C3.3C3

Ans- D

Solution- Selecting group 1 by 1 of 3 toys from 12 we get 12c3.9c3.6c3.3c3 is the answer.

105. A group is analyzing quality control problems. Suppose that the probability of a defective shape is 0.03 and the probability of a defective paint job is 0.06. What is the probability of a non-defective item?  
A]0.09 B]0.18 C]0.32 D]0.91

Ans- D

Solution- Probability of non-defective item=0.97\*0.94=0.91 as both event are independent event.

106.  $\frac{5}{11}$  of the paper produced can be recycled. If 6, 42, 400 tonnes of paper is produced. What quantity of recycled paper can be made after its use?

A]3, 92,000 tonnes

B]2, 92,000 tonnes

C]1, 92,000 tonnes

D]4, 92,000 tonnes

Ans- B

Solution- The total production is 6, 42, 400 tonnes. Out of which  $\frac{5}{11}$ th is recycled, thus the total recycled paper is  $642400 * \frac{5}{11} = 2, 92, 000$  tonnes.

107. In a quiz competition, the host asked a question and provided three possible answers. What is the probability that the answer choice which Rohit selects for a question is wrong?

A] $\frac{1}{3}$

B] $\frac{1}{2}$

C] ${}^3C_1 * \frac{3}{2}$

D] $\frac{2}{3}$

Ans- D

Solution- Out of three options, only one is correct, so the probability of selecting the correct option is  $\frac{1}{3}$ .

Also, the probability of selecting the wrong answer is  $(1 - \frac{1}{3}) = \frac{2}{3}$ .

108. What is the least amount that a person can have, such that when he distributes it into groups of Rs. 16 or Rs. 18 or Rs. 20 or Rs. 25, he is always left with Rs. 4?

A]Rs. 1,796

B]Rs. 1,804

C]Rs. 2,596

D]Rs. 3,604

Ans- D

Solution- When we read the question carefully, it is a problem similar to the one where we are asked to find the least number divisible by given numbers and leaving a common remainder. In such problems we find the LCM.

2	16, 18, 20, 25
2	8, 9, 10, 25
2	4, 9, 5, 25
2	2, 9, 5, 25
3	2, 3, 5, 25
5	2, 3, 1, 5

$$\text{LCM} = 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 5 \times 5 = 3600$$

$$\text{Remainder} = 4$$

So, the required number is  $3600 + 4 = 3604$

109. On an average, a content developer can develop 6 questions in an hour. Resource manager wants to complete the project of 2400 questions in 20 hours. How many developers should he take in his team?

A]30

B]20

C]40

D]10

Ans- B

Solution- A developer completes 6 ques in an hour.

So in 20 hours, he will complete  $(6 \times 20 = )$  120 question.

Total questions to be done = 2400.

$$\text{Required number of developers} = \frac{2400}{120} = 20.$$

110. A large rubber cushion can be filled with air pump in 10 minutes; another pump can fill the same cushion in 12 minutes. If both the pumps operate together, how long will it take to fill the cushion?

A] $6\frac{5}{11}$  minutes

B] $5\frac{6}{11}$  minutes

C] $4\frac{5}{11}$  minutes

D] $5\frac{5}{11}$  minutes

Ans-D

Solution- Pump 1 fills the cushion in 10 minutes.

In 1 minute the  $\frac{1}{10}$ th part of the cushion is filled by pump 1.

Similarly, in 1 minute the  $\frac{1}{12}$ th part of the cushion is filled by pump 2.

If both the pumps are working together, then in 1 minute the  $(\frac{1}{10} + \frac{1}{12}) \frac{11}{60}$  part is filled. Thus the time taken by both the pipes is  $\frac{60}{11}$  or  $5\frac{5}{11}$  minutes.

Alternatively, in such cases we can calculate the total time by using the trick:

$$\frac{10 \times 12}{10 + 12} \left( \frac{P_1 \times P_2}{P_1 + P_2} \right) = \frac{60}{11} \text{ or } 5\frac{5}{11} \text{ minutes}$$

111. A developed car in the workshop comprises of around 70 components. Each component has a probability of having a manufacturing error 0.015. What is the probability that this developed car will get rejected due to manufacturing error in any of the component?

A]  $(0.015)^{70}$

B]  $(0.985)^{70}$

C]  $1 - (0.985)^{70}$

D]  $1 - (0.015)^{70}$

Ans- C

Solution- Probability of error = 0.015

Probability of no error =  $1 - 0.015 = 0.985$

For 70 components, the probability of no error =  $(0.985)^{70}$

Thus, the probability of rejection =  $1 - (0.985)^{70}$

112. A street seller bought maize corns for Rs. 20 per kg. In one kg, there are approximately 5 heads of corn. He sells roasted corns for Rs. 8 per piece. How many corns will he have to sell in order to earn a profit of Rs. 200 in a day?

A] 60

B] 50

C] 40

D] 80

Ans- B

Solution- Cost of maize = Rs. 20/kg

1 kg contains 5 pieces of corn thus the cost of 5 corn heads is Rs. 20.

Price of 1 corn head = Rs. 4

Selling price of 1 roasted corn head = Rs. 8

Profit = Rs. 4/head

Total profit = Rs. 200.

Number of maize sold =  $200/4 = 50$  pieces.

113. Ram is 5 years elder to his youngest sibling Shreya. Shreya is two years younger than her brother Ritesh. Ritesh is 13 years old and is Ram's brother. How old will Ram be in two years from now?

A]16

B]17

C]20

D]15

E) 18

Ans- E

Solution- Let Shreya's age = x years

Acc to ques, Ram's age = x+5 years

Ritesh's age = x+2

Given is Ritesh's age = 13 years

$x+2 = 13$ ;

$x = 11$  years

Ram's present age =  $11 + 5 = 16$  years

Ram's age after 2 years will be 18 years.

114. Jagdish can build a wall in 10 days. Narender can build the same wall in 12 days while Sumit takes 15 days to do the same job. Which two of them should be employed to finish the job in 6 days?

A]Jagdish and Narender

B]Jagdish and Sumit

C]Sumit and Narender

D]None of the above

Ans- B

Solution- Jagdish takes 10 days to complete the work, so we can say that he completes  $\frac{1}{10}$  th of the work in a day.

Similarly, Narender completes  $\frac{1}{12}$  th and Sumit completes  $\frac{1}{15}$  th of the work in a day.

The time taken to complete the work can be calculated in two ways. First method is by adding their individual one day's work and then taking the reciprocal. Second is the short method ( $\frac{D_1 \cdot D_2}{D_1 + D_2}$ ), where  $D_1$  is the number of days taken by first man and  $D_2$  is the number of days taken by second man.

Let us find the combined work of these men taking two at a time.

Jagdish and Narender:  $D_1 = 10$  days;  $D_2 = 12$  days.

They both will take  $(\frac{10 \cdot 12}{10+12}) \frac{120}{22}$  or  $\frac{60}{11}$  days.

Sumit and Narender:  $D_1 = 15$  days;  $D_2 = 12$  days.

They both will take  $(\frac{15 \cdot 12}{15+12}) \frac{150}{27}$  or  $\frac{50}{9}$  days.

Jagdish and Sumit:  $D_1 = 10$  days;  $D_2 = 15$  days.

They both will take  $(\frac{10 \cdot 15}{10+15}) \frac{150}{25}$  or 6 days.

Jagdish and Sumit will take 6 days to complete the work while working together.

115. The reciprocal of HCF and LCM of two numbers are  $\frac{1}{12}$  and  $\frac{1}{312}$  respectively. If one of the numbers is 24, find the other number.

A]126

B]136

C]146

D]156

Ans- D

Solution- From the reciprocals of HCF and LCM, we can find the HCF and LCM. HCF = 12 and LCM = 312.

Also we know that the product of HCF and LCM of two numbers is equal to the product of two numbers.

HCF x LCM = First number x second number

$12 \times 312 = 24 \times \text{second number}$

Second number = 156.

116. If by selling 10 papayas, the cost price of 8 papayas is realized, then the loss percent is:

A]20%

B]10%

C]8%

D]2%

Ans- A

Solution- Let SP of each papaya be Rs. X.

SP of 10 papayas = Rs. 10x

CP of 8 papayas = Rs. 10x

CP of each papaya = Rs.  $\frac{10x}{8} = \text{Rs. } \frac{5x}{4}$

As CP > SP; there is loss.

Loss = (CP – SP) Rs.  $\frac{x}{4}$

Loss % =  $\frac{\text{Loss}}{\text{CP}} \times 100 = \frac{\frac{x}{4}}{\frac{5x}{4}} \times 100 = 20\%$

117. 4 men can repair a road in 7 hours. How many men are required to repair the road in 2 hours?

A]7

B]14

C]17

D]10

Ans - B

Solution- 4 men can complete the work in 7 hours.

1 man will complete the work in (4\*7) 28 hours.

28 hours are taken by 1 man to complete the work.

1 hour will be taken by 28 men to complete the work.

And to complete the same work in 2 hours, 14 men will be needed.

Alternatively,

Recall the formula:  $M_1 \cdot T_1 = M_2 \cdot T_2$

$$4 \cdot 7 = M_2 \cdot 2$$

$$M_2 = 14 \text{ men.}$$

118. A book store offers a 10% discount on all books sold plus an additional discount of 5% on the total bill, if the total bill after discount is more than or equal to Rs. 1000. Dilshan bought 3 books worth Rs. 450, Rs. 520 and Rs. 250 respectively. How much money was Dilshan able to save as a result of the various discounts offered by the store?

A]Rs. 102

B]Rs. 176.9

C]Rs. 61

D]Rs. 183

E) None of the above

Ans- B

Solution- The 10% discount is offered on all the items. Let us first calculate the selling price of each.

Cost Price	Discount	Selling price
450	45	405
520	52	468
250	25	225
<b>Total</b>	<b>122</b>	<b>1098</b>

The total selling price is Rs. 1098 which is greater than Rs. 1000, so Dilshan will get an additional discount of 5%.

$$5\% \text{ of } 1098 = \text{Rs. } 54.90$$

$$\text{Total Discount} = 122 + 54.90 = \text{Rs. } 176.90$$

119. A written exam consists of 6 questions with the answer options yes/ no/ none. In how many ways can the examinees select the answer?

A] ${}^6P_3$  ways

B] ${}^5C_3$  ways

C] ${}^3C_1 \cdot {}^3C_1 \cdot {}^3C_1 \cdot {}^3C_1 \cdot {}^3C_1$

D] $({}^3C_1)^6$

Ans- D

Solution- There number of ways of selecting an option from the three given options is  ${}^3C_1$  and there is a total of 6 such questions, so the number of possibilities for all the questions =  $({}^3C_1)^6$

120. What is the number of ways of selecting 7 files out of 14 distinct files if one is always selected?

A]  ${}^{14}C_7$

B]  ${}^{13}C_6$

C] 1

D]  ${}^{14}P_7$

E]  ${}^{13}P_6$

Ans- B

Solution- Out of a total number of 14 files, one is always selected, so we are left with 13 files and out of these only 6 are to be chosen because one has already been selected.

Thus number of ways will be  ${}^{13}C_6$ .

121. What least value must be assigned to #, so that the number 279#4423 is divisible by 9?

A] 1

B] 5

C] 3

D] 7

Ans- B

Solution- Divisibility test of 9 is done by adding digits of the number. If the sum of digits is divisible by 9 then the number is also divisible by 9.

So if 279#4423 is divisible by 9 then the sum of the digits should also be divisible by 9.

Sum of the digits  $(2+7+9+\#+4+4+2+3) = 31+\#$

$31+\#$  is divisible by 9 so # should be 5.

Ad sum of the digits should be 36.

122. A field person of a customer care department of a company on an average attends to 3 complaints. If customer care receives about 200 complaints daily, and have 45 field persons to attend to these, how many complaints are to be outsourced?

A] 145

B] 135

C] 55

D] 65

Ans-D

Solution- 1 field person attends 3 complaints in a day.

45 field persons will attend  $(45 \times 3)$  135 complaints in a day.

Total complaints in a day = 200.

Outsourced complaints =  $200 - 135 = 65$

123. Pulse rate of a teenager is 12 beats in 10 sec. At this rate, would his pulse rate be more than, equal to, or less than 100 beats per minute?

A] Less than

B] Greater than

C] Equal to

D] Data insufficient

Ans- A

Solution- In 10 sec the heart beats 12 beats.

So, in 60 sec it will beat  $(12 \times 6)$  72 beats.

60 sec means one minute; so the heart beat rate is 72 beats/minute.

124. A train Rajdhani starts from Suratkal at 5 a.m. with the speed of 15 kmph. Another train Shatabadi starts from the same place in the same direction at 7 a.m. with a speed of 20 kmph. At what time will both the trains meet each other?

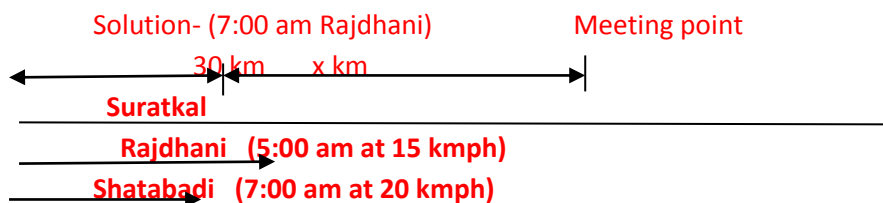
A]3:00 p.m.

B]2:00 p.m.

C]12:00 p.m.

D]1:00 p.m.

Ans- D



Rajdhani train starts at 5:00 am and Shatabadi train starts at 7:00 am. So by the time Shatabadi starts, Rajdhani has already covered 2 hours worth distance.

Rajdhani train is travelling at the speed of 15 kmph so in 2 hours it has covered 30 km.

Let us assume the trains meet at the distance  $x$  km from the point where Rajdhani has reached at 7:00 am. Also the time taken to reach the meeting point by both trains should be same.

Let us calculate the time taken by both trains.

Rajdhani has covered distance  $x$  km at the speed of 15 kmph.

$$\text{Time taken} = \frac{\text{Distance}}{\text{Speed}} = \frac{x}{15} \quad \dots(1)$$

Shatabadi has covered distance  $(x+30)$  km at the speed of 20 kmph.

$$\text{Time taken} = \frac{\text{Distance}}{\text{Speed}} = \frac{x+30}{20} \quad \dots(2)$$

Time taken should be same in both the cases. Therefore,

$$\frac{x}{15} = \frac{x+30}{20} ; \text{ which gives } x = 90 \text{ km.}$$

Shatabadi has covered the total distance of  $(x+30)$  120 km at the speed 20 kmph. Time taken is  $(\frac{120}{20})$  6 hours. It starts at 7:00 am and after 6 hours the time will be 1:00 pm.

**Alternatively,**

Rajdhani has covered 30 km distance in the time between 5:00 am and 7:00 am. Both the trains are travelling in the same direction so the relative speed for both the trains will be  $(20 - 15)$  5 kmph. The difference between the distances that Rajdhani train has covered in two hours is the distance to be covered in order to meet.

$$\text{Time taken} = \frac{\text{Difference in distance}}{\text{relative speed}} = \frac{30}{5} = 6 \text{ hours.}$$

Shatabadi starts at 7:00 am and after 6 hours the time will be 1:00 pm.



**Note:** We are taking 7:00 am as the starting time and not 5:00 am because at 5:00 am only one train is moving. The trains will meet only after the second train starts moving.

125. What is the loss percentage incurred by a company when it buys an asset for Rs. 1, 50, 000 and sells it for Rs. 75, 500?

A]49.67%

B]49.34%

C]98.68%

D]98.34%

**Ans- A**

Solution- Cost price (CP) = Rs. 1, 50, 000

Selling price (SP) = Rs. 75, 000

Loss = (CP - SP) 1, 50, 000 – 75, 000 = Rs. 74, 500

$$\begin{aligned}\text{Loss Percentage} &= \frac{\text{Loss}}{\text{CP}} \times 100 \\ &= \frac{74,500}{1,50,000} \times 100 = 49.67\%\end{aligned}$$

126. Five paramedics and four technicians are registered for a rescue team. How many possible combinations one can choose to make a rescue team of a paramedic and a technician?

A]9

B]40

C]20

D]18

**Ans- C**

Solution- One paramedic is to be selected from 5 paramedics and 1 technician is to be selected from 4 technicians for each team.

$$\text{Number of total combinations} = {}^5C_1 \times {}^4C_1 = 5 \times 4 = 20$$

127. Ritu visited a mall where tokens are given while submitting belongings at the entrance. Tokens are lettered a, b, c, ....., z. Guard gives the token at random. What is the probability that token given to Ritu is consonant?

A] $\frac{5}{21}$

B] $\frac{21}{26}$

C] $\frac{5}{26}$

D] $\frac{26}{21}$

**Ans-B**

Solution-The total possibilities here are 26 but favourable cases are 21 i.e. consonants.

$$\text{Thus probability} = \frac{21}{26}$$

128. Find the smallest number which when divided by 24, 30, 48 and 60, leaves remainder 2 in each case.

A]238

B]242

C]8

D]4

Ans- C

Solution- In this type of problems we first find the number which is exactly divisible by the given numbers, which is the LCM of the given numbers.

	2	24, 30, 48, 60
	2	12, 15, 24, 30
	2	6, 15, 12, 15
	2	3, 15, 6, 15
	2	3, 15, 3, 15
	3	1, 5, 1, 5

$$\text{LCM} = 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 5 = 240$$

Lastly we add the required remainder to the LCM.  $240 + 2 = 242$  is the required number.

129. A water filter takes 40 minutes to filter 20 liters of water. Another filter of same specifications takes 30 minutes to filter the same amount of water. If both the filters are used at the same time, then how long will it take them to filter 70 liters of water?

A]  $\frac{1}{2}$  hour

B]  $\frac{3}{4}$  hour

C] 1 hour

D]  $1\frac{1}{2}$  hour

Ans- C

Solution- Filter 1 (F1) takes 40 minutes to fill a tank of 20 liters.

Filter 2 (F2) takes 30 minutes to fill the same tank.

Working together they will take  $\left(\frac{F_1 \times F_2}{F_1 + F_2}\right) \frac{40 \times 30}{40 + 30} = \frac{120}{7}$  minutes to fill the tank of 20 liters.

We need to calculate the time taken by both the filters to fill the tank of 70 liters.

For this, recall the relation:  $T_1 \times W_2 = T_2 \times W_1$

$$T_1 = \frac{120}{7} \text{ minutes}; T_2 = ?; W_1 = 20 \text{ liters}; W_2 = 70 \text{ liters}$$

$$\frac{120}{7} \times 70 = T_2 \times 20$$

$$T_2 = 60 \text{ minutes or 1 hour}$$

130. Parul is one-fifth the age her mother was 15 years ago and Parul's brother is three-fifth the age his mother was 10 years ago. If the sum of Parul and her brother's age is 31, then how old is Parul's mother?

A] 50

B] 40

C] 35

D] 60

Ans- A

Solution- Let mother's age = x years

Acc to ques, Parul's age =  $\frac{x-15}{5}$  years

Brother =  $\frac{3}{5}(x - 10)$  years

Also,  $\frac{x-15}{5} + \frac{3}{5}(x - 10) = 31$

On solving, x = 50; i.e. mother's age = 50 years.

131. Micro-Sims Pvt. Ltd. produces 1,200 phones every day. If out of these,  $2\frac{1}{3}\%$  are faulty and  $4\frac{1}{3}\%$  are defective in packaging, then how many non-faulty and non-defective packaged phones are produced every day?

A]80

B]120

C]1080 D]1120

Ans- D

Solution- Faulty phones =  $2\frac{1}{3}\%$  or  $\frac{7}{3}\%$

Defective in packaging =  $4\frac{1}{3}\%$  or  $\frac{13}{3}\%$

Faulty and defective phones out of total phones is given by:

$\frac{7}{3}\%$  of 1200 +  $\frac{13}{3}\%$  of 1200 =  $(\frac{7}{3 \times 100} + \frac{13}{3 \times 100}) \times 1200 = 80$  phones.

Non faulty and non defective =  $1200 - 80 = 1120$  phones.

132. Sudhir goes to the market once every 64 days and Sushil goes to the same market once every 72 days. They met each other one day. How many days later will they meet each other again?

A]16

B]64

C]240

D]576

Ans- D

Solution- In such problems, when we need to find the next meeting of two or more people when they both have different time periods, we find the LCM of the time periods.

Thus, Sudhir and Sushil will meet after (LCM of 64 and 72) days.

2	64, 72
2	32, 36
2	16, 18
2	8, 9
2	4, 9
3	2, 9
	2, 3

LCM =  $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 = 576$

Thus they will meet after 576 days.

133. A company decides new identity code for all its employees. The identity code would comprise of five letter initials that can be formed using the alphabets of English language such that the fifth letter is always a consonant. How many such combinations are possible?

A]  $26^3 \times 21^2$

B]  $21^4 \times 26$

C]  $21^3 \times 26^2$

D]  $26^4 \times 21$

Ans- D

Solution- Let us assume that repetition is allowed as there is no mention of repetition not being allowed. So for the five letter identity code, first four are chosen from the total of 26 alphabets and the fifth letter is always a consonant, so fifth one is chosen from 21 consonants.

Total possibilities are as follows:

$${}^{26}C_1 \times {}^{26}C_1 \times {}^{26}C_1 \times {}^{26}C_1 \times {}^{21}C_1 = 26 \times 26 \times 26 \times 26 \times 21 = 26^4 \times 21$$

134. Ramakant wants to earn Rs. 1500 interest on his deposits. He plans to buy a sack of grains with the interest. He puts Rs. 5,000 into his account that earns 2.5% interest. How long will he need to leave his money in the account to earn this interest that would help him buy the sack of grains?

A] 8 years

B] 10 years

C] 12 years

D] 15 years

Ans- C

$$\text{Solution- After one year Ramakant earns} = \frac{5000 \times 25}{100} = \text{Rs. 125}$$

Ramakant wants to earn = Rs. 1500

$$n \times 125 = 1500$$

$$n = 12 \text{ years.}$$

135. A bread making machine can make bread of 50 kg dough in 3 minutes. How many such machines are required to make breads of 300 kg dough in 6 minutes?

A] 6

B] 3

C] 4

D] 5

Ans – B

Solution- A machine can make  $\frac{50}{3}$  kg bread in 1 minute.

$$\begin{aligned}
 &\text{Required 300 kg dough in 6 minutes} \\
 &= 50 \text{ kg in 1 minute} \\
 &= \frac{50}{50/3} = 3 \text{ minutes.}
 \end{aligned}$$

136. The list price of an electric iron is Rs. 300. If two successive discounts of 15% and 10% are allowed, its selling price will be:

- A]Rs. 229.50                      B]Rs. 231.50                      C]Rs. 232. 50                      D]Rs. 234. 50
- E) None of the above

Ans - A

Solution- List price = Rs. 300

$$\text{After discount} = 300 \times \frac{85}{100} \times \frac{90}{100} = \text{Rs. 229.5}$$

137. A television manufacturing company has decided to increase the sale to beat the economic slowdown. It decides to reduce the price of the television sets by 25% as a result of which the sales increased by 20%. What is the effect on the total revenue of the company?

- A]Decreased by 20%                      B]Increased by 20%                      C]Increased by 10%
- D]Decreased by 10%

Ans- D

Solution- Let price = Rs. x

$$\text{Reduced price} = \text{Rs. } \frac{3}{4}x$$

$$\text{Increased price} = \frac{6}{5} * \frac{3}{4}x = \frac{9}{10}x$$

138. A scuba diver descends at a rate of 40 feet per minute. A diver dives from a ship to search for a lost ship at the depth of 3000 feet below sea level. How long will he take to reach the ship?

- A]70 minutes                      B]72 minutes                      C]75 minutes
- D]76 minutes

Ans- C

Solution- Total distance = 3000 feet

Speed = 40 feet/ minute

Time =  $\frac{3000}{40} = 75$  minutes

139. The average age of the state level cricket team of eleven is 22 years. The average age gets increased by 1 year when the coach age is also included. What is the age of the coach?

A]34

B]23

C]30

D]40

Ans- A

Solution- Total age=  $11 \times 22 = 242$

Age of coach=x

$242+x= 23 \times 22$

$x = 276 - 242 = 34$  years

140. In an examination involving quantitative aptitude and logical reasoning, 65% examinees cleared quantitative aptitude test while 70% cleared logical reasoning test. If 50% examinees passed both the tests, then how many failed in both the tests?

A]35%

B]15%

C]30%

D]20%

Ans- B

Solution- 65% cleared quantitative aptitude

70% cleared logical reasoning

50% examinees passed both

Let x% failed in both

Then,

$100=65+70-50+x=15$

Ques 141. If the sum of two numbers is 55 and the H.C.F. and L.C.M of these numbers are 5 and 120 respectively, then the sum of the reciprocals of the numbers is equal to:

Op 1:  $\frac{55}{601}$

Op 2:  $\frac{601}{55}$

Op 3:  $\frac{11}{120}$

Op 4:  $\frac{120}{11}$

Correct Op: 3

Sol. Let the number be x and y then required Sum of reciprocal =  $\frac{1}{x} + \frac{1}{y} \Rightarrow \frac{x+y}{xy} \Rightarrow \frac{55}{600} = \frac{11}{120}$

Ques 142. Three different containers contain 496 liters, 403 liters and 713 liters of mixtures of milk and water respectively. What biggest measure can measure all the different quantities exactly?

Op 1: 1 litre

Op 2: 7 litre

Op 3: 31 litre

Op 4: 41 litre

Correct Op : 3

Sol- Biggest measure will be Hcf of 496, 403, 713 = 31

Ques 143. Six bells commence tolling together and toll at intervals of 2, 4, 6, 8, 10 and 12 seconds respectively. In 30 minutes, how many times do they toll together?

Op 1: 4

Op 2: 10

Op 3: 15

Op 4: 16

Correct Op : 4

Sol- Lcm of 2, 4, 6, 8, 10, 12 = 120secs  $\Rightarrow$  2min

Toll in 30mins =  $\frac{30}{2} \Rightarrow$  15 times.

Ques 144. Four different electronic devices make a beep after every 30 minutes, 1 hour,  $\frac{3}{2}$  hour and 1 hour 45 minutes respectively. All the devices beeped together at 12 noon. They will again beep together at:

Op 1: 12 midnight

Op 2: 3 a.m.

Op 3: 6 a.m.

Op 4: 9 a.m.

**Correct Op: 4**

Sol- LCM of 30, 60, 90, 105 = 540mins = 9 hrs

Beep at = 9 pm

Ques 145. The number of prime factors of  $(3 \times 5)^{12} (2 \times 7)^{10} (10)^{25}$  is:

Op 1: 47

Op 2: 60

Op 3: 72

Op 4: None of these

**Correct Op: 4**

Sol =  $2^5 \times 3^2 \times 5^5 \times 7$

No. of factors = 13

Ques 146. What least value must be assigned to \* so that the number 63576\*2 is divisible by 8?

Op 1: 1

Op 2: 2

Op 3: 3

Op 4: 4

**Correct Op : 3**

Sol. To make last three digits divisible by 8 only 3 is the number which can be put there to make it completely divisible.

Ques 147. Which of the following numbers is exactly divisible by 24 ?

Op 1: 35718

Op 2: 63810

Op 3: 537804

Op 4: 3125736



Correct Op : 4

Sol- Going through options

3125736 is the only number that is divisible by 3 as well as 8.

Ques 148. The number nearest to 15207, which is divisible by 467, is:

Op 1: 14342

Op 2: 15211

Op 3: 14944

Op 4: 15411

Op 5: None of these

Correct Op : 4

Sol- Going through options

15411 is the only number that is satisfying the above written conditions.

Ques 149. The smallest number, which is a perfect square and contains 7936 as a factor is:

Op 1: 251664

Op 2: 231564

Op 3: 246016

Op 4: 346016

Op 5: None of these

**Correct Op : 3**

**Sol- Going through options**

**246016 is the only number that is satisfying the above written conditions.**

Ques 150. In a division problem, the divisor is twenty times the quotient and five times the remainder. If remainder is 16, the number will be:

Op 1: 3360

Op 2: 336

Op 3: 1616

Op 4: 20516

Op 5: None of these

**Correct Op : 2**

**Sol. Remainder = 16**

**Divisor = 80**

**Quotient = 4**

**Number =  $80 \times 4 + 16 = 336$**

Ques 151. The L.C.M. of two numbers is 4800 and their G.C.M. is 160. If one of the numbers is 480, then the other number is:

Op 1: 1600

Op 2: 1800

Op 3: 2200

Op 4: 2600

Op 5: None of these

**Correct Op : 1**

**Sol.  $4800 \times 160 = 480 \times 2^{\text{nd}} \text{ number}$**

**$2^{\text{nd}} \text{ number} = 1600$**

Ques 152. The L.C.M. of two numbers is 140. If their ratio is 2:5, then the numbers are:

Op 1: 28,70

Op 2: 28,7

Op 3: 8,70

Op 4: 8,40

Op 5: None of these

**Correct Op : 1**

**Sol.  $2 \times 5 \text{ unit} = 70$**

**1 unit = 14**

**Thus, numbers are 14 & 70 only.**

Ques 153. If a number is exactly divisible by 85, then what will be the remainder when the same number is divided by 17?

Op 1: 3

Op 2: 1

Op 3: 4

Op 4: 0

**Correct Op : 4**

**Sol. Zero will be remainder because 17 is also a multiple of 85.**

Ques 154. The least perfect square number which is exactly divisible by 3, 4, 7, 10 and 12 is:

Op 1: 8100

Op 2: 17600

Op 3: 44100

Op 4: None of these

**Correct Op : 3**

**Sol. If go through option we will find that only 44100 is satisfying the above given conditions.**

Ques 155.  $(x^n + y^n)$  is divisible by  $(x - y)$ :

Op 1: for all values of n

Op 2: only for even values of n

Op 3: only for odd values of n

Op 4: for no values of n

**Correct Op : 4**

Sol. Putting value of  $n = 1, 2..$

Number =  $x^n + y^n$  is not divisible by  $x - y$

And only satisfying the option 4 condition.

Ques 156. The greatest number that will divide 63, 138 and 228 so as to leave the same remainder in each case:

Op 1: 15

Op 2: 20

Op 3: 35

Op 4: 40

**Correct Op : 1**

Sol. Going through option, 15 is the only number that is satisfying the case.

Ques 157. Find the largest number, smaller than the smallest four-digit number, which when divided by 4, 5, 6 and 7 leaves a remainder 2 in each case.

Op 1: 422

Op 2: 842

Op 3: 12723

Op 4: None of these

**Correct Op : 2**

Sol. Going through option then option 2 is the only number that is satisfying all the cases.

Ques 158. What is the highest power of 5 that divides  $90 \times 80 \times 70 \times 60 \times 50 \times 40 \times 30 \times 20 \times 10$ ?

Op 1: 10

Op 2: 12

Op 3: 14

Op 4: None of these

**Correct Op : 1**

Sol. Every number except 50 contain 1 power of 5 and 50 contain 2 power so total power =  $8 + 2 = 10$

Ques 159. If  $a$  and  $b$  are natural numbers and  $a - b$  is divisible by 3, then  $a^3 - b^3$  is divisible by:

Op 1: 3 but not by 9

Op 2: 9

Op 3: 6

Op 4: 27

**Correct Op: 2**

Sol. let the numbers = 9, 6

$$= 9 \times 3 - 6 \times 3 = 9$$

Ques 160. In how many ways can a number 6084 be written as a product of two different factors ?

Op 1: 27

Op 2: 26

Op 3: 13

Op 4: 14

**Correct Op: 3**

Sol. First find number of factors of  $6084 = 2^2 \times 3^2 \times 13^2 = 3 \times 3 \times 3 = 27$  if it is odd then  $(n-1)/2$  ways if even then  $n/2$  ways so in this case  $27-1/2 = 13$ .

Ques 161. What is the smallest four-digit number which when divided by 6, leaves a remainder of 5 and when divided by 5 leaves a remainder of 3?

Op 1: 1043

Op 2: 1073

Op 3: 1103

Op 4: None of these

**Correct Op: 4**

Sol. Smallest 4 digit number = 1000

$$= 1000 + 13 = 1013$$

Ques 162. P is an integer.  $P > 883$ . If  $P-7$  is a multiple of 11, then the largest number that will always divide  $(P+4)(P+15)$  is:

Op 1: 11

Op 2: 121

Op 3: 242

Op 4: None of these

**Correct Op : 3**

Sol- The first number greater than 883 and divisible by 11 is 891 so  $P = 898$  and hence  $(P+4)(P+15) = 902 \times 913$  and hence divisible by 242 as one of them is even.

Ques 163. Four bells begin to toll together and then each one at intervals of 6 s, 7 s, 8 s and 9 s respectively. The number of times they will toll together in the next 2 hr is:

Op 1: 14 times

Op 2: 15 times

Op 3: 13 times

Op 4: 11 times

**Correct Op: 1**

Sol. LCM of 6, 7, 8, 9 = 336

Number of time they will together =  $2 \times 60 \times 60 / 336 \Rightarrow 14$

**164)** The probability of getting at least one tail in 5 throws of a coin is?

a)  $1/32$       b)  $31/32$       c)  $1/5$       d) None of the above

**Ans. B**

Sol- a coin throws 5 times is equal to the 5 coins throws at one time.

So total no of choices are  $2^5 = 32$

Chances that not getting at least one tails is 1 i.e., (h,h,h,h,h)

So  $1 - (1/32) = 31/32$ ...option (b) is correct.

**165)** When a local train travels at a speed of 60kmph, it reaches the destination on time. When the same train travels at speed of 50kmph, it reaches its destination 15 minutes late. What is the length of journey?

a) 75km      b) 50km      c) 60km      d) 85km

**Ans. A**

Sol- let the time taken by a train to reach destination at 60kmph is x. Then it takes (x+15) at 50kmph.

So distance,  $60x = 50(x+15)$

$x = 75$ ...option (a) is correct.

**166)** Give the greatest pair of twin primes which are below 100?

a) 71, 73      b) 93, 95      c) 97, 99      d) 87, 89

**Ans. A**

Sol- in the given options only 71 and 73 are primes.

So option (A) is correct.

**167 )** In an examination involving quantitative aptitude and logical reasoning, 65% examinees cleared quantitative aptitude test while 70% cleared logical reasoning test. If 50% examinees passed both the tests, then how many failed in both tests?

a) 35%      b) 15%      c) 30%      d) 20%

Ans. B

Sol- no of students who passed in at least one subject:

$$A \cup B = 65 + 70 - 50 = 85$$

If total students are 100 .no of students who failed in both subjects = total students-students who passed in at least one subjective.  $100 - 85 = 15$

So option (b) is correct

**168)** A sum of money triples itself at compound interest in 3 years. In 9 years it will be

a) 6 times the principal

b) 12 times the principal

c) 18 times the principal

d) 27 times the principal

Ans. D

Sol- let the principal be x.

$$X(1+R/100)^3 = 3x$$

$$(1+R/100)^3 = 3 \Rightarrow 3^3 = 27$$

So option (d) is correct.

**169)** Three friends Gerard, Runey work together to dig a hole. Gerard alone can complete the work in 10 days and together they can complete it in 4 days. They earn a total of Rs.1,200. Find the share of Runey if the money that they receive is proportional to the work that they do?

a) Rs 720

b) Rs 165.51

c) Rs 500

d) Rs 600

Ans- A

Sol- One day work of Runey =  $\frac{1}{4} - \frac{1}{10} = \frac{3}{20}$  and 1 day work of Gerard =  $\frac{1}{10} = \frac{2}{20}$  So the ratio of work done = 3:2 So Share of Runey =  $\frac{3}{5}$  of 1200 = 720

**170)** The number which should be subtracted from  $5a^2 - 3ab + 7b^2$  to make it equal to  $a^2 + ab + b^2$ , is:

a)  $4a^2 - 4ab + 6b^2$

b)  $4a^2 - 4ab + 5b^2$

c)  $4a^2 + 4ab + 6b^2$

d)  $4a^2 - 3ab + 6b^2$

e) None of the above

Ans.C

$$\text{Sol- } (5a^2 - 3ab + 7b^2) - (a^2 + ab + b^2) = 4a^2 - 4ab + 6b^2$$

So option c is correct.

**171)** Given that the interest is only earned on principal, if an investment of Rs.1000.00 amount to Rs.1440.00 in two years, then what is the rate of interest earned?

a) 20%

b) 22%

c) 21%

d) 11%

e) 44%

Ans. A

$$\text{Sol- } 1000(1+r/100)^2 = 1440$$

So the answer is 20%.

Option (A) is correct.

**172)** If  ${}^nC_5 = {}^nC_0$ , then find the value of n.

a) n=0

b) n =1

c) n=5

d) n=10

Ans. C

$$\text{Sol- } {}^nC_5 = {}^nC_{n-5} = {}^nC_0$$

$$n-5=0$$

$n=5$ ..so option (c) is correct

**173)** A bag contains 5 oranges, 4 bananas and 3 apples. Rohit wants to eat a banana or an apple. He draws a fruit from the bag randomly. What is the probability that he will get a fruit of this choice?

a) 3.5/12

b) 7/12

c) 5/12

d) None of the above

Ans. B

Sol- total fruits are 12.

Chances to select banana or apple is:  $4+3=7$

Probability =  $7/12$

So option (b) is correct.

**174)** A single letter is drawn at random from the word "ASPIRATION", the probability that it is a vowel is?

a) 1/2

b) 1/3

c) 3/5

d) 2/5

Ans) A

Sol- A single letter drawn at random from the above given word is  $5C_1/10 = 1/2$

**175)** The number of ways in which 15 students A1, A2, ..., A15 can be ranked, such that A4 is always above A8 is:

a) 15!

b) 13!

c)  $15!/2$

d)  $13!/2$

Ans- C

Sol- Number of ways of arranging = 15!

Number of ways of ranking that A 4 is always above a8 =  $15!/2$

**176)** Suparna needs to browse through 75 pages of a novel before she gives her review to the class. She has 2.5 hrs before the lecture. What should be her reading speed in pages/hour?

a) 16 b) 30 c) 20 d) 22

Ans) B

Sol- speed = distance/time

$$S = 75/2.5$$

$$S = 30$$

14) The value of  $\log_{10} 0.1$  is :

a) 0 b) -1 c) -10 d) -100

Ans) B

$$\text{Sol- } \log_{10} 0.1 = \log_{10} 10^{-1} = -1 \log_{10} 10 = -1 \quad (\log_{10} 10 = 1)$$



177) A written exam consists of 6 questions with the answer options as yes/no/none. In how many ways can the examinees select the answers?

a) 6 ways   b) 6 ways   c) 3 .3 .3 .3 .3   d)  $(3^6)$

Ans- D

Sol- Since every question have 3 option to select so In  $3^6$  ways the examiners select the answers.

178) What is the sum of the two consecutive numbers, If the difference of whose squares is 19?

a. 9                      b. 10                      c. 18                      d. 19

Ans) D

Sol.  $(n+1)^2 - n^2 = 19$

We get  $2n = 18$ ,  $n = 9$

179) P is an integer.  $P > 883$ . If  $(p-7)$  is a multiple of 11, then the largest number that will divide  $(p+4)$   $(p+15)$  is :

11              121              242              None of the above

Ans- D

SOL. None of the above.

$883/11$ , Remainder = 3

Number divisible by 11 =  $883 - 3 \Rightarrow 880$

$p - 7 = 880$ ,  $p = 887$

180) Find the least number which when divided by 5, 7 and 13 leaves the same remainder 3 in each case

a) 398              b) 453              c) 458              d) 463

Ans) C

Sol- By trial method we get the answer as 458. Why because if we divide the number with 5, 7, 13 it leaves the remainder as 3 in all the three cases.

181) Which number should be subtracted from 321 so that it becomes prime?

a) 2              b) 4              c) 6              d) 9

Ans) A

Sol- If we apply trial method 2 is the answer. If we subtract 321 from 2 the result will be 319 hence this is the prime number

182)  $2^8 \times 2^2 =$

a)  $4^{10}$               b)  $2^{10}$               c)  $2^{16}$               d)  $4^{16}$

Ans) C

Sol- By the formula  $a^m \cdot a^n = a^{m+n}$

$$2^8 \cdot 2^2 = 2^{8+2} = 2^{10}$$

183) What will be the value of the expression  $a^{8/3} \cdot a^{-6/9}$  ?

- a)  $a^{-2}$       b)  $a^{-1}$       c)  $a^0$       d)  $a^1$       e)  $a^2$

**Ans: E**

Sol- if bases are equal we have to add powers

$$a^{8/3-6/9}$$

$$a^{18/2} = a^2$$

184) What is the square root of 576/9?

1. 4      2. 8      3. 12      4. 16

**Ans: 2**

$$\text{Sol.} - 24/3 = 8$$

185) Which number is the fourth power of 7?

1. 2401      2. 2421      3. 2601      4. 2621

**Ans: A**

$$\text{Sol- } 7^2 \cdot 7^2$$

$$= 49 \cdot 49$$

$$= 2401$$

186) HCF of two numbers is 11 and their LCM is 693. If one number is 77, find the other number?

1. 7      2. 9      3. 63      4. 99

**Ans: 4**

Sol- product of two numbers = product of HCF and LCM

$$77 \cdot x = 11 \cdot 693$$

$$x = 11 \cdot 693 / 77$$

$$x = 99$$

187) Recycling 900 kg of paper saves 17 trees . How many trees are saved when 1200 kg of paper are recycled?

1. 19      2. 25      3. 20      4. 22

**Ans: 4**

Sol- 900kg papers=17 trees

1200kg papers=?

The trees to find is=X

$$x = 1200 \cdot 17 / 900$$

$$= 68/3$$

$$= 22$$

188) How many different four letter words can be formed (the words need not to be meaningful) using the letters of the word PACIFIC such that the first letter is p and the last letter is F?

1. 8      2. 3      3. 6      4. 7! /5!

**Ans: 4**

**Sol- PACIFIC**

**Total number of letters  $n=7$**

$$R=2$$

$$N_{pr} = n!/(n-r)!$$

$$=7!/(7-2)!$$

$$=7!/5!$$

189) Mauli purchased a designer saree from Mumbai at  $8/9^{\text{th}}$  of its MRP. When she came back to Delhi, her neighbour coaxed mauli to sell the saree to her. She was even ready to pay 9% more than its MRP. What would Mauli's gain percentage be, if she decides to sell the saree to her neighbour?

1. 15.59%      2. 16.61%      3. 20.36%      4. 22.65%

**Ans: 4**

**Sol. assume that MRP rate =100**

**cost prize = 800/9**

**selling prize=(100\*9/100)+100 =109**

**sp=(100+gain%/100)cp**

$$109 = ((100 + \text{gain}\%)/100)800/9$$

**By solving above equation we get gain=181/8**

$$=22.65\%$$

190) A goods carriage of length 2km, headed to Srinagar from Punjab was running at a speed of 30 km/hr. It crosses a tunnel which is 58 km long with that speed. Find the time taken by the goods carriage to cross the tunnel?

1. 4 hours      2. 3 hours      3. 2 hours      4. 1 hour

**Ans-3**

**Sol : in this we have to add the distances. The goods carriage 2km and to cross tunnel distance 58km.**

**time =? Speed=30km/hr**

**Time =distance /speed**

$$=(2+56) /30$$

$$\text{Time}=60/30$$

$$=2\text{hours}$$

191) A lucky draw is organized as part of the first anniversary celebration of new Age Company. There are 25 chits in a bowl one for each employee and the chits are marked from 1-25. Sarika and Rajesh have chits marked with numbers that are multiples of 3 or 7. They want to know if there are chances of them being awarded the trip to Goa which is the first prize of the lucky draw. When one chit is drawn at random, what is the probability that the chit has a number which is a multiple of 3 or 7?

1. 3/25      2. 2/11      3. 11/25      4. 10/25

**Ans: 4**

**Explanation = no of chits =25**

**sarika and ragesh chits are multiples of 3 and 7**

3 multiples up to 25 =8  
7 multiples up to 25 =2  
Total multiples= 8+2 =10  
Required Chances=10/25

192) What is the loss percentage incurred by a company when it buys an asset for Rs. 1,50,000 and sells it for Rs. 75,500?

1. 49.67%      2. 49.34%      3. 98.68%      4. 98.34%

Ans: A

Sol- loss = cost price – selling price  
=1,50,000-75500  
=74,500  
Loss% = (loss/cp)\*100  
  
=(74000/150000)\*100= 49.67%

193) If Ruparno is expected to spend Rs. 2,300 on electricity bill in the first 3 months of the year, what amount can he be expected to spend on electricity bill for the rest of the year?

1. Rs. 5,400      2. Rs. 5,700      3. Rs. 6,200      4. Rs. 6,900

Ans: 4

Sol- Bill of 3 Months = 2300

9 months = 2300 x 3 => 6900

194) Out of every 100 people in police department, 10 are women. Out of every 100 people in military forces, 3 are women. In a batch of 180 police personnel and 200 army personnel, how many of them would be women?

1. 24      2. 30      3. 18      4. 6

Ans: 1

Sol- 10 % of 180 + 3% of 200 = 18+6 = 24

195) Probability of one of the power plants over heating is 0.15 per day and the probability of failure of the backup cooling system is 0.11. if these events are independent, what is the probability of 'big trouble' (i.e., both events taking place)?

1. 0.35      2. 0.0185      3. 0.0165      4. 0.26

Ans: 3

Sol- Both are independent event hence Required probability = (0.15)(0.11) = 0.0165

196) A person forgets two digits of user ID for a website. He remembers that two digits are odd. What is the probability of him typing the correct last two digits by randomly typing 2 odd digits?

- (1/25)      (1/5)      (1/2)      (2/5)

Ans:1/25

Sol- Total single digit odd numbers = 5

Probability of getting last two digits odd =  $1/5 \times 1/5 \Rightarrow 1/25$

197) Give the greatest pair of twin prime which are below 100?

71, 73

93,96

97,99

87,89

Ans:D

Sol- **Twin primes** are pairs of **primes** which differ by two. The first **twin primes** are {3,5}, {5,7}, {11,13} and {17,19}.

Ans: 87,89

198) In how many ways a panel of 5 students be selected from 8 kids if a particular student be included?

a) 35

b) 51

c) 71

d) 210

Ans- A

Sol- As one student is to be included left is 7 from 8 and need to make choice from 4, i.e.  ${}^7C_4 = 35$

199) A woman sold 15 bed sheets for Rs 15,000. Hence gaining the cost of 5 bed sheets. The cost per sheet is.

a) 960

b) 775

c) 1000

d) 800

e) 750

Ans- E

Solution:

If CP of 1 bedsheet =  $x$ , then CP of 15 bedsheet =  $15x$

$15000 - 5x = 15x$ ,  $20x = 15000$ ,  $x = 750$

200) Gitu and Rashmi were playing ludo. Game starts when one gets 6 in two consecutive throws of dice. What is the probability that Gitu can start the game in first chance?

a)  $1/6$

b)  $1/36$

c)  $5/6$

d)  $5/36$

Ans- B

Solution: Getting 6 is  $1/6$

getting two 6's is  $(1/6) * (1/6) = 1/36$

201) A vendor bought 15 oranges at Rs. 36 for 5 oranges and sold all of them at four oranges for Rs. 45. How much did the vendor earn or lose in this transaction?

a) Loses Rs.4.05 per orange

b) gains Rs.4.05 per orange

c) gains Rs.60 overall

d) Loses Rs.5.06 per orange

e) gains Rs.75.90 overall

Ans- B

Solution:

vender bought 15 oranges, 5 oranges are rs.36 so 15 oranges cost rs.108.  
then now the vender selling it at rs.45 for 4 oranges.  
so each orange cost 11.25.  
the selling price of 15 oranges is rs.168.75  
hence the difference between the cost price and selling price is 60.75  
hence 15 oranges he gained 60.75 rupees.  
so for one orange he got 4.05 gain.

202) The length of the rectangle varies inversely with its width. If the length of the rectangle is 60 feet and width is 24 feet find the length of the rectangle when its width is 40 feet?

- a) 36 feet      b) 100 feet      c) 25 feet      d) 20feet

Ans : A

Solution: length @  $1/\text{width}$

$$\text{Length} = k/w; @ = k. \quad 60 * 24 = k; \quad w = 40; k = 1440 \Rightarrow \text{length} = 36$$

203) Sum of money triples itself at compound interest in 2 years. In 9 years it will be.

- 6 times the principle      12 times the principle      18 times the principle      27 times the principle

Ans- D

$$\text{Sol- } 3p = p(1+r/100)$$

$$\text{now as per ques } 3p^3 = (p(1+r/100))^3$$

thus  $(1+r/100) = 27$ , hence ans is 27 times the principal.

204) Nitish sold his watch and sun glasses at a loss of 4% and gain of 4% respectively for 2600 to Kamal. Kamal sold the same sun glasses and watch at a loss of 4% and gain of 4% respectively for 2700. The price of watch and sun glasses to Nitish were.

- a) (Rs.1960, Rs.700)      b) (Rs.2000, Rs.1000)      c) Rs.1500, Rs.700)      d) (Rs.800, Rs.2000)

Ans- A

Solution: Let the CP of watch be Rs x and sunglasses be Rs y.

$$2600 = 96x/100 + 104y/100$$

$$2700 = 104x/100 + 96y/100$$

On solving,

$$y = 700$$

$$x = 1960$$

205) A and B can finish a piece of work in 20 days .B and C in 30 days and C and A in 40 days. In how many days will A alone finish the job

- (a) 48  
(b)  $34 \frac{2}{7}$   
(c) 44

(d) 45

Ans : a

Sol : 

A+B	B+C	C+A	Total Work
20	30	40	120
6	4	3	

$$2(A+B+C) = 13$$

Thus  $A+4 = 13/2$   
 $A = 5/2$   
Days by A =  $120/(5/2) = 48$

206) If A speaks the truth 80% of the times, B speaks the truth 60% of the times. What is the probability that they tell the truth at the same time.

- (a) 0.8
- (b) 0.48
- (c) 0.6
- (d) 0.14

Ans : b

Sol : probability of speaking truth of A and B =  $80\% * 60\%$   
 $= 0.48$

207) A team P of 20 engineers can complete a task in 32 days. Another team Q of 16 engineers can complete the same task in 30 days. Then the ratio of working capacity of 1 member of P to that of a member of Q is:

- a) 3:2
- b) 3:4
- c) 2:5
- d) 3:5

Ans : b

Sol:  $20P * 32 = 16Q * 30$

$2P * 2 = Q * 3$

$P/Q = 3/4$

208) Susan can type 10 pages in 5 minutes. Mary can type 5 pages in 10 minutes. Working together, how many pages can they type in 30 minutes?

- (a) 15
- (b) 20
- (c) 25
- (d) 75

Ans : d

Sol : susan can type in 1 minute =  $10/5$  pages

Mary can type in 1 minute =  $5/10$  pages

Both can type in 30 minutes is =  $(10/5 + 5/10) 30$

$= 75$  pages

209) A man speaks the truth 3 out of 4 times. He throws a die and reports it to be a 6. What is the probability of it being a 6?

- (a)  $\frac{3}{8}$
- (b)  $\frac{5}{8}$
- (c)  $\frac{3}{4}$
- (d) None of the above

Ans : a

Sol : there is a chance that there is really 6 on die and he is speaking truth =  $\frac{1}{6} * \frac{3}{4}$

Also there is a chance that there is number other than 6 on die and he is lying =  $\frac{5}{6} * \frac{1}{4}$

Adding these two we get =  $\frac{15}{24} = \frac{3}{8}$

210) If 10% of x = 20% of y, then x : y is equal to

- (a) 1 : 2
- (b) 2 : 1
- (c) 5 : 1
- (d) 10 : 1

Ans : b

Sol : 10% x = 20% y

$$x = 2y$$

$$\frac{x}{y} = \frac{2}{1}$$

211) Six bells commence tolling together and toll at intervals 2,4,6,8,10 and 12 seconds respectively. In 30 minutes how many times they toll together.

- a) 4
- b) 10
- c) 15
- d) 16

Ans : d

Sol : LCM of 2,4,6,8,10,12 is 120

Thus bells will toll together after interval of 120 seconds i.e 2 minutes

Thus in 30 minutes = 15 times

But 1 time whey they all commence together

Thus total = 15+1

212) A starts business with Rs.3500 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 ?

- (a) Rs. 7500
- (b) Rs. 8000



(c) Rs. 8500

(d) Rs. 9000

Ans : d

Sol : A B

amt 3500 x

time 12 7

profit  $3500 \times 12$  :  $7x$

but ratio is given

thus  $3500 \times 12 : 7x = 2:3$

solving this we get

$x = 9000$

213) 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 ?

(a) 7 hours 30 minutes

(b) 8 hours

(c) 8 hours 15 minutes

(d) 8 hours 25 minutes

Ans : c

Sol : Ronald can type =  $32/6$  page in 1 hour

Elan can type =  $40/5$  page in 1 hour

Thus they both can type =  $(32/6 + 40/5)$  pages in 1 hour =  $40/3$

Thus time taken to type 110 pages =  $110 / (40/3) = 110 \times 3/40 = 8.25$  hours or 8 hours 15 minutes

214) A cistern can be filled by a tap in 4 hours while it can be emptied by another tap in 9 hours. If both taps are opened simultaneously, then after how much time will the cistern get filled ?

(a) 4.5 hours

(b) 5 hours

(c) 6.5 hours

(d) 7.2 hours

Ans : d

Sol : A -B T.W

time 4 9 36

eff 9 -4

$$\text{time taken} = 36/5$$

7.2 hours

215) If the sum of  $n$  terms of two series of A.P are in the ratio  $5n+4:9n+6$  .find the ratio of their 13th terms

- (a) 129/231
- (b)  $1/2$
- (c) 23/15
- (d) None of the above

Ans : a

Sol :

216) Ravi's salary was reduced by 25%.Percentage increase to be effected to bring the salary to the original level is

- (a) 20%
- (b) 25%
- (c) 33.33%
- (d) 30%

Ans :c

Sol : to bring it to new position we require to increase 25 over 75

$$\text{Thus \%} = 25/75 * 100$$

33.33%

217) How long will a train 100m long travelling at 72kmph take to overtake another train 200m long travelling at 54kmph

- (a) 70sec
- (b) 1min
- (c) 1 min 15 sec
- (d) 55 sec

Ans : b

$$\text{Sol : total distance} = 200+100 = 300$$

$$\text{Relative speed} = 72-54 = 18 \text{ kmph} = 5 \text{ m/s}$$

$$\text{Time taken to overtake} = 300/5$$

$$= 60 \text{ sec or 1 minute}$$

218) A team of 200 wagers undertakes building work of a bridge. The total time allocated to build the entire bridge is 20 days. After 10 days since start, 200 more wagers join the team and together the team completes the bridge in required time. If the original team do not get those 200 extra wagers, how many days they would be behind schedule to complete building the bridge.

- a) 10 days
- b) 20 days
- c) 15 days
- d) 1 days

Ans : a

Sol : if after adding 200 more wagers the total becomes 400 , they completed in 10 days (rest of the work)

If those 200 are not added the wagers remain 200 i.e half of actual thus time taken will be double of actual i.e 20 days

So 10 days extra

219) The price of Machine D equals the sum of the prices of machine A, B and C whose price are in the ratio 2:3:4 respectively. If weights of A, B, C and D varies as square of its individual price and difference of weight of D and A, B and C together is 9880 kg. Then what is the weight of D?

- a) 15390 kg
- b) 14790 kg
- c) 15800 kg
- d) none of these

Ans : a

Solution :

Note that, "We say that x varies as y, if  $x = ky$  for some constant k"

Given ratio of prices of A, B and C = 2:3:4

Let their price be 2X, 3X and 4X respectively.

Then D's price = 2X + 3X + 4X = 9X

Weight varies as square of price.

Then A's weight =  $k 4X^2$

B's weight =  $k 9X^2$

C's weight =  $k 16X^2$

Sum of their weight =  $k 29X^2$

And D's weight =  $k 81X^2$

Therefore,  $k81X^2 - k29X^2 = 9880 \text{ kg}$

$k52X^2 = 9880$

$kX^2 = 190$

Hence, D's weight =  $81kX^2 = 81 \times 190 = 15390 \text{ kg}$ .

220) If 4:6 is the ratio of number of girls and boys in a computer coaching class. If 50% of girls and 40% of boys are degree holders then the percentage of the candidates who are non-degree holders is:

- a) 12%
- b) 38%
- c) 56%
- d) 49%

Ans : c

Sol : let number of boys and girls = 600 and 400 respectively

Non degree holders boys =  $60\% \times 600 = 360$

Non degree holders girls =  $50\% \times 400 = 200$

Thus % =  $560/1000 \times 100$

56%

221) 12 members were present at a board meeting. Each member shook hands with all of the other members before & after the meeting. How many hand shakes were there?

- a) 130
- b) 134
- c) 132
- d) 135

Ans : c

Sol : number of hand shakes before the meeting =  ${}^{12}C_2 = 66$

Similarly at the end of meeting = 66

Thus total = 132

222) An emergency vehicle travels 10 miles at a speed of 50 miles per hour. How fast must the vehicle travel on the return trip if the round-trip travel time is to be 20 minutes?

- a) 75 miles per hour
- b) 70 miles per hour
- c) 65 miles per hour
- d) 80 miles per hour

Ans : a

Sol : time taken 10 miles with the speed of 50 miles per hour =  $10/50 = 1/5$  hour = 12 minutes

Thys in return 8 minutes should be taken

Speed =  $10/8 = 5/4$  miles in 1 minute

$5/4 * 60$  miles in 1 hour = 75 miles per hour

223) Mary and John can do a piece of work in 24 days; John and Vino in 30 days; Vino and Mary in 40 days. If Mary, John and Vino work together they will complete the work in :

- a) 10 days
- b) 20 days
- c) 17 days
- d) 15 days

Ans : b

Sol :	M+N	J+V	V+M	TW
DAYS	24	30	40	120
EFF	5	4	3	

Total efficiency =  $(5+4+3)/2$

Time taken =  $120/6 = 20$  days

223) My friend collects antique stamps. She purchased two at the same price, but found that she needed to raise money urgently. So she sold them for Rs. 8000 each. On one she made 20% and on the other she lost 20%. How much did she gain or lose in the entire transaction?

- a) She lost Rs 500.67
- b) She lost Rs 666.67
- c) She gain Rs 666.67
- d) She gain Rs 500.67

**Ans : b**

**Sol : overall profit / loss % =  $20 + (-20) + \{20*(-20)\}/100$**

**-4% => 4% loss**

**96% CP = 16000**

**4% CP =  $16000/96 * 4$**

**666.67**

224) Find the sum of the first 50 common terms of 12,16,20,... and 18,24,30,....

- a) 15900
- b) 12700
- c) 19990
- d) 18400

**Ans : a**

**Sol : common terms are 24, 36, 48 and so on upto 50 terms i.e upto 612**

**Sum =  $50/2 (24+612)$**

**15900**

225) Square of two more than a two digit number is multiplied and divided by 2 and 5 respectively. If twice of the result is equal to 500 then find the number?

- a) 45
- b) 23
- c) 87
- d) 47

**Ans : b**

**Sol- Let the number be X**

**Two more than X =  $X + 2$**

**Square of the number =  $(X + 2)^2$**

**Multiplied and divided by 2 and 5 =  $2(X + 2)^2 / 5$**

**Twice the result is 500 =  $2 \times 2/5 \times (X + 2)^2$**

**$4/5 \times (X + 2)^2 = 500$**

**$(X + 2)^2 = 500 \times 5/4$**

**$(X + 2)^2 = 625$**

**$X + 2 = 25$**

**$X = 23$**

226) Find X when  $X - Y = 3$  and  $X^2 + Y^2 = 89$  where X and Y are integers.

- a) 10
- b) -5
- c) -10
- d) -3

**Ans : b**

$$\text{Sol : } (X-Y)^2 = X^2 + Y^2 - 2XY$$

$$9 = 89 - 2XY$$

$$XY = 40$$

$$Y = 40/X$$

$$X - Y = 3 \text{ (given)}$$

$$X - (40/X) = 3$$

$$X^2 - 40 = 3X$$

$$X^2 - 40 - 3X = 0$$

$$X = -5 \text{ or } 8$$

Hence -5 is in option

227) What is the sum of the irrational roots of the equation  $(x-1)(x-3)(x-5)(x-7)=9$  ?

- a) 10
- b) 8
- c) 6
- d) 4

**Ans: b**

Sol : Given that

$$(x-1)(x-3)(x-5)(x-7) = 9$$

$$\text{Let } x-4 = p$$

Then the given eqn becomes

$$(p+3)(p+1)(p-1)(p-3) = 9$$

$$(p^2-1)(p^2-9) = 9$$

$$p^4 - 10p^2 + 9 = 9$$

$$p^2(p^2-10) = 0$$

$$p^2 = 0 \text{ or } p^2 - 10 = 0$$

$$p = 0 \text{ or } p = \sqrt{10} \text{ or } p = -\sqrt{10}$$

$$\text{then } x-4 = 0, x-4 = \sqrt{10} \text{ or } x-4 = -\sqrt{10}$$

Now the roots of the given eqn are 4,  $4 + \sqrt{10}$  and  $4 - \sqrt{10}$

The irrational roots are  $4 + \sqrt{10}$  and  $4 - \sqrt{10}$

The sum of the irrational roots =  $4 + \sqrt{10} + 4 - \sqrt{10} = 8$ .

Hence the answer is 8.

228) There is an element which triplicates in every hour. Each of these 3 items inturnreproduce exactly 3 other items. If a single compound is kept in a container at noon and the container is full by midnight. After how many hours is the container 1/3 full?

- a) 11:00am
- b) 10:00pm
- c) 11:00pm
- d) 10:00am

Ans :c

Sol : 11 pm the container will be 1/3

Only then it can be filled ( $1/3 * 3$ ) in midnight.

229) A person goes to a bank and Quotes x Rs and y paise on a cheque. The cashier misreads it and gives y Rs and x paise. The man comes out and donates 5 paise to a begger. Now, the man has exactly double the amount he has quoted on the cheque.

- a) 35 Rs. and 65 paise.
- b) 32 Rs. and 63 paise.
- c) 30 Rs. and 65 paise.
- d) 31 Rs. and 63 paise.

Ans : d

Sol : check by options

d will satisfy both the equation i.e cheque is quoted as 31 rs and 63 ps

the man will receive 63 rs and 31 ps

and after giving to the begger he is left with 63 Rs and 26 ps

hence this amount is double of 31 Rs and 63 ps

230) The compound interest on a sum for 2 years is Rs. 832 and the simple interest on the same sum for the same period is Rs. 800. The difference between the compound and simple interest for 3 years will be?

- A) 66.67 B) 36 C) 98.56 D) 60 E) 33.33

Ans : c

Sol : compound interest can be written as

400      400

32 ( 8% of 400 )

If there are 3 years then CI will be

400      400      400

32      32

32

2.56 (8% of 32)

Hence difference is  $32+32+32+2.56 = 98.56$

231) A can do a piece of work in 100 days, B and C together can do the same work in 20 days. If B can do the work in same time as that of C and A together then how long C alone can do the same work?

- a) 100 days
- b) 50 days
- c) 25 days
- d) 20 days

Ans: b

Sol :	A	B+C	TW
time	100	20	100
eff	1	5	

condition is  $B = A+C$

$$B-C = A$$

$$B-C = 1$$

$$B+C = 5$$

Solving these two we get

$$B = 3 \text{ and } C = 2$$

Time taken by C to complete the task =  $100/2 = 50$  days

232) All of the students at a college are majoring in psychology, business, or both. 73% of the students are psychology majors, & 62% are business majors. If there are 200 students, how many of them are majoring in both psychology & business?

- a) 75
- b) 80
- c) 72
- d) 70

Ans : d

$$\text{Sol : } N(A) + N(B) - N(A \cap B) = N(T)$$

$$73+62 - N(A \cap B) = 100$$

$$\text{Thus we get } N(A \cap B) = 35\%$$

$$\text{Thus } 200 \times 35\% = 70$$

233) Grass in lawn grows equally thick and in a uniform rate. It takes 24 days for 70 cows and 60 for 30 cows . How many cows can eat away the same in 96 days?

- a) 18
- b) 20
- c) 21
- d) 19



Ans : a

Sol : Let initially X grass was present there, and it is increasing by Y grass per day, then for the first condition We get,

$$X + 24Y = 24 \times 70 \text{ ----(1)}$$

For the 2nd condition, we have,

$$X + 60Y = 60 \times 30 \text{ ----(2) Now, On solving equation (1) and (2), we get}$$

$$X = 1600 \text{ and}$$

$$Y = 10/3$$

Third Condition,

$$X + 96Y = 96 \times N \text{ ----(3) [N = Number of Cows required]}$$

Putting the values of X and Y in equation (3), We get

$$N = 20.$$

234) There is a certain four digit number whose fourth digit is twice the first digit. Third digit is three more than second digit. Sum of the first and fourth digits twice the third number. What was that number ?

- a) 2034
- b) 4368
- c) a and b
- d) None of these

Ans : c

Sol : go by options and check the conditions

235) A thief steals half the total no of loaves of bread plus 1/2 loaf from a bakery. A second thief steals half the remaining no of loaves plus 1/2 loaf and so on. After the 5th thief has stolen there are no more loaves left in the bakery. What was the total no of loaves did the bakery have at the beginning?

- a) 35
- b) 41
- c) 28
- d) 31

Ans: d

Sol : let the last thief have not stolen the 1/2 loaf, then remaining loaves in bakery = 1/2

And before his stealing there must be = 1 loaf ( because he had stolen half of the number of loaves)

Similarly let the 2<sup>nd</sup> last thief had not stolen 1/2 loaf, thus now the number of loaves in bakery = 1.5

Before his stealing there must be = 3 loaves

Proceeding In the same way

We get 3.5 and 7

Then 7.5 and 15

Then 15.5 and 31

Thus 31 Ans

( we have done the procedure 5 times)

236) A person needs 6 steps to cover a distance of one slab. if he increases his foot length(step length) by 3 inches he needs only 5 steps to cover the slabs length. what is the length of the each slab?

- a) 90 inches
- b) 24 inches
- c) 26 inches
- d) 43 inches

Ans: a

Sol : let  $x$  is length of his step

Thus distance is  $= 6x$

Now, step length  $= x+3$

And distance is  $= 5(x+3)$

Equating these two

We get  $x = 15$

Length of slab  $= 6 \times 15 = 90$

237) From 5 different green balls, four different blue balls and three different red balls, how many combinations of balls can be chosen taking at least one green and one blue ball?

- a) 3720
- b) 3890
- c) 3520
- d) 3600

Ans : a

Sol : Green dyes  $= 5$

Blue dyes  $= 4$

Red dyes  $= 3$

The no of ways of choosing of at least one green and one blue is  $= (2^5 - 1) \times (2^4 - 1) \times 2^3$

$\Rightarrow (32 - 1) \times (16 - 1) \times 8 \Rightarrow (32 - 1) \times (16 - 1) \times 8$

$\Rightarrow 31 \times 15 \times 8 \Rightarrow 31 \times 15 \times 8$

$\Rightarrow 3720$

238) Three pipes, A, B, and C are attached to a tank. A and B can fill it in 20 and 30 minutes respectively while C can empty it in 15 minutes. If A, B & C are kept open successively for 1 minute each, how soon will the tank be filled?

- a) 167 minutes
- b) 177 minutes
- c) 188 minutes
- d) 196 minutes

Ans : a

Sol :	A	B	C	TW
Time	20	30	15	60

Eff    3                      2            4

In the first minute 3 and in 2<sup>nd</sup> minute 2 , thus in 2 minutes 5 work will be done

But in 3<sup>rd</sup> minute = -4 work will be done

Effective positive work = 5-4 = 1

Thus to do 55 work , time taken will be = 55\*3 = 165

And in 166<sup>th</sup> minute 3 more work will be done

And in 167<sup>th</sup> minute 2 more work will be done

Thus total time = 167 minutes and total work = 55+3+2 = 60

239. If the  $\log_x 16 = 0.8$ , then what is the value of x?

A. 4    B. 2    C. 32    D. 16

Answer : (c)

Solution:

$$x^{0.8}=16$$

$$x=(2^4)^{(10/8)}$$

$$x=2^5$$

$$x=32$$

240. If  $f(x) = e^x$  and  $g(x) = \log_e x$ , then what is the value of  $\{f \circ g(x)\}$ ?

A. X    B.  $e^x$     C.  $\log_e x$     D. cannot be determined

Ans- A

$$\text{Sol- } F(g(x)) = e^{\log_e x} = x$$

241. The value of  $\log_8 64 - \log_{64} 4096$  is

A. -1    B. 0    C. 1    D. 2

Ans: B

$$\text{Sol- } \log_8 64 - \log_{64} 4096 = 2 \log_8 8 - 2 \log_{64} 64 = 2 - 2 = 0$$

242.. What is the relationship between the fractions 14/15 and 37/40?

A. 14/15=37/40    B. 14/15>37/40    C. 14/15<37/40    D. Cannot be determined

Answer:(c)

Sol. Take LCM of both 15, 40 we get 120

$$(14*8)/(15*8) = 112/120$$

$$(37*3)/(40*3) = 111/120$$

So 14/15>37/40

243. If LCM and HCF of two numbers are equal and product of two numbers is 2916, find their LCM?

A. 54    B. 56    C. 64    D. 66

Answer : (a)

Sol. LCM and HCF will be equal if and only if both the numbers are equal.

Therefore,  $2916 = 54 \times 54$   
so LCM of both number = 54

244. If the sum of squares of two numbers is 2754 and their HCF and LCM are 9 and 135 respectively, then the numbers are

A. 27, 36    B. 27, 35    C. 28, 45    D. 27, 45

Answer: (d)

Sol. As we know product of two nos. = their H.C.F \* L.C.M

So,  $x \times y = 135 \times 9 = 1215$

and  $x^2 + y^2 = 2754$

So,  $(x+y)^2 = x^2 + y^2 + 2 \times x \times y$

$= 2754 + 2 \times 1215 = 5184$

So,  $x+y = 72$

Now on solving, the nos. are 45 and 27

245. The number of ways in the letters of the word "RESULT" can be arranged without repetition is  
A. 720    B. 120    C. 60    D. 840

Answer: (a)

Solution: The number of ways = factorial of number of words  $\Rightarrow 6!$

246. The HCF of two numbers is 4 and LCM is 48. If one of the numbers is 12, then one of the divisions of the numbers is:

A. 3    B. 6    C. 8    D. 12

247. Which number should be added to 113257 so that it can be divided by 9?

A. 4    B. 6    C. 8    D. 10

Answer: (c)

Solution: sum of all the number must be divisible by 9

248. ABCD is a square PQRS is a rhombus lying inside the square such that P, Q, R and S are the mid-points of AB, BC, CD and DA respectively. A point is selected at random in the square. Find the probability that lies in the rhombus.

A.  $1/3$     B.  $2/3$     C.  $1/2$     D.  $1/4$

249. 4.28 and -3.28 are two numbers on a real number line. If 1 is added to the numbers, then which of the following is true?

A. Distance between the two new numbers is 2 more than distance between 4.28 and -3.28

B. Distance between the two new numbers is 2 less than distance between 4.28 and -3.28

C. Distance between the two new numbers is 2 equal distance between 4.28 and -3.28

D. None of these

Answer : (b)

Solution : Because 1 is added on positive integer and 1 is added on negative integer i.e Distance between the two new numbers is 2 less than distance between 4.28 and -3.28

250. When a local train travels at a speed of 60 kmph. It reaches the destination on time . when the same train travels at speed of 50kmph. It reaches its destination 15 minutes late. What is the length of journey?

A. 75km B. 50km C. 60km D. 85km

Answer (a)

Solution:

distance is constant.

so let time taken be  $t$  when it travels with 60kmph

let time be  $t'$  when it travels with 50kmph

$$d = s * t$$

therefore

$$s * t = s' * t'$$

$$60 * t = 50 * (t + 15/60) \text{ (in hrs)}$$

on solving

$$t = 5/4 \text{ hrs}$$

$$d = 60 * 5/4$$

$$75 \text{ km}$$

251. In shooting competition, the probability of hitting the target by P is  $3/5$ . By Q is  $1/3$  and by R is  $2/5$ . If all they fire independently at the same target calculate the probability that only one of them will hit the target.

A.  $25/75$  B.  $32/75$  C.  $39/75$  D.  $43/75$

Answer(a).  $32/75$

Sol.

$P(p) = 3/5$   $P(p') = 2/5$  same way for rest and by using formula

$$P(p) * P(q') * P(r') + P(p') * P(q) * P(r') + P(p') * P(q') * P(r)$$

252. For what value of M is the number 7M42876M divisible by 11?

A. 0 B. 8 C. 4 D. 9

Answer (b). 8

Solution:

Here an easy way to test for divisibility by 11. Take the alternating sum of the digits in the number, read from left to right. If that is divisible by 11, so is the original number.

So, for instance, 2728 has alternating sum of digits  $2 - 7 + 2 - 8 = -11$ . Since -11 is divisible by 11, so is 2728.

Similarly, for 31415, the alternating sum of digits is  $3 - 1 + 4 - 1 + 5 = 10$ . This is not divisible by 11, so neither is 31415.

Coming to the given question,

$$7 - M + 4 - 2 + 8 - 7 + 6 - M$$

$$16 - 2M$$

So if  $M = 8$  then  $16 - 16 = 0$  so total number is divisible by 11.

253. A group of women can finish a piece of work in 50 days. In how many days will one-third the number of women be able to finish two-third of the work?

A. 150 days B. 75 days C. 50 days D. 100 days

Answer (D)

Solution:

$$50 \times 3 \times \frac{2}{3} \Rightarrow 100 \text{ days}$$

254. What is the value of  $\log_{512} 8$ ?

- A. 3      B.  $1/3$       C. -3      D.  $-1/3$

Answer (B)

Solution:

$$\begin{aligned} &\log_{512} 8 \\ &= \log_{512} (512)^{1/3} \\ &= 1/3 \end{aligned}$$

255. If  $\log_{10} 3 = 0.477$ , then the value of  $\log_{10} 9$  is:

- A. 1      B. 0.477      C. 0.954      D. 0.523

Answer (C)

Solution:

$$\log_{10} 9 = 2 \log_{10} 3 = 2 * 0.477 = 0.954$$

256. When the price of a pair of shoes is decreased by 10%, the number of pairs sold increased by 20%. What is the net effect on sales?

- A. 8% decrease      B. 10% decrease      C. 10% increase      D. 8% increase

Answer: (d)

Solution: let cp be 100, when price decreased by 10% then sp=90. Now sales increased by 20%, ie,  $90 + 20\% \text{ of } 90 = 108$ .

$$\text{socp} = 100, \text{ sp} = 108, \text{ gain} = 8, \text{ gain}\% = \text{gain} * 100 / \text{cp} = 8\% \text{ increase}$$

257. Replace the symbols \* and # in 9586\*4# so that it is divisible by both 8 and 5.

- A. 0,0      B. 1,0      C. 0,5      D. 1,5

Answer: (a)

Solution:

Rule for Divisible by 5 : number should end with either 0 or 5

Rule for divisible by 8: Last 3 digits should be divisible by 8

Solve from options: If option (A) is correct then number becomes 9586040

It is divisible with both 5 and 8 so Option(A) is correct.

258. If a coin with both heads is tossed, then the probability of obtaining a tail is:

- A. 0      B.  $1/2$       C.  $1/3$       D. 1

Answer: (a)

Solution: If a coin contains both heads then no way we get tail so probability is 0.

259. Find the remainder when  $2^{21}$  is divided by 6.

- A. 0      B. 1      C. 2      D. 3

Answer: (c)

$$\text{Soluton : } 2^{20} * 2 / 2 * 3 \Rightarrow 2^{20} / 3$$

Apply fermat theorem  $A^{p-1}/P$  ; A & P are prime no. remainder always 1 but we cancel with 2. then multiply 2 with remainder  $\Rightarrow 2$

72. Which of the following numbers is the smallest number?

- A.  $\frac{1}{12}$  B.  $\frac{1}{6}$  C.  $\frac{1}{4}$  D.  $\frac{1}{3}$

Answer: (A)

260. A phone company offers 5 phone plan options: call waiting, call forwarding, voice mail, conferencing, and caller ID. A customer can choose 3 options. The number of ways one can avail the plan options is:

- A. 5 B. 10 C. 3 D. 20

Answer: (b)

Solution:

${}^5C_3 = 10$  is correct answer

261. If  $\log_{32} x + \log_{32} (1/8) = 1/5$ , then the value of x is equal to:

- A. 8 B. 5 C. 16 D. 32

Answer: (c)

Solution:

$$\log_b x + \log_b y = \log_b xy$$

$$\text{so } \log_{32} x + \log_{32} (1/8) = 1/5$$

$$\log_{32} x(1/8) = 1/5$$

$$x/8 = 32^{1/5}$$

$$x/8 = 2$$

$$x = 16$$

262. Length and breadth of a rectangle are directly proportional. If length increases from 6 cm to 21 cm and if breadth now is 14 cm, then what was the breadth before any change in length occurred?

- A. 4 cm B. 1.5 cm C. 2 cm D. 3 cm

Answer: (a)

Solution : they are directly proportional

$$6/21 = x/14$$

$$x = (14 \times 6)/21 = 4$$

$$\text{breadth} = 4 \text{ cm.}$$

263. At an election there are 5 candidates among which 3 members are to be elected and a voter may vote for any number of candidates not greater than the number to be elected. Then the number of ways in which a voter may vote are ?

- A. 25 B. 30 C. 32 D. None of the above

Answer: (C)

Solution: A voter can give either 1 vote, 2 votes or 3 votes.

$$\text{Number of ways to give only 1 vote} = {}^5C_1 = 5$$

$$\text{Number of ways to give only 2 vote} = {}^5C_2 = 10$$

Number of ways to give all 3 vote =  $5C3 = 10$   
so, a voter can cast his vote by total :  $5+10+10= 25$  ways.

264. One card is drawn from a pack of 52 cards, each of the 52 cards being equally likely to be drawn. Find the probability that the card drawn is '9' of hearts.

- A.  $\frac{1}{13}$       B.  $\frac{1}{26}$       C.  $\frac{1}{52}$       D.  $\frac{3}{52}$

Answer: (C)

Solution: 9 of heart is single card hence prob =  $\frac{1}{52}$

265. If  $2^x * 3^y = 18$  and  $2^{2x} * 3^y = 36$ , the value of x is:

- A.0      B.1      C.2      D. 3      E. None of the above

Answer: (b)

Solution:

second equation can be written as,

$2^x * 2^x * 3^y = 36$ . substituting the first equation value,

$2^x * 18 = 36$ .

$2^x = 2^1$ ;

$a^m = a^n$ , then  $m=n$ , so we get  $x=1$

266. An unbiased coin is tossed 5 times. If tail appears on first 4 tosses, then probability of tail appearing on the fifth toss is: A.  $\frac{1}{2}$       B. 1      C. 0      D.  $\frac{4}{5}$

Answer: (1)

Solution: (A) Appearing tail on fifth toss is independent of first 4 tosses.

267. In a single throw of dice, what is the probability to get a number greater than or equal to 4? A.  $\frac{1}{3}$       B.  $\frac{2}{3}$       C.  $\frac{1}{2}$       D. None of the above

Answer: (c)

Solution: Getting number greater than or equal to 4 means 4,5 and 6 are possibilities.

Total case for a dice is 6.

ans:  $\frac{3}{6} = \frac{1}{2}$

268. For irrigational purposes, a farmer uses a tank of water. He uses a pipe during night to fill the tank, so that he could use the tank of water in the morning to irrigate his farm. The pipe fills the tank in 3 hours but on the particular day, because of a leak in the tank, the pipe takes 4.5 hours to fill it. In how many hours can the tank be completely emptied by the leak alone?

- A. 6      B. 9      C. 1.5      D. Data insufficient

Answer: (b)

Solution: pipe one hour capacity is  $\frac{1}{3}$

$\frac{1}{3} + x = \frac{2}{9}$

$x=9$

Answer is 9 hours.

269. The printed price on a book is RS. 400, a bookseller offers a 10% discount on it. If he still earns a profit of 12%, then the cost price of the book is:



A.RS. 280      B. RS. 352      C. RS.360      D.RS.321.43

Answer: (d)

Sol. S.P= 360 Rs.

If Profit = 12% then  $1.12 * C.P = S.P$

$$1.12 * C.P = 360$$

$$C.P = 321.43 \text{ Rs..}$$

270. If  $r = at^2$  and  $s = 2at$ , then the relation among s, r and a is:

A.  $s^2 = 4ar$       B.  $s = ar$       C.  $s^2 = ar$       D. None of the above

Answer: (a)

Solution:

$$r = at^2$$

$$s = 2at$$

$$\text{therefore } t = s/2a$$

$$r = as^2/4a^2$$

$$s^2 = 4ar$$

271. Amit bought 10 cycles for Rs1750 each. He sold four cycles for Rs8400, three for 1900 each. At what price he should sell remaining cycles so as to earn an average profit of Rs320 per cycle?

A) 1900      b) 2000      c) 1800      d) 2050      e) 2200

Answer: (d)

Solution: 10 cycles cost price + 10 cycles profit = 10 cycles selling price

$$10(1750) + 10(320) = 8400 + 3(1900) + 3(x)$$

solve above equation then  $x = 2200$

272. Out of 26, 13, and 34, which two numbers are co-primes?

a) 26 and 14      b) 13 and 34      c) 26 and 34      d) None of the pairs are co primes

Answer (b)

Sol. Two numbers are said to be co-prime when their GCD is 1.

$$\text{GCD}(26, 13) = 13$$

$$\text{GCD}(26, 34) = 2$$

$$\text{GCD}(13, 34) = 1$$

SO answer is 13 and 34.

273. A man earns 24,000 per month. He spends one-third of his income on personal expenditure. Half of the remaining income is invested in a scheme for 15% interest per annum. After investing half of the remaining income is invested in a scheme which gives 10% income per annum. The remaining lies in a bank where it earns an interest of 4% per annum. The effective rate of interest earned by the man on his investments by the end of the year is?

a) 19%      b) 10%      c) 11%      d) 29%      e) 12.33%

Answer : (c)

Solution:

$$\text{amount remaining} = 24000 - 24000/3 = 16000$$

$$1. 16000/2 = 8000 \text{ SI} = \frac{PRT}{100} = 8000 * 15 * 1/100 = 1200$$

$$2. 8000/2 = 4000 \text{ SI} = 4000 * 10 * 1/100 = 400$$

$$3. 4000 \text{ SI} = 4000 * 4 * 1/100 = 160$$

adding total interest=1200+400+160=1760

$SI = \frac{PRT}{100}$   $1760 = \frac{16000 \times R \times 1}{100}$

Solving this  $R = 11\%$  Ans.....

274) A person forgets the last two digits of user ID for a website. He remember that both digits are odd. What is the probability of him typing the correct last digits by randomly typing 2 odd digits?

- A)  $\frac{1}{25}$       B)  $\frac{1}{5}$       C)  $\frac{1}{2}$       D)  $\frac{2}{5}$

Answer (a)

Sol. Guessing one odd digit is  $\frac{1}{5}$

guessing two odd digits is  $(\frac{1}{5}) \times (\frac{1}{5}) = \frac{1}{25}$

275) Every number of housing society contributed as much as there are numbers of members in the society. The president added Rs.150 extra from to take the total of Rs. 2,650. How many members are there in the housing society?

- A) 25      B) 50      c) 60      d) 35

Answer:(B)

Sol.  $2650 - 150 = 2500$

$50 \times 50 = 2500$

ans is 50.

276) Given that the interest is only earned on principal, if an investment of Rs 1000.00 amounts to Rs 1440.00 in two years, then what is the rate of interest earned?

- A) 20%    B) 22%    c) 21%    D) 11%    e) 44%

Answer (b)

Solution: Interest for two years is 440

Interest for one year is 220

Apply Simple interest formula.  $(1000 \times 1 \times r) / 100 = 220$

$r = 22\%$

277) Gitu and Rashmi were playing ludo. Game starts when one gets 6 in two consecutive throws of dice. What is the probability that gitu can start the game in first chance?

- A)  $\frac{1}{6}$       B)  $\frac{1}{36}$       C)  $\frac{5}{36}$     D)  $\frac{5}{6}$

Answer (b)

Solution: Getting 6 is  $\frac{1}{6}$

getting two 6's is  $(\frac{1}{6}) \times (\frac{1}{6}) = \frac{1}{36}$

278.) Ritu has 3 shirts in shades of red, 4 in yellow shades and 5 in green shades. Three shirts are picked at random. The probability that all of those are in red shades is:

- A)  $\frac{1}{12}$       B)  $\frac{1}{660}$       c)  $\frac{1}{66}$       D)  $\frac{1}{4}$

Answer (d)

Solution: Given 3red, 4yellow, 5green shirts

Total shirts =  $3+4+5 = 12$

Probability of getting Red =  $\frac{3}{12} = \frac{1}{4}$

279)  $(1.0816)^{1/2} = ?$

- A) 0.14      B) 1.4      c) 1.004      D) 1.04

Answer (D)

Solution: It written as square root of 1.0816

By trail method, check all options

Like  $\frac{1.04 * 1.04}{1.0816}$

280) An intern can a job in 15 days. The manager and senior manager are busy with other priorities and thus take 25 and 40 days respectively to complete the task. How long will they task to finish the task if all of them work together?

A) 7      b)  $7^{22}/29$       c) 8      D)  $8^{21}/29$       e) None of these

Answer : (e)

Solution: It can be written as ...

$$\begin{aligned}\text{Work together} &= 1/15 + 1/25 + 1/40 \\ &= 1/5[1/3 + 1/5 + 1/8] \\ &= 1/5[40+24+15/120] \\ &= [79/5*120]\end{aligned}$$

It can be written..

$600/79 = 7.59$  (Answer is in fractions..in this options solution is not present)

281) If  $a + b = 6$ ,  $ab = 5$ , then the value of  $a-b$  is:

A) 4      B) 5      C) 6      D) 7      E) 9

Answer (a)

Solutions : By using formulae.....

$$(a+b)^2 - (a-b)^2 = 4ab$$

$$36 - (a-b)^2 = 20$$

$$\Rightarrow (a-b)^2 = 16$$

$$\Rightarrow (a-b) = 4$$

282) At a certain party ratio the ratio of gents and ladies was 1:2. But when 2 gents and 2 ladies left the party. The ratio became 1:3. How many people were initially present in the party?

A) 12      B) 15      C) 18      D) 24

Answer (a)

Solutions: Ratio of G & L = 1:2  $\Rightarrow x : 2x$

Two G & Two L are left i.e  $\Rightarrow x-2 : 2x-2$

$$\Rightarrow x-2 : 2x-2 = 1 : 3$$

$$\Rightarrow x-2/2x-2 = 1/3$$

$$\Rightarrow 3x-6 = 2x-2$$

$$\Rightarrow X=4 \text{ (Gents)}$$

$$\Rightarrow 2x=8 \text{ (Ladies)}$$

$$\therefore \text{Total people} = 12$$

283) The SI on Rs 10 for 4 months at the rate of 3 paise per rupee per month is :

A) Rs 1.20      B) Rs 1.60      C) Rs 2.40      D) rs.3.60/-

Answer (A)

Solution: By using Formulae...

$$SI = P * T * R/100$$

$$\Rightarrow 10 * 4 * 3/100$$

$$\Rightarrow 120/100 \Rightarrow \text{Rs } 1.20$$

284) In a miniature wonderland, three countries Austria, America and Germany are on display. If Austria and America occupied  $\frac{3}{7}$  and  $\frac{4}{9}$  of the display area respectively, what is the display area occupied by Germany?

A.  $\frac{3}{21}$    b.  $\frac{5}{63}$    c.  $\frac{8}{63}$    d.  $\frac{1}{21}$

Answer (c)

Solution: Let  $\frac{3}{7} + \frac{4}{9} + G = 1$

$$\frac{27}{27} + \frac{28}{63} + G = 1$$

$$G = 1 - \frac{55}{63}$$

$$G = \frac{8}{63}$$

285) The value of p in  $\log_{12} 144p = 3$  is

a. 2      b. 4      c. 12      d. 24

Answer (c)

Solution: Removing log using property  $144p = 12 * 12 * 12 \Rightarrow$

$$p = 12$$

286)  $2^8 * 2^2 =$

a.  $4^{10}$       b.  $2^{10}$       c.  $2^{16}$       d.  $4^{16}$

Answer (B)

Solution:  $a^m * a^n = a^{m+n}$

$$\text{Using this formulae} = 2^8 * 2^2 = 2^{10}$$

287) Mauli purchased a designer saree from Mumbai at  $\frac{8}{9}$ th of its MRP. When she came back to Delhi, her neighbour coaxed Mauli to sell the saree to her. She was even ready to pay 9% more than its MRP. What would Mauli's gain percentage be, if she decides to sell the saree to her neighbour?

a. 15.59%      b. 16.61%      c. 20.36%      d. 22.625%

Answer (D)

Solution: cost price =  $\frac{8}{9}x$

$$\text{Selling price} = 9\% \text{ more} \Rightarrow x + \frac{9}{100}x \\ \Rightarrow \frac{109x}{100}$$

$$\text{Formulae} = \left( \frac{\text{s.p} - \text{c.p}}{\text{c.p}} \right) * 100$$

$$\left\{ \left[ \frac{(109x/100) - (8x/9)}{(8x/9)} \right] \right\} * 100$$

By Solving we get: 22.625%

288) Deepak sells 50 shirts at the cost price of 60 shirts. His gain percent is:

a. 0.15      b. 0.1      c. 0.25      d. 0.2

Answer (D)

Sol: Let cost of each shirt is 100

$$60 * 100 = 50 * x \Rightarrow x = 120 \text{ (new cost)}$$

$$20\% \text{ is the profit. i.e., } \frac{20}{100} = 0.2$$

289) The LCM of  $2^6 * 3^2 * 5 * 7$ ,  $2^3 * 3^5 * 7$  and  $2 * 3^4 * 5$  is:

a.  $2^6 * 3^5$       b.  $2^6 * 3^5 * 5$       c.  $2^6 * 3^5 * 7$       d.  $2^6 * 3^5 * 5 * 7$

Answer (D)

$$\text{Sol: } \underline{2^6 * 3^5 * 5 * 7}$$

Hint: Product of all primes with highest powers.

290) find the greatest number that divides 125, 218, 280 and 342 so as to leave the same remainder in each case.

a. 37      b. 35      c. 33      d. 31

**Answer (31)**

**Sol:** Trail method.

(Or)

218-125=93,                      280-218=62,  
280-125=155,                      324-218=124,  
342-125=217,                      342-125=217  
H.C.F of 93, 155, 217, 62, 124, 217 is 31

291) The sum of squares of 3 numbers is 170, while the sum of their products taken two at a time is 157. What is the sum of the numbers?

a. 20      b. 22      c. 24      d. 28

**Answer (B)**

**Sol:**  $a^2+b^2+c^2=170$ ,  $ab+bc+ca=157$   
 $(a+b+c)^2 = a^2+b^2+c^2+2(ab+bc+ca)$   
 $= 170+2(157)$   
 $= 484$   
 $(a+b+c) = \underline{22}$

292) Eight teams are playing in a cricket match. If a team loses, it is out of the tournament. How many games are needed to determine the winner? a. 7      b. 6      c. 8      d. 9

**Answer (A)**

**Sol:** 7 games are needed.

1 1	1 1	1 1	1 1	---	4 games
1	1	1	1	---	2 games
1		1		---	1 game
	1				

Total = 7 games

293) What will be the value of x in the expression  $72^2 - 28^2 = 50x$ ?

a. 44      b. 46      c. 86      d. 88

**Answer (D)**

**Sol:**  $72^2 - 28^2 = 50x \implies (72-28)(72+28) = 50x \implies 44 \times 100 = 50x \implies \underline{x=88}$

294) There are 3 main steps of completion of a project - Development, Review and Roll out. After development, there are 4 people who can independently work and lead the process to the process to the next step i.e. Review. Further ahead, there are 5 people who can work independently and lead to the next step i.e. Roll-out. In how many ways can a project manager complete the project?

a. 20      b. 9      c. 15      d. 25      e. 18

**Answer (A)**

**Sol:**  $4c1 \times 5c1 = 4 \times 5 = \underline{20}$  (Combinations)

295) Find a number that can replace y in the expression  $(x^4)^0 = x^{2/3} * x^y$

a. -2/3      b. 2/3      c. 1      d. 0      e. -4

**Answer (B)**

**Sol:**  $(x^4)^0 = x^{2/3} * x^y \implies x^0 = x^{(2/3)+y} \implies 0 = (2/3) + y \implies \underline{y = -2/3}$

296) A group of 4 students is to be chosen from 3 boys and 5 girls. Find the probability that the group contains exactly 3 girls.

a.  $\frac{3}{7}$       b.  $\frac{4}{7}$       c.  $\frac{5}{7}$       d.  $\frac{6}{7}$

Answer (A)

Sol:  $({}^5C_3 \cdot {}^3C_1) / {}^8C_4 \Rightarrow \underline{\frac{3}{7}}$

297) A cistern can be filled by two pipes A and B in 10 and 15 hours respectively and is then emptied by a tap in 8 hours. If all the taps are opened, the cistern will be filled in:

A. 21 hours      b. 22 hours      c. 23 hours      d. 24 hours      E. None of the above

Answer (D)

Sol: Time taken to fill the tank, if all pipes are opened =  $(\frac{1}{10}) + (\frac{1}{15}) - (\frac{1}{8})$   
 $= (\frac{5}{120})$   
 $= \frac{1}{24}$

i.e., 24 hrs to fill the tank

298) Evaluate:  $\log(a^2bc^3)^5$

a)  $32\log a + 5\log b + 243\log c$     b)  $(10\log a + 5\log b + 15\log c)$     c)  $15(\log a + \log b + \log c)$   
d)  $5\log(a^2bc^3)$

Ans: (B)

299) If  $p$  varies directly as the square of  $q$  and inversely as the square root of which of the following would be true if  $k$  represents constant of variation?

a.  $p(q)^2 = \sqrt{k}$       b.  $k = r^2 \cdot p \cdot q^{-2}$     c.  $p/k(q)^2 = \sqrt{r}$     d.  $\sqrt{p} = 1/k(q)^2$

300) What is the loss percentage incurred by a company when it buys an asset for Rs 1,50,000 and sells it for Rs 75,500?

a. 49.67%      b. 49.34%      c. 98.68%      d. 98.34%

Answer (A)

A) c.p = 1,50,000rs

s.p = 75,500

loss = c.p - s.p

$= 1,50,000 - 75,500$

$= 74,500$

Loss% =  $(\text{loss}/\text{c.p}) \times 100$

$= (74,500/1,50,000) \times 100$

$= 49.67\%$

301) If a positive integer  $n$  is divided by 5 then the remainder is 3. Which of the following numbers gives remainder 0, when it is divided by 5?

A.  $n + 3$       b.  $n - 2$       c.  $n + 2$       d.  $n + 1$

Answer (C)

302) Find the greatest 5 digit number that is exactly divisible by 3, 4, 5 and 7?

a. 99940      b. 99960      c. 99970      d. 99990

Answer (B)

Sol:  $99999 / \text{LCM}(3,4,5,7) = 99999 / 420 = 238$  ( quotient)  
 $238 * 420 = 99960$

303) Probability of one of the power plants over heating is 0.15 per day and the probability of failure of the backup cooling system is 0.11 .If these events are independent. What is the probability of 'big trouble' (i.e . . . both events taking place)?

- a.0.35                      b.0.0185                      c. 0.0165                      d.0.26

Answer (C)

Sol. big trouble occur when overheating and failure of cooling system happens at the same time.  
 $0.15 * 0.11 = 0.0165$

304) If the selling price of a watch is halved, the profit becomes quartered. Find the profit percentage of the watch?

- a.50%                      b.66.67%                      c.100%                      d.200%

Answer (D)

Sol.letc.p=x

s.p=y

$$((y/2)-x)/x=((y-x)/x)*(1/4)$$

$$y=3x$$

$$\text{profit}\% = ((3x-x)/x)*100$$

$$=200\%$$

305) Simplify the expression  $7\log_5 p + \sqrt{3}/2 \log_5 q - \frac{1}{2} \log_5 2r$

- a. $\log_5 p^7 + q^{(\sqrt{3}/2)} - (\sqrt{2})(\sqrt{r})$                       b. $\log_5(p^7 + q^{(\sqrt{3}/2)})/r$                       c. $\log p^7 .q^{(\sqrt{3}/2)/((\sqrt{2})(\sqrt{r}))}$   
d.  $\log_5 p^7 . q^{(\sqrt{3}/2)} - ((\sqrt{2})(\sqrt{r}))$

Answer

$$7\log p + ((3)^{(1/2)})/2\log q - (1/2)\log 2r$$

$$= \log p^7 + \log q^{((3)^{(1/2)})/2} - \log 2r^{(1/2)}$$

$$= \log((p^7)*q^{((3)^{(1/2)})/2})/(2r^{(1/2)})$$

306) there are 5 clients and 5 consultants in a round table meeting. In how many ways can the clients be seated such that no consultant is next to the other consultant?

- a. 5! 6!                      b.4! 4!                      c.4! 5!                      d.9!                      e.c5 5! 4!

Answer (C)

Ans: 5 clients can be arranged in 4! Ways as it is a circular arrangement.

Now 5 places left in between 5 clients. So 5 consultants can be arranged in 5! Ways.

Total: 4! \* 5!

307) A company decides to reorganise its financial transaction files and put all such files into various drawers. In how many ways can 7 files be put into 3 drawers, if any number of files can be put in each drawer?

- a. $7^3$                       b. ${}^7p_3$                       c. $7!/4!$                       d. $3^7$                       e. ${}^7c_3$

Ans- A

Sol- In each drawer 7 files can be kept so  $7*7*7$

308) In AMY company, the probability that an employee takes a sick leave as well as a casual leave in a month is 0.15. The probability that an employee takes a sick leave in a month is 0.45. What is the probability that the employee would take a casual leave given that he would take a sick leave?

- a. 0.33                      b. 0.42                      c. 0.66                      d. 0.7

**Ans- A**

Sol-  $P(\text{employee takes casual leave given he takes sick leave}) = P(\text{employee takes casual and sick leave}) / P(\text{he takes a sick leave})$

$$= 0.15 / 0.45$$

$$= 1 / 3 = 0.33$$

309) When a local train travels at a speed of 60kmph, it reaches the destination on time. When the same train travels at speed of 50kmph, it reaches its destination 15mnts late. What is the length of journey?

- a. 75kms                      b. 50kms                      c. 60kms                      d. 85kms

**Answer (A)**

Sol. let the time taken by a train when it takes 60kmph is when it takes 50kmph will be  $(x+15)$

So distance,  $60x = 50(x+15)$

$X = 75$  mins

Distance = Speed \* Time =  $(60 * 75) / 60$  (Convert minutes to hours by dividing with 60)

310) Give the greatest pair of twin primes which are below 100?

- a. 71, 73                      b. 93, 95                      c. 97, 99                      d. 87, 89

**Answer (A)**

311) In an examination involving quantitative aptitude and logical reasoning, 65% examinees cleared quantitative aptitude test while 70% cleared logical reasoning test. If 50% examinees passed both the tests, then how many failed in both tests?

- a. 35%                      b. 15%                      c. 30%                      d. 20%

**Answer (B)**

Sol. No of students who passed in atleast one subject:

$$A \cup B = 65 + 70 - 50 = 85$$

If total students are 100 .no of students who failed in both subjects = total students - students who passed in atleast one subjective.  $100 - 85 = 15$

312) A sum of money triples itself at compound interest in 3 years. In 9 years it will be

- a. 6 times the principle                      b. 12 times the principle.  
c. 18 times the principle                      d. 27 times the principle

**Answer (D)**

Sol- In every three years it will be tripling hence total  $3^3$  times = 27 times.

313) 3 friends Gerard, Rooney and Ronaldson work together to dig a hole. Gerard alone can complete the work in 10 days, Rooney in 8 days and together all three can complete it in 4 days. They earn a total of Rs. 1,200. Find the share of Rooney if the money that they receive is proportional to the work that they do?



a.Rs.480      b. Rs.165.51      c. Rs.500      d.Rs.600

Answer (D)

Ans: Ronaldson can complete work in 40 days ( $\frac{1}{4} - \frac{1}{10} - \frac{1}{8}$ )

Rooney share is  $1200/2 = 600$

314) The number which should be subtracted from  $5a^2-3ab+7b^2$  to make it equal to  $a^2+ab+b^2$  is

A.  $4a^2-4ab+6b^2$       b.  $4a^2-4ab+5b^2$       c.  $4a^2+4ab+6b^2$

D.  $4a^2-3ab+6b^2$       E. None of the above

Answer (C)

$$\text{Sol. } (5a^2-3ab+7b^2) - (a^2+ab+b^2) = 4a^2+4ab+6b^2$$

315) Given that the interest is only earned on principle, if an investment of Rs.1000.00 amounts to Rs.1440.00 in 2 years, then what is the rate of interest earned?

a. 20%      b. 22%      c. 21%      d. 11%      e. 44%

Answer (A)

Sol.

$$1000(1+r/100)^2=1440$$

So the answer is 20%.

316) If  ${}^nC_5 = {}^nC_0$ , then find the value of n.

a. n=0      B. n=1      C. n=5      D. n=10

Answer (C)

$$\text{Ans. } {}^nC_5 = {}^nC_{n-5} = {}^nC_0$$

$$n-5=0$$

317) A bag contains 5 oranges, 4 bananas, a apples. Rohit wants to eat a banana or an apple. He draws a fruit from the bag randomly. What is the probability that he will get a fruit of his choice?

A.  $3.5/12$       B.  $7/12$       C.  $5/12$       E. None of the above

Answer (B)

Sol.

Total fruits are 12.

Chances to select banana or apple is:  $4+3=7$

Probability  $= 7/12$

So option (b) is correct.

318) A single letter is drawn at random from the word. "ASPIRATION", the probability that it is a vowel is?

A.  $\frac{1}{2}$       B.  $\frac{1}{3}$       C.  $\frac{3}{5}$       D.  $\frac{2}{5}$

Ans- A

Sol- Total cases = 10 and fav. Cases (vowels) = 5 So probability =  $5/10 = 1/2$

319): The number of ways in which 15 students A1, A2.....A15 can be ranked, such that A4 is always above A8 is

A.  $15!$       B.  $13!$       C.  $15! / 2$       D.  $13! / 2$

Ans- C

Sol- The required cases will be half of total possible cases that is  $15!$  Hence  $15!/2$

320) solve:  $0.001210 \times 0.00011$

A. 0.0000001331 B. 0.00001331 C. 0.001331 D. 0.000000001331 E. 0.1331

Ans- A

Sol- Multiply simply

321) If the letters of the word "rachit" are arranged in all possible ways and these words are written out as in a dictionary, what is the rank of the word "rachit".

(a) 485

(b) 480

(c) 478

(d) 481

Ans : d

Sol : the maximum possible combinations for the name rachit is:

$6! = 720$  (as there are no repeated words)

now for r to start in dictionary we have to go through

a, c, h and i so..

$a + 4$  other combinations of words = 5 combinations = 120

similarly for c, h, and i

total =  $120 + 120 + 120 + 120 = 480$  + first word that is rachit... hence answer is 481

322. The number of 6- digit number that can be formed from 0, 1, 5, 6, 7, and 8 in which the first digit is not 0 are:

A. 120

B. 600

C. 720

D. 800

Ans – B

Sol- First place can be filled in 5 ways as 0 cannot come. Also all digits have to be used so remaining 5 places can be filled by  $5!$  Ways hence  $5 \times 5! = 600$  ways

323. What is the difference between the LCM and HCF of the numbers 20, 30 and 40?

A. 100

B. 110

C. 120

D. 130

Ans- C

Sol- LCM (20,30, 40) = 120 and HCF of (20, 30, 40) = 10 Hence Difference of LCM and HCF =  $120 - 10 = 110$

324. Solve :  $\sqrt{9 - (3 + \sqrt{5 - \sqrt{3 + \sqrt{169}}})}$

A.  $\sqrt{7}$

B. 1

C. 0

D.  $\sqrt{5}$

E.  $\sqrt{2}$

Ans- D

Sol-  $\sqrt{9 - (3 + \sqrt{5 - \sqrt{3 + \sqrt{169}}})} = \sqrt{9 - (3 + \sqrt{5 - \sqrt{3 + 13}})}$

$\sqrt{9 - (3 + \sqrt{5 - 4})} = \sqrt{9 - 4} = \sqrt{5}$

325. Find the probability that the sum of the score is even in a throw of two dice.

A.  $1/4$

B.  $1/3$

C.  $1/2$

D.  $2/3$

Ans- C

Sol- Sum of Two Dice will be even if Both Dice have even number or Both dice have odd number and

Probability of even number on dice =  $1/2$ , of odd number is also  $1/2$  Hence

Required probability =  $1/2 * 1/2 + 1/2 * 1/2 = 1/4 + 1/4 = 1/2$

326. Paul can complete a project in 6 days. With the help of an intern, he can do it in 4 days. In what time can the intern complete the project alone?

A. 6 days

B.  $6 \frac{1}{4}$  days

C. 12 days

D.  $12 \frac{1}{2}$  days

Ans- C

Sol- Let intern completes in x days then

$$1/x + 1/6 = 1/4 \Rightarrow x = 12 \text{ days}$$

327. A show room offers a 10% discount on a microwave, whose marked price is Rs. 8,000, and also gives a blender worth Rs. 1,200 as a complimentary gift with it. Even then, the showroom earns a profit of 20%. The cost price per microwave is:

A. Rs. 7,200

B. Rs. 6,000

C. Rs. 5,000

D. Rs. 4,000

Ans-C

$$\text{Sol-S.P} = (8000 \times 10/100) - 1200$$

$$= 7200 - 1200$$

$$= 6000.$$

$$\text{C.P} = (100/100 + \text{PROFIT PERCENTAGE}) \times \text{S.P}$$

$$= (100/120) \times 6000$$

$$= 5000.$$

328. Five students have not been absent for the entire first semester. They are asked to draw one pass each from a bag that has 5 movie passes and 5 meal passes. Parul and Mini are the first two students to draw the pass simultaneously. What is the probability that they both draw movie passes?

A. 5/6

B. 1/2

C. 2/9

D. 4/5

Ans-C

$$\text{Sol- Required Probability : } (5C2 + 5C0) / 10C2$$

$$= 10/45$$

$$= 2/9$$

329. In a class of 50 students, the average age of girls is 12.3 years and that of boys is 12.5 years. If the average age of the class is 12.42 years, then the number of boys and girls respectively in the class are:

A. (25, 25)

B. (20, 30)

C. (30, 20)

D. (35, 15)

E. (40, 10)

**Ans-A**

**Sol- Apply Allegation Rule :**

Average Age of girl 12.3

Average Age of Boys 12.5

Average age of class 12.42

We get ratio between boys and girls - 1 : 1

Total no. of students is 50 i.e 25:25

330. In an examination, a candidate is required to answer 5 questions in all, from 2 section having 5 questions each. What are the total number of ways in which a candidate can select the questions, provided that at least two questions are to be attempted from each section?

A. 200

B. 20

C. 100

D. 10

**Ans-A**

**Sol-** ${}^nC_r = \frac{n!}{r!(n-r)!}$

Part 1(5)

Part 2(5)

A 2

3

B 3

2

$${}^5C_2 * {}^5C_3 + {}^5C_3 * {}^5C_2 = 200$$

331. How many three digit numbers can be formed using the numerals 2,3, 4, 5, 6, and 7, without repetition?

A. 60

B. 240

C. 120

D. 720

**Ans-A**

**Sol-**There are 5 digits to choose from and 3 distinct digits must be chosen.

There are 5 possible digits to pick for the first digit, 4 possible digits to pick for the second digit (because we can't reuse the first digit) and 3 possible digits for the final digit (because we can't pick the first two digits). Therefore, there are  $5 \cdot 4 \cdot 3 = 60$  possible three digit numbers you can make with these digits without repeat. OR

In terms of Combinations, it would be;

$${}^5C_1 \times {}^4C_1 \times {}^3C_1 = 60$$

332. A bag contains 8 white balls and some yellow balls. If the probability of drawing a white ball is twice of a yellow ball, then the number of yellow balls in the bag is:

- A. 2
- B. 3
- C. 4
- D. 6

Ans-C

Sol-let number of yellow ball = x

Given

Probability(white ball) = 2 \* Probability(yellow ball)

$$(8/(8+x)) = 2(x/(x+8))$$

solve x=4

333. What is the unit digit in  $27^{20}$ ?

- A. 1
- B. 5
- C. 12
- D. 20

Ans-A

Sol- Unit digit of  $27^1 = 7$  ( $7^1 = 7$ )

„ „ „,  $27^2 = 9$  ( $7^2 = 49$ )

UD of  $27^3 = 3$  ( $7^3 = 343$ )

UD of  $27^4 = 1$  ( $7^4 = 2401$ )

Hence for every four consecutive powers, the unit digit will follow a pattern of 7,9,3,1.

Hence UD of  $27^{20}$  will be 1

334. In a match, awards are given to each of 11 members of the team and a trophy to the team. In all winning team gets 2.75 kg weight awards. If the weight of match winning trophy is 1.275 kg, what is the weight of the award given to each player?

- A. 200 grams
- B. 150 grams

C. 124 grams

D. 134 grams

**Ans- D**

Sol-total weight of awards=2.75;weight of trophy=1.275

Weight of awards given to 11 members =  $(2.75 - 1.275) = 1.475$  kg

Weight of award given to each member =  $(1.475/11) = 134$  grams

335. Find the value of x which satisfies the relation  $\log_{10} 2 + \log_{10}(7x+1) = \log_{10}(x+93)$ .

A. 3

B. 5

C. 7

D. 9

**Ans-C**

Sol-  $\log_{10} 2 + \log_{10}(7x+1) \Rightarrow \log_{10}(14x+2) = \log_{10}(x+93)$ .

$14x + 2 = x + 93; x = 7$

336. Ratio between speeds of 2 trains is 5:3. If the first train runs 350 km in 2 hours, then what is the speed of the second train?

A. 100 kmph

B. 115 kmph

C. 105 kmph

D. 210 kmph

**Ans-C**

Sol-Speed in (km/hr) of first train =  $350/2 = 175$

So speed of the second train =  $175 \times 3/5 = 105$

337. The LCM of 0.72, 1.2 and 2.24 is:

A. 100.8

B. 100.6

C. 100.4

D. 100.2

**Ans-A**

Sol-Make them as fractions

$$72/100, 120/100, 224/100$$

so required l.c.m is (l.c.m of 72,120,224)/(h.c.f of 100,100,100)

$$=(63*160)/(100)$$

$$=100.8$$

338. Malini solved the following question in her Mathematics examination:

$$(6/4 + 5\frac{1}{6} \text{ of } 3/7) / (5 + 2\frac{1}{3})$$

And her answer was  $38/77$ . By how much was her answer wrong?

A. 1

B.  $1/77$

C. 2

D.  $2/77$

E.  $39/77$

**Ans-B**

$$\text{Sol-} 6/4 + (31/6 * 3/7) = 104/28$$

$$5 + 7/3 = 22/3$$

$$104/28 / 22/3 = 39/77$$

$$39/77 - 38/77 = 1/77$$

339. X and y 2 numbers which when divided by 6 leave a remainder of 4 and 5 respectively. What will be the remainder when  $y + x$  is divided by 6?

A. 6

B. 9

C. 1

D. None of the above

**Ans-D**

$$\text{Sol-} x/6=4$$

$$28/6=4$$

$$x=28$$

when 28 is divided by 4 it leaves remainder 4

similarly

$$y/6=5$$

$$35/6=5$$

$$y=35$$



$$(28+35)/6=63/6 \Rightarrow \text{Remainder-3}$$

340. If LCM of two co-prime numbers  $a$  and  $b$  ( $a > b$ ) is 783, then the value of  $2ab - 3a$  is:

- A. 1,473
- B. 1,475
- C. 1,477
- D. 1,479

Ans-D

Sol-Possible Values of  $a=29$ , and  $b=27$

$$2ab - 3a = 1566 - 87 = 1479$$

341. Supriya runs a marathon race in 50 minutes at an average speed of 48 km/hour. In order to set a national record, she needs to win the race in 40 minutes. Considering that her speed remains constant, at what minimum speed should she run to set the record?

- A. 70 km/hr
- B. 60 km/hr
- C. 55 km/hr
- D. 50 km/hr

Ans-B

$$\text{Sol- Distance} = \text{speed} * \text{time} \Rightarrow 50 * 48 = 2400$$

$$\text{New speed} = 2400/40 \Rightarrow 60$$

342. If  $x$  is a positive number and  $y = x^2$ , then which of the following is true?

- A.  $y$  is always more than  $x$
- B.  $x$  is always more than  $y$
- C.  $x$  is always equal to  $y$
- D. None of the above

Ans-A

Sol-Possible values of  $x = 1, 2, 3, 4, \dots, n$

Except for  $x=1$ ,  $y$  is always more than  $x$  to satisfy Equation :  $y=x^2$

343. In how many ways can at least two team members be selected for grade A out of 7 members in a group?

A.  ${}^7C_2$

B.  ${}^7C_2 + {}^7C_3 + {}^7C_4 + {}^7C_5 + {}^7C_6 + {}^7C_7$

C.  ${}^7P_2 + {}^7P_3 + {}^7P_4 + {}^7P_5 + {}^7P_6 + {}^7P_7$

D.  ${}^7C_0 + {}^7C_1$

E.  ${}^7P_0 + {}^7P_1$

**Ans-B**

Sol-Bcz we are making selections so we need Combinations and it is said we have to select at least 2, so It can be at least 2 or more than 2 i.e. till 7.

344. Which number should be multiplied by 5324 to make it a perfect square?

A. 2

B. 7

C. 9

D. 11

**Ans-A**

Sol-Prime Factors of  $5324 = (2^2 \times 11^3)$  or  $(2 \times 2 \times 11 \times 11 \times 11)$ . We should multiple with 2 to make perfect square.

345. In how many ways can the letters of the word 'TIGER' be arranged so that the vowels never come together?

A. 120

B. 72

C. 48.

D. 24

**Ans-B**

Sol- Total words= $5!$

vowels= $2$

vowels come together= $4!2!$

no vowel together= $5! - 4!2! \Rightarrow 72$

346. In how many different ways can the letters of the word 'OPTICAL' be arranged so that the vowels always come together?

A. 120

B. 720

- C. 4320
- D. 2160
- E. None of the above

**Ans-B**

Sol- Total words = 7  
 vowels = 3  
 vowels come together =  $5!3! \Rightarrow 720$

347. A software engineer creates a LAN game where an 8 digit code made up of 1, 2, 3, 4, 5, 6, 7, 8 has to be decided on, as a universal code. There is a condition that each number has to be used and no number can be repeated. What is the probability that first 4 digits of the code are even number?

- A.  $1/70$
- B.  $1/840$
- C.  $1/8$
- D.  $1/40320$

**Ans-A**

Sol- total no of ways is  $8!$ .  
 for finding even nos at last 4 digit s ways are  $4!$   
 and that for odd is  $4!$   
 so it can be done in  $4 \times 3 \times 2 \times 1 \times 4 \times 3 \times 2 \times 1 / 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1$   
 ie  $4! \times 4! / 8! \Rightarrow 1/70$

348. What is the value of  $\log(a+b)/c + \log c/a$  when it is given that 'b' is four times the value of 'a'?

- A.  $\log 2$
- B.  $\log 3$
- C.  $\log 4$
- D.  $\log 5$
- E.  $\log 10$

**Ans-D**

Sol-  $\log(a+b)/c + \log c/a$   
 $B=4a \Rightarrow \log(5a) - \log c + \log c - \log a$   
 $\log 5$

349. Simple interest on an amount at 4% per annum for 13 months is more than the simple interest on the same sum for 8 months at 6% per annum by Rs.40. What is the principal amount?

- A. Rs. 3,600
- B. Rs. 12,000
- C. Rs. 4,800
- D. Rs. 24,000

**Ans-B**

$$\text{Sol- } P \times 4 \times \frac{13}{100} \times 12 - P \times 6 \times \frac{8}{100} \times 12 = 40$$

after solving  $P = 12000$

350. Ramakant wants to earn Rs. 1,500 interest on his deposits. He plans to buy a sack of grains with the interest. He puts Rs. 5,000 into his account that earns 2.5% interest. How long will he need to leave his money in the account to earn this interest that would help him buy the sack of grains?

- A. 8 years
- B. 10 years
- C. 12 years
- D. 15 years

**Ans-C**

$$\text{Sol-si} = 1500$$

$$P = 5000$$

$$si = \frac{P \times t \times r}{100}$$

$$1500 = \frac{5000 \times 2.5 \times t}{100}$$

$$12 \text{ years}$$

351. If Ruparno is expected to spend Rs. 2,300 on electricity bill in the first 3 months of the year, what amount can be expected to spend on electricity bill for the rest of the year?

- A. Rs. 5,400
- B. Rs. 5,700
- C. Rs. 6,200
- D. Rs. 6,900

**Ans-D**

$$\text{Sol- } 6,900 ( 2,300 \times 3 )$$

352. Nine days ago, the area covered by the mold on a piece of bread was 3 square inches. Today the mold covers 9 square inches. What is the rate of change in mold's area?

- A. 2 square inches per day
- B. 3 square inches per day

C.  $\frac{2}{5}$  square inches per day

D.  $\frac{2}{3}$  square inches per day

**Ans-A**

Sol- Initial value 3 square inches

New value 9 square inches

Rate of change=additional value/initial value

Rate of change= $6 \div 3 = 2$  square inches per day

353. Evaluate:  $\log_7 1512$

A.  $3\log_7 2 + 3\log_7 3 + \ln 7 * \ln e$

B.  $3\log_7 6$

C.  $3\log_7 6 + 1$

D.  $3\log_7 2 + 3\log_7 3 + \log 7$

E.  $3\log_7 5 + 1$

354. What is the smallest number, which when divided by 7, 18, 56 and 36, leaves a remainder zero?

A. 504

B. 392

C. 390

D. 1012

**Ans-A**

Sol- take l.c.m of 7,18,36 and 56 gives 504

355. 7, 11 and 13 perfectly divide which of the following numbers:

A. 7,23,456

B. 4, 89,489

C. 4,82,440

D. 7,77,700

**Ans-B**

Sol-take l.c.m of 7,13,11 => 1001

Only 489489 is perfectly divisible by 1001.

356. A manager decides to form a team of 3 employees. In how many ways can he form a team, if he has a total of 10 employees?

- A.  $10P_0$
- B.  $10C_3 \cdot 3!$
- C.  $10C_3$
- D.  $10! / 3!$
- E.  $10! \cdot 3!$

Ans-C

Sol- 3 employees are selected from  $10 = {}^{10}C_3$

357. A research laboratory conducts various experiments. The probability of occurrence of an event in one trial of an experiment is 0.3. Three independent trials of an experiment are performed. Find the probability that the event happens at least once.

- A. 0.027
- B. 0.973
- C. 0.657
- D. 0.147

Ans-C

Sol- Probability of not happening the event in one trial = 0.7

Event not happening in any of the three trial =  $(0.7)^3$

Event happening atleast once =  $1 - (0.7)^3 = 0.657$

358. A number 456\*85 is completely divisible by 3 Smallest whole digit number in place of \* can be

- A. 0
- B. 1
- C. 2
- D. 3

Ans- C

Sol- Sum of digits must be divisible by 3, so Sum =  $28 + *$  so least number in place of \* can be 2

359. What is the value of  ${}^{15}C_{13}$

- A. 100
- B. 210
- C. 105
- D. 154

Ans- C

Sol-  ${}^{15}C_{13}$  is same as  ${}^{15}C_2 = \frac{15 \cdot 14}{2} = 105$

360. Find the value of  $\log_{13} 2197$

- A. 4
- B. 7
- C. 13
- D. 3

Ans- D

Sol-  $2197 = 13^3$  So  $\log_{13} 2197 = 3 \log_{13} 13 = 3$

361. Difference of LCM and HCF of two number is 8 Sum of their HCF and LCM is 24. If one of the number is 8 find the other?

- A. 24                      B. 16                      C. 12                      D. 8

Ans-B

Sol-  $L+H = 24$  and  $L-H = 8$  So  $L = 16$  and  $H = 8$  Product of numbers =  $8 \times x = 8 \times 16$

$$\Rightarrow X=16$$

362. Write  $528/7$  as a mixed fraction

- A.  $75 \frac{2}{7}$                       B.  $75 \frac{3}{7}$                       C.  $74 \frac{3}{7}$                       D.  $70 \frac{2}{7}$

Ans- B

Sol- Dividing 528 by 7 we get quotient 75 and remainder of 3 and hence  $75 \frac{3}{7}$

363. Varun is guessing which of the two hands hold a coin. What is the probability that varun guesses correctly 3 times in a row?

- A.  $1/6$                       B.  $1/2$                       C.  $1/4$                       D.  $1/8$

Ans- D

Sol- Probability of guessing correctly =  $1/2$  So required probability =  $1/2 \times 1/2 \times 1/2 = 1/8$

364. The LCM of three different numbers is 150. Which of the following can never be their HCF?

- A. 3                      B. 5                      C. 12                      D. 25

Ans-C

Sol- HCF must divide LCM but 150 is not divisible by 12 hence 12

365. A rectangle's length is 4 times its breadth if its area is 2500 Sq. yards. What is the length of the rectangle?

- A. 100                      B. 25                      C. 625                      D. 5

Ans-A

Sol- Let breadth be  $x$  then length= $4x$

So area =  $4x^2 = 2500 \Rightarrow x = 25$  and hence length =  $4(25) = 100$

366.  $(2/7)^{-8} \times (7/2)^{-2} = (2/7)^{2x}$  Find  $x$

- A. 3                      B. -3                      C. 6                      D. 2

Ans-B

Sol-  $(2/7)^{-6} = (2/7)^{2x} \Rightarrow 2x = -6 \Rightarrow x = -3$

367. Which of the following number is divisible by 11?

- A. 1042                      B. 1045                      C. 1047                      D. 1048

Ans-B

Sol- Sum of odd places =  $(1+4) = 5$  and even places  $(0+5) = 5$  in 1045 and hence divisible by 11.

368. Solve  $4/5 \times 61/80 \times 10/9$

- A. 61/90                      B. 90/61                      C. 60/91                      D. none of these

Ans-A

Sol- Solving we get  $61/(9 \times 5 \times 2) = 61/90$ .

369. What is the probability of getting an odd sum of score in a throw of 2 dice?

- A]  $\frac{1}{3}$                       B]  $\frac{17}{36}$                       C]  $\frac{1}{4}$                       D]  $\frac{1}{2}$

Ans- D

Solution- The sum will be odd of combination of odd and even comes that is  
Odd even or even odd =  $1/2 \times 1/2 + 1/2 \times 1/2 = 1/4 + 1/4 = 1/2$

370. How many three letter words with or without meaning can be formed out of letters of the word SIGNATURE if repetition is not allowed?

- A. 84                      B. 504                      C. 181440                      D. 362880

Ans- B

Solution- The number of ways of selecting 3 letters =  ${}^9C_3$  and those letters can be arranged in  $3!$   
Ways So total required ways =  ${}^9C_3 \times 3! = 9 \cdot 8 \cdot 7 / 3 \cdot 2 \cdot 1 (6) = 9 \cdot 8 \cdot 7 = 504$

371. Atul bought a machine of Rs 4,50,000 and sold it to irfan at a profit. Irfan later sold the machine at a loss of 10 % for Rs 4,95,000. The profit earn by atul is

- A. 23%                      B. 21%                      C. 25%                      D. 22.22%

Ans- D

Solution- Let atul sold it in Rs x Now that will be CP for irfan and hence  
 $495000 = 90/100(x) \Rightarrow x = 550000$   
So profit % to atul =  $100000/450000 \times 100 = 22.22\%$

372.  $n(n^2-1)$  is always divisible by

- A. 6                      B. 5                      C. 7                      D. 8

Ans- A

Solution-  $n(n-1)(n+1)$  are product of three consecutive number and hence always divisible by  $3! = 6$



373. Riya earns Rs 30000 pm She spent 10% of her income on taxes. Of the remaining spent 1/3 rd on rent, half on petrol, 1/3<sup>rd</sup> on electricity and rest goes in the saving what percent of the income riya able to save

- A. 20%      B. 25 %      C. 27 %      D. 15%

Ans- A

Solution- 90% of 30000 = 27000

Now 1/3 of 27000 means 9000 on rent

½ of remining 18000 = 9000 on petrol

1/3 of remaining 9000 = 3000 on electricity So 6000 is the saving

$6000/30000 * 100 = 20\%$

374. Shobhit bought 300 litres of milk at Rs 19 per litre. He added 200 litres to it and sold 400 litres of the milk at Rs 20 per litre. To the rest he added 10 litres of water and sold it Rs 15 per litres. If he uses mineral water costing Rs 10 per litre, then total money earned by Shobhit

- A. 4000      B. 4150      C. 1800      D. 1850

Ans- D

Solution- Total Cost price =  $300*19 + 200*10 + 10*10 = 5700+2000+100 = 7800$

Total Selling price =  $400*20 + 110*15 = 8000+1650= 9650$

So profit =  $9650-7800 = 1850$

375. How many litres of a 90% solution of concentrated acid needs to be mixed with the 75% solution of concentrated acid to get a 30 L solution of 78% concentrated acid?

- A. 24 L      B. 22.5 L      C. 6 L      D. 17.5 L

Ans- A

Solution- Using Alligation Rule ratio must be 90-78 : 78-75

That is 12:3 => 4:1 So 4 part out of 5 must be of 90% concentrated acid

=  $4/5$  of 30 = 24 L

376. From a deck of 52 cards. 4 cards are selected so as to include at least 1 spade card. In how many ways can this be done?

- A.  ${}^{52}C_4 - {}^{39}C_4$       B.  ${}^{52}C_{13}$       C.  ${}^{52}C_4 - {}^{13}C_4$       D.  ${}^{13}C_4$

Ans- A

Solution- We first calculate that no card is spade =  ${}^{39}C_4$  and now remove these cases from total ways =  ${}^{52}C_4 - {}^{39}C_4$

377. On selling a T-Shirt at five - seventh of its marked price, the store earn 15% profit. What is the profit if the T-Shirt is sold at its marked price?

- A. 20%      B. 40%      C. 61%      D. 39%

Ans- C

Solution- If marked price=x, cost price=CP . As  $5x/7$  is 115 of CP, so x will be  $x*115/(5x/7)$  of CP=161 of CP  
% Profit earned ,if sold at marked price=61

378. Abu Company provides taxi for call centre employees. The company has 7 Taveras, 5 Quallis, 6 Innovas and few small cars. If Tavera makes  $\frac{1}{4}$  of the total fleet, How many small cars are there in the company?

- A. 12                      B. 7                      C. 6                      D. 10

Ans- D

Solution- 7 is  $\frac{1}{4}$  of total So total taxi = 28 let x be small cars  $\Rightarrow 28 = 7+6+5+x$   
 $\Rightarrow x = 10$

379. Swarup draws a certain amount of money from an ATM machine. Number of 500 Rs notes are double the number of 100 Rs notes. Which of the following can be possible amount drawn?

- A. 5000                      B. 8800                      C. 10000                      D. 9500

Ans- D

Solution- let number of 100 Rs notes are x then  $100x+500(2x) = 1100x$  So it must be divisible by 1100 hence 8800

380. If  $\log_y X$  is Z then what is the value of the log of  $X^{-3}$  to the base  $Y^{-1}$

- A.  $\frac{Z}{3}$                       B.  $-\frac{Z}{3}$                       C.  $-3Z$                       D.  $3Z$

Ans- D

Solution- Using property  $\log_a^b c^d = \frac{d}{b} \log_a c$  we get  $\frac{-3}{-1} \log_y X = 3Z$

381. If a shopkeeper earns Rs 400 a day when it's weekend and Rs 300 when it's working day. What should be his earning expectation if the probability of its weekend is 0.6?

- A. 240                      B. 120                      C. 360                      D. 700

Ans- A

Solution- If chance is 60% means his earning expectation must also be  $\frac{60}{100}$  of 400 = 240

382. A question paper consist of 4 sections each having 7 questions. A candidate have to select 2 sections and has to solve 9 questions choosing at least three from each selected sections. In how many ways can he answer the paper?

- A. 80                      B. 440                      C. 792                      D. 1320

Ans- A

Solution- No of ways of selecting 2 sections out of 4 is  ${}^4C_2 = 6$   
Number of ways of selecting questions =  ${}^7C_3 * {}^7C_6$  or  ${}^7C_4 * {}^7C_5$  or  ${}^7C_5 * {}^7C_4$  or  ${}^7C_6 * {}^7C_3$   
 $= 2 ({}^7C_3 * {}^7C_6 \text{ or } {}^7C_4 * {}^7C_5) = 2(35*7 + 35*21) = 70*28 = 1960$   
So total required ways =  $6*1960 = 11760$

383. Rajesh commutes daily by travelling  $\frac{4}{5}$  of the distance between his home and office by Metro train,  $\frac{3}{20}$  by auto and remaining 1 km on foot. The distance between his home and office is:

- A] 12 km                      B] 16 km                      C] 24 km                      D] 20 km

Ans - D

let total distance is x

$$x - (4/5x + 3/20x) = 1$$

$$x - [(16+3)/20] = 1$$

$$1/20x = 1$$

$$X = 20\text{Km}$$

384. The value of 729 raised to the power  $\log_{27}81$  is:

- A] 27                      B] 729                      C] 2187                      D] 6561

Ans - D

$$\text{Let } x = \log_{27}81$$

$$\log_a b = \log_c b / \log_c a$$

$$X = \log_3 81 / \log_3 27$$

$$X = \log_3 3^4 / \log_3 3^3$$

$$X = 4/3$$

$$729^{4/3}$$

$$(9^3)^{4/3}$$

$$9^4 = 6561$$

385. Sangeeta invested Rs. 20,000 at 8% per annum. If the interest is compounded half – yearly, then total interest earned by Sangeeta at the end of the year is:

- A] Rs. 1,632                      B] Rs. 1600                      C] Rs. 1800                      D] Rs. 1475

Ans – A

$$P = 20,000$$

$$r = 8\%$$

$$t = 1$$

Interest is compounded half yearly so

$$r = 8/2\% = 4\%$$

$$t = 1 * 2 = 2$$

$$CI = 20000(1 + 4/100)^2$$

$$CI = 1632$$

386. Which number should be subtracted from 6518 so that it can be divisible by 36?

- A] 1                      B] 2                      C] 3                      D] 4

Ans - B

Let 6518-x is divisible by 36

$$36 = 4 * 9$$

So number should be divisible by 4 and 9

(18-x) divisible by 4

$$X = 2$$

$$6 + 5 + 1 + 8 = 20$$

20-x divisible by 9

$$X = 2$$

Hence x=2

387. If the HCF and LCM of two numbers are 1 and 76 respectively. The square of one number is 361. Find the other number.

- A] 3                      B] 4                      C] 6                      D] 7

Ans - B

We know  $LCM \times HCF = a \times b$

$$76 \times 1 = a \times b$$

As given  $a^2 = 361$

$$a = 19$$

$$76 = 19b$$

$$b = 76/19$$

$$b = 4$$

388.  $\log_4 2 + \log_4 32$  is equal to:

- A] 2                      B] 3                      C] 4                      D] 5

Ans - B

Let  $x = \log_4 2 + \log_4 32$

$$X = \log_4 4^{1/2} + \log_4 4^{5/2}$$

$$X = 1/2 + 5/2$$

$$X = 6/2$$

$$X = 3$$

389. Evaluate:

$$(4.56^3 + 5.44^3) / (4.56^2 - 4.56 \times 5.44 + 5.44^2)$$

- A] 0.88                      B] - 0.88                      C] 1                      D] 10

Ans - D

Let  $a = 4.56$ ,  $b = 5.44$

We know  $a^3 + b^3 = (a+b)(a^2 - ab + b^2)$

$$(4.56 + 5.44)(4.56^2 - 4.56 \times 5.44 + 5.44^2) / (4.56^2 - 4.56 \times 5.44 + 5.44^2)$$

$$4.56 + 5.44$$

$$10$$

390. If  $\log_5 7 = \log_3 7 \times \log_5 x$ , what is the value of x?

- A] 7                      B] 5                      C] 3                      D] 10

Ans - C

As we know  $\log_a b = \log_c b / \log_c a$

$$\log_5 7 = (\log_3 7 / \log_3 5) \times (\log_5 x)$$

$$1 = (1 / \log_3 5) \times \log_5 x$$

$$\log_3 5 = \log_5 x$$

$$X = 3$$

391. What is the value of  $i^{34}$ ?

- A] - 1                      B] 1                      C] 0                      D] i

Ans - A

Let  $x = i^{34}$

We know  $i^2 = -1$

$$X = (i^2)^{17}$$

$$X = (-1)^{17}$$

$$X = -1$$

392. From a group of 8 men and 8 women, 8 members are to be selected for a team such that women constitute at least 50% of the team. In how many ways can it be done?

A]  ${}^8C_4 \times {}^8C_4 + {}^8C_5 \times {}^8C_3 + {}^8C_6 \times {}^8C_2 + {}^8C_7 \times {}^8C_1 + {}^8C_8$

B]  $8^4 \times 8^4$

C]  ${}^8C_4 \times {}^8C_4$

D]  $8^4 \times 8^4 + 8^3 \times 8^5 + 8^2 \times 8^6 + 8^7 \times 8 + 1$

Ans - A

In this case out of 16 men and women at least 50% women in the team that means maximum no. of women can be any so we have following cases

Case 1 4 men and 4 women i.e.  ${}^8C_4 \times {}^8C_4$

Case 2 3 men and 5 women i.e.  ${}^8C_5 \times {}^8C_3$

Case 3 2 men and 6 women i.e.  ${}^8C_6 \times {}^8C_2$

Case 4 1 men and 7 women i.e.  ${}^8C_7 \times {}^8C_1$

Case 5 0 men and 8 women i.e.  ${}^8C_8$

Hence no. of ways team is selected is  ${}^8C_4 \times {}^8C_4 + {}^8C_5 \times {}^8C_3 + {}^8C_6 \times {}^8C_2 + {}^8C_7 \times {}^8C_1 + {}^8C_8$

393. A teacher was trying to form the groups of students in such a way that every group has equal number of students and that number should be a prime number. She tried for first 5 prime numbers, but on each occasion exactly one student was left behind. If the number of students is in 4 digits, then how many different values can she take?

A] 0

B] 2

C] 3

D] 4

394. What are the largest 4 – digit and the smallest 3 – digit numbers divisible by 6, 15, 21 and 24?

A] 9235, 420

B] 9980, 840

C] 9240, 840

D] 9999, 999

Ans - C

Take LCM of 6, 15, 21 and 24 i.e. 840

Hence smallest 3 digit number divisible by 6, 15, 21 and 24 is 840

We know 4 digit largest number is 9999 so we divide this number by LCM OF 6, 15, 21 AND 24 i.e. 840

$9999/840=11(759/840)$

$9999-759=9240$

395. A number was divided by 8, 7, 6 and 5 successively and gave the remainder 1, 2, 3 and 4. The number is:

A] 3208

B] 3209

C] 3210

D] 3334

Ans - B

In this case we move in reverse direction  $5*1+4=9$

$9*6+3=57$

$57*7+2=401$

$401*8+1=3209$

396. If LCM and HCF of two numbers is 234 and 13 respectively, then the smallest factor of the product of the two numbers is:

A] 2

B] 3

C] 4

D] 5

Ans - A

We know  $LCM * HCF = a * b$

So  $a \cdot b = 234 \cdot 13$

Factors of this product are  $2 \cdot 3 \cdot 3 \cdot 13 \cdot 13$

Hence smallest factor of product of two numbers is 2

397. Based on the past results and behavior, Supal company found that demand for its product varies inversely with the price of the product. If in 2002, the demand was 1600 units when the price was Rs. 5 per unit, what will the demand (to the nearest unit) be in 2012, when the price is Rs. 25 per unit?

- A] 390 units                      B] 320 units                      C] 405 units                      D] 420 units.

Ans - B

As given demand  $\propto 1/\text{price}$

In 2002 1600 units were demanded when price was Rs 5

So according this in 2012 when price is Rs. 25 no. of units demanded is  $(1600 \cdot 5)/25$  i.e. 320 units

398. Ram, Shyam and Dev had to catch a train. Probability of catching the train by Ram is  $\frac{1}{2}$ , by Shyam is  $\frac{3}{4}$  and by Dev is  $\frac{2}{5}$ . What is the probability that only one of them would catch the train?

- A]  $\frac{9}{40}$                       B]  $\frac{3}{40}$                       C]  $\frac{7}{20}$                       D]  $\frac{1}{20}$

Ans - C

As only one person catch the train so we have following cases

Case 1 only Ram catch the train i.e.  $\frac{1}{2} \cdot \frac{1}{4} \cdot \frac{3}{5}$

Case 2 only Shyam catch the train i.e.  $\frac{1}{2} \cdot \frac{3}{4} \cdot \frac{2}{5}$

Case 3 only Dev catch the train i.e.  $\frac{1}{2} \cdot \frac{1}{4} \cdot \frac{2}{5}$

Hence total probability is  $(\frac{1}{2} \cdot \frac{1}{4} \cdot \frac{3}{5}) + (\frac{1}{2} \cdot \frac{3}{4} \cdot \frac{2}{5}) + (\frac{1}{2} \cdot \frac{1}{4} \cdot \frac{2}{5})$   
$$\frac{3}{40} + \frac{9}{40} + \frac{2}{40}$$
$$\frac{14}{40} = \frac{7}{20}$$

399. What is the smallest number that should be divided by 10500 to make it a perfect cube?

- A] 4                      B] 84                      C] 12                      D] 21

Ans - B

First we find the factors of 10500 i.e.  $2 \cdot 2 \cdot 3 \cdot 5 \cdot 5 \cdot 5 \cdot 7$

So to make it a perfect cube we have to divide this number by  $2 \cdot 2 \cdot 3 \cdot 7$  i.e. 84

400. In how many ways can a panel of 5 students be selected from 7 kids if a particular student is to be compulsorily included?

- A] 35                      B] 5!                      C] 7!                      D] 210

Ans - E

$7 \cdot {}^6C_4$

$7 \cdot 6 \cdot 5/2$

105

401. The probability that Pankaj passes an exam and Paras fails it is  $\frac{1}{2}$ . The probability that Paras passes the exam and Pankaj fails it is  $\frac{1}{2}$ . The probability that both Pankaj and Paras fail the exam is  $\frac{1}{2}$ . The probability that either of them pass the exam is?

- A]  $\frac{1}{5}$                       B] 1                      C]  $\frac{1}{4}$                       D]  $\frac{1}{3}$                       E]  $\frac{1}{2}$

402. If  $\log 3 = 0.4771$ , find the number of digits in  $3^{11}$ ?

- A] 4                      B] 5                      C] 6                      D] 7

Ans – C

$$\text{Solution: } \log 3^{11} = 11 * \log 3 = 11 * 0.4771 = 5.2481$$

$$\text{Number of digits} = \text{Integral part of log} + 1$$

$$\text{Number of digits} = 5 + 1 = 6$$

403. Steward assigns  $\frac{1}{8}$ th of his salary for food. Steward's total food bill for month is Rs. 6,500. What is Steward's yearly salary?

- A] Rs. 9,750                      B] Rs. 12,174                      C] Rs. 5,76,000                      D] Rs. 6,24,000

Ans. – D

$$\text{Steward's food bill} = \frac{1}{8} \text{ of salary} = 6500$$

$$\text{Salary} = 6500 * 8 = 52000$$

$$\text{Steward's yearly salary} = 52000 * 12 = \text{Rs. } 624000$$

404. The HCF of  $2^3 * 3^2 * 5^4 * 7 * 11$ ,  $2^2 * 3^3 * 7^2 * 11$  and  $2^4 * 5^2 * 11$  is:

- A] 44                      B] 220                      C] 308                      D] 4752

Ans. – A

HCF = common factors <sup>lowest power</sup>

$$\text{HCF} = 2^2 * 11 = 44$$

405. Two numbers, both greater than 23, have HCF 23 and LCM 644. The sum of the numbers is:

- A] 69                      B] 253                      C] 368                      D] 667

Ans. - B

$$\text{HCF} = 23; \text{ numbers} = 23x \text{ and } 23y.$$

$$\text{LCM} = 644.$$

$$\text{LCM} * \text{HCF} = 23x * 23y$$

$$644 * 23 = 23x * 23y$$

$$xy = 28$$

x and y are co-prime numbers.

Possible pairs = 28 and 1, 7 and 4.

Numbers = 23 and 644 and 92 and 161

Sum = 667 and 253

From options, sum = 253.

406. Martha was supposed to multiply the number of cans sold with the price of one can to ascertain the amount earned by her. Instead of taking 41 as the number of cans, she wrote 14 by mistake. As a result, the product went down by 135. What is the other multiplier?

- A] 5                      B] 7                      C] 9                      D] 12

Ans. – A

Let the other multiplier be x.

$$41x - 14x = 135$$

$$27x = 135$$

$$x = 5$$

407. The question consist of two statements 1 and 2. Find out if the information given in the statement(s) is sufficient to find the solution to the problem.

What will be the cost of fencing a rectangular compound if the wire costs Rs.20 per meter?

1) Area =  $40\text{ m}^2$

2) Length =  $2 \times \text{Breadth}$

- A] Only 1                      B] Only 2                      C] Either 1 or 2                      D] Both 1 and 2

Ans. – D

Using both the statements, we can determine the sides.

$$L = 2B$$

$$\text{Area} = 2B^2 = 40$$

$$B = \sqrt{20}$$

$$\text{Perimeter} = 2(L+B)$$

$$\text{Cost} = \text{Perimeter} \times 20$$

408. Supriya runs a marathon race in 50 minutes at an average speed of 48Km/Hr. in order to set a national record, she needs to win the race in 40 minutes. Considering that her speed remains constant, at what minimum speed should she run to set the record?

- A] 70 km/h                      B] 60 km/h                      C] 55 km/h                      D] 50 km/h

Ans. – B

Distance in both the cases should remain constant. Using this,

$$\frac{50}{60} \times 48 = \frac{40}{60} \times \text{speed}$$

$$\text{Speed} = 60 \text{ km/h}$$



409. For how many years do we need to invest a principal of Rs.30, 000 in a company to make it amount to Rs.90,000 at an annual rate of interest of 6%? It is given that the interest is compounded annually.

Also,  $\log 106 = 2.025$  and  $\log 3 = 0.4771$

A] 19.084

B] 0.2356

C] 1.8175

D] 4.244

Ans. – A

$$A = P\left(1 + \frac{r}{100}\right)^t$$

$$90000 = 30000\left(1 + \frac{6}{100}\right)^t$$

$$3 = \left(1 + \frac{6}{100}\right)^t$$

Taking log on both sides:

$$\log 3 = \log \left(\frac{106}{100}\right)^t$$

$$0.4771 = t * [\log(106) - \log(100)]$$

$$0.4771 = t * (2.025 - 2)$$

$$t = \frac{0.4771}{0.025} = 19.084$$

410. If we permute 7 letters of the word 'JUSTICE' in 7! Ways. In how many words vowels do not come together?

A] 5040

B] 4320

C] 720

D] 120

Ans. – C

Vowels come together = (UIE)JSTC

$$\text{Ways} = 3! * 5! = 720$$

411. In a test called ACSAT, the average marks of 15 test takers is 240. If the marks of 5 test takers are subtracted, the average marks decreases by 40. What are the average marks of 5 test takers?

A] 1600

B] 320

C] 200

D] 40

Ans. – B

$$\text{Marks of 15 test takers} = 15 * 240 = 3600$$

$$\text{Marks of 10 test takers} = 10 * 200 = 2000$$

$$\text{Marks of remaining 5 test takers} = 3600 - 2000 = 1600$$

$$\text{Average} = \frac{1600}{5} = 320$$

412. Simple interest on an account at 4% per annum for 13 months is more than the simple interest on the same sum for 8 months at 6% per annum by Rs.40. What is the principal amount?

A] Rs. 3600

B] Rs. 12000

C] Rs. 4800

D] Rs. 24000

Ans. – B

Let principal be P.

$$\text{Acc to ques.: } \frac{P \cdot 4 \cdot 13}{100 \cdot 12} - \frac{P \cdot 6 \cdot 8}{100 \cdot 12} = 40$$

$$P \left( \frac{52}{1200} - \frac{48}{1200} \right) = 40$$

$$P = \text{Rs. } 12000.$$

413. A team uses 2 dice for deciding the person who would give a talk on “Technical aspects of effective communication”. Shalini will give a talk only if the product of 2 numbers that turn up is greater than 20. What is the probability that Shalini would talk on the subject?

A] 1/3

B] 1/9

C] 2/9

D] 1/12

E]

1/6

Ans. – C

$$\text{Probability} = \frac{\text{Favourable Cases}}{\text{Total Cases}}$$

$$\text{Total Cases} = 36$$

$$\text{Favourable Cases} = (4, 5), (4, 6), (5, 4), (5, 5), (5, 6), (6, 4), (6, 5), (6, 6)$$

$$\text{Probability} = \frac{8}{36} = \frac{2}{9}$$

414. If  ${}^{10}C_x = 1$ , then what is the value of x if  $x \neq 0$ ?

A] 1

B] 5

C] 10

D] 15

Ans. – C

$${}^nC_r = 1; \text{ if and only if } r = 0 \text{ or } n.$$

$${}^{10}C_x = 1, x = 0 \text{ or } 10.$$

$$\text{Acc to ques.: } x \neq 0, \text{ therefore. } x = 10$$

415. A stone is dropped from a height of 5km. The distance it falls through varies directly with the square of the time taken to fall through that distance. If it falls 64m in 4 seconds, find the distance the stone covers in 5<sup>th</sup> second?

A] 36 m

B] 58 m

C] 72 m

D] 100 m

Ans. – D

$$\text{Acc to ques.: Distance travelled} = k \cdot t^2$$

$$64 = k \cdot 4^2$$

$$k = 4$$

$$\text{Distance travelled} = 4 \cdot 5^2 = 100 \text{ m}$$

416. A teacher can divide her class into groups of 5, 13 and 17. What is the smallest possible strength of the class?

- A] 835                      B] 940                      C] 1105                      D] 1120

Ans. – C

Smallest possible class strength = LCM of 5, 13 and 17

LCM of 5, 13 and 17 = 1105

417. Find the ratio of distances covered by a car and a cyclist when it is given that the car moves 1.5 hours at 30 kmph and the cyclist moves for 1 hour at 25kmph:

- A] 6:5                      B] 9:5                      C] 3:2                      D] 5:1

Ans – B

Distance covered by cyclist = 25 km; Distance covered by car =  $1.5 \times 30 = 45$  km

Ratio of car to cyclist =  $25:45 = 5:9$

418. What is the value of  $\log 2205$ ?

Given that  $\log 5 = a$ ,  $\log 7 = b$  and  $\log 3 = c$

- A]  $2b - a - 2c$                       B]  $a + 2b + 2c$                       C]  $2a - b + 2c$                       D]  $a - 2b + 2c$                       E]  $a + 2b - 2c$

Ans – B

Factorize 2205 into  $3^2 \times 7^2 \times 5$

Apply log both sides and put the values  $2b + 2c + a$  because  $\log(ABC) = \log A + \log B + \log C$

419. Which of the following is equivalent to  $\log(a+b)$ ?

- A]  $\log a + \log b$                       B]  $\log a \cdot \log b$                       C]  $\log a - \log b$                       D] None of the above

Ans – D

None of the options satisfy nonspecific term for  $\log(a+b)$

420. Which smallest number must be assigned to # make the number 378#96 divisible by 8?

- A] 3                      B] 2                      C] 1                      D] 0

Ans – D

To check the divisibility of 8 divide the last three digits by 8... putting the options D fits better and the smallest one

421. Supremo Coal limited mined  $8\frac{1}{3}$  tons of coal on Tuesday.  $5\frac{3}{4}$  tons of coal on Monday and 9

$\frac{1}{2}$  tons of coal on Wednesday. If the goal is to mine 30 tons of coal this week. Then how many more tons of coal needs to be mined?

- A] 23.59 tons                      B] 7.56 tons                      C] 6.89 tonnes                      D] 6.41 tonnes

Ans – D

Adding the production of all the days the sum is  $23\frac{7}{12}$  so answer is  $30 - 23\frac{7}{12} = 6.41$  tonnes

422. The sum of squares of 3 numbers is 170, while the sum of their products taken two at a time is 157. What is the sum of the numbers?

A] 20

B] 22

C] 24

D] 28

Ans- B

Soln- Apply  $(a+b+c)^2 = a^2+b^2+c^2+2(ab+bc+ca)$  and put the values answer is 22.

423. M and N are two distinct natural numbers. HCF and LCM of M and N are K and L respectively. If A is also a natural number, then which of the following relations is not possible?

A]  $K \cdot L = A$

B]  $K \cdot A = L$

C]  $L \cdot A = K$

D] None of these

Ans- C

Soln- Multiplying a number with any natural number will not give HCF.

424. What is the value of  $(5^2 \cdot 25^8 / 625)^{2/7}$ ?

A] 5

B] 25

C] 625

D]  $5\frac{1}{7}$

Ans-C

Soln- On simplifying the data we get  $5^2 \cdot 5^{16} / 5^4$  which is equal to  $(5^{14})^{2/7}$  which is equal to  $5^4 = 625$

425. In the following expression, there are two missing digits \* and #. Find the value of \*.

$1*5\#4/148=78$

A] 1

B] 4

C] 6

D] 8

E]

None

Ans- A

Soln- On multiplying  $78 \cdot 148 = 11544$

426. A gardener planted 3 rows of flowers. He planted 16 flowers in each row. In row one,  $\frac{3}{8}$  of the flowers blossomed, in row two  $\frac{3}{4}$  of flowers blossomed, in row three  $\frac{7}{8}$  of the flowers blossomed. How many plants blossomed in three rows?

A] 14

B] 32

C] 18

D] 36

Ans-B

Soln- First row  $16 \cdot \frac{3}{8} = 6$ ; Second row  $16 \cdot \frac{3}{4} = 12$ ; third row  $16 \cdot \frac{7}{8} = 14$ ; so total flowers =  $6+12+14=$

32

427. Use the properties of logarithms to solve the following equation

$\log((ab(d+2))/c^3)$

- A]  $\log a - \log b - \log(d+2) + \log c$   
 B]  $\log a - \log b - (\log(d) * \log(2)) + \log c$   
 C]  $\log a + \log b + \log(d+2) - 3 \log c$   
 D]  $\log a + \log b + (\log(d+2)/3 \log c)$

Ans-C

Soln- Using the properties of log that is  $\log(ABC) = \log A + \log B + \log C$  and  $\log D^3 = 3 \log D$

We will get the answer  $\log a + \log b + \log(d+2) - 3 \log C$ .

428. Shalom offered to sell his ancestral house for Rs 18400 if he had charged 10% less, he would have made a profit of 20%. What is the actual cost of the house?

- A] Rs. 15800                      B] Rs. 14000                      C] Rs. 13800                      D] Rs. 12500

Ans- C

Soln-  $SP = 18400$  and  $90\% \text{ of } SP = 16560$ . adding  $20\% \text{ profit } 120\% \text{ of } CP = 16560$ . So  $CP = 13800$ .

429. In how many different ways the letters of the word 'PASSENGER' be arranged such that two 'S' never occur together?

- A]  $10!/3!*2!$                       B]  $8!/2!$                       C]  $9!/(2!*2!)$                       D]  $7!*8!$

E]  $(8!*7)/4$

Ans- E

Soln- Permutation on Keeping two S together and subtracting from the total permutation of "passenger". Total permutation =  $9!/2!*2!$ ; two S together the permutation is  $8!/2!$ . on subtracting  $(8!*7)/4$

430. A box contains 6 red balls 7 green balls and 5 blue balls. Each ball is of a different size. The probability that the red ball being selected is the smallest red ball is:

- A]  $1/16$                       B]  $1/3$                       C]  $1/6$                       D]  $2/3$

Ans- A

Soln- Probability of selecting the red ball out of all balls is  $6/18 = 1/3$  and selecting the smallest ball in the red ball out of 6 red balls is  $1/6$ . so the probability of selecting the smallest red ball is  $1/6 * 1/3 = 1/18$

431. A good carriage of length 2 km, headed to Srinagar from Punjab was running at a speed of 30km/hr. It crosses a tunnel which is 58km long with that speed. Find the time taken by the goods carriage to cross the tunnel?

- A] 4 hours                      B] 3 hours                      C] 2 hours                      D] 1 hours

Ans- C

Soln- Total distance covered by the carriage is  $58+2=60\text{km}$ .. 60 km is covered at the speed of 30km/h in 2 hours....

432. Find the least number which when divided by 5, 8 and 19 leaves remainder 2, 5 and 16 respectively?

- A] 747                                      B] 757                                      C] 760                                      D] 767                                      E] 763

Ans-B

Soln- Taking the lcm of 5,8 and 19=760. Subtracting 3 (5-2)(8-5)(19-16) from 760 which is equal to 757

433. Sudha purchased 3 kg potato from market. She used  $\frac{1}{3}$  of it in baked potatoes and  $\frac{1}{2}$  of remaining in mixed vegetables. What quantity of potatoes is she left with?

- A] 1.5 kg                                      B] 2 kg                                      C] 1 kg                                      D] 2.5 kg

Ans- C

Soln-  $\frac{1}{3}$  of 3kg is 1 kg., Remaining are 2 kg..  $\frac{1}{2}$  of the remaining 2 kg is 1 kg so  $2-1=1$ kg. 1 kg is left in the last.

434. What is the probability that the project team A wins the best team award while competing against project team b, if the escalations recorded against project team A are 5 and against project team B are 7 in number? (Note:Escalations means the number of open issues reported by the client against the project)

- A]  $P(TA)/P(TB) : 7/5$   
B]  $P(TA)/P(TB) : 5/7$   
C]  $P(TA)=7$  and  $P(TB)=5$   
D]  $P(TA)=5$  and  $P(TB) =7$

Ans- C

Soln- Chances of winning are opposite for A it is  $\frac{7}{12}$  and for B it is  $\frac{5}{12}$  so the probability of finding success

435. What is the total number of ways in which four digit numbers that is divisible by 2 can be formed using the numerals 0,1,2,3 and 4 without using repetition?

- A] 240                                      B] 120                                      C] 100                                      D] 60

Ans- D

Soln- For making a four digit number we have to fit a multiple of 2 in the last place\_ \_ \_ \_

Last place can be filled by 3 ways

No of ways when 2 is in last place = 18

No of ways when 4 in last place = 18

No of ways when 0 is in last place =24

Total no of ways = 60.

436. Swapna has kept Rs 2000 at 15% simple interest in bank for 2 years. If she kept the same amount at compound interest for 2 years. How much extra would she have earned?

A] Rs. 350

B] Rs. 450

C] Rs. 300

D] Rs. 400

Ans-B

Soln- for calculating the compound interest at 15% apply  $15+15+15*15/100$  for two years equal to 32.25 I.e. 2.25% extra from 30% of simple interest  $2.25\% \text{ of } 20000 = 450$

437. Pardeep receives an export order for garments. He has 30 machines to complete the order in 60 days. How many machines would be required to complete the job in 40 days?

A] 50

B] 25

C] 35

D] 45

Ans-D

Soln- Apply the chain rule for solving  $(30*60)/40=45$

438. In how many ways can seven similar gifts be distributed to 7 clients of a company such that each gets one gift?

A] 7

B]  ${}^7P_7$

C]  ${}^7C_6$

D]  ${}^7P_0$

Ans- D

Soln- For distributing the similar objects there is only one way so answer should be  ${}^7P_0$ .