**PROBLEMS ON AGE**

**Q1.** The ratio of the present ages of a mother and her daughter is 7 : 1. Four years ago, the ratio of their ages was 19 : 1. What will be the mother’s age four years from now?

(a) 42 years (b) 38 years

(c) 46 years (d) 36 years

(e) None of these

**Q2.** The ages of Nishi and Vinnee are in the ratio 6 : 5 respectively. After 9 years, the ratio of their ages will be 9 : 8. What is the difference in their ages now ?

(a) 3 years (b) 5 years (c) 7 years

(d) 9 years (e) None of these

**Q3.** The ages of A and B are in the ratio 6 : 5 and the sum of their ages is 44 years. What will be the ratio of their ages after 8 years?

(a) 7 : 6 (b) 8 : 7 (c) 9 : 8 (d) 3 : 4

**Q4.** The age of a mother today is thrice that of her daughter. After 12 years, the age of the mother will be twice that of her daughter. The present age of the daughter is:

(a) 12 years (b) 14 years

(c) 16 years (d) 18 years

**Q5.** The average of the ages of a man and his daughter is 34 years. If the respective ratio of their ages four years from now is 14 : 5, what is daughter’s present age?

(a) 10 years (b) 12 years (c) 18 years

(d) Cannot be determined (e) None of these

**Q6.** Ratio of Rani’s and Komal’s ages is 3 : 5 respectively. Ratio of Komal’s and Pooja’s ages is 2 : 3 respectively. If Rani is two-fifth of Pooja’s age, what is Rani’s age?

(a) 10 years (b) 15 years (c) 14 years

(d) Cannot be determined (e) None of these

**Q7.** Ram’s son’s age is 1/3 of Ram’s wife’s age. Ram’s wife’s age is 4/5 of Ram’s age and Ram’s age is 3/5 of Ram’s father’s age. Find the age of Ram’s son, if Ram’s father is 50 years old.

(a) 6 years (b) 8 years

(c) 10 years (d) 12 years

**Q8.** Rajan got married 8 years ago. His present age is 6 5 times his age at the time of his marriage. Rajan’s sister was 10 years younger to him at the time of his marriage. The age of Rajan’s sister is

(a) 32 years (b) 36 years

(c) 38 years (d) 40 years

**Q9.** The present ages of three persons are in the proportion 4 : 7 : 9. Eight years ago, the sum of their ages was 56 years. The present age of the eldest person is

(a) 28 years (b) 36 years

(c) 45 years (d) None of these

**Q10.** Reenu’s father was 38 years of age when she was born while her mother was 36 years old when her brother 4 years younger to her was born. What is the difference between the ages of her parents?

(a) 2 years (b) 4 years (c) 6 years

(d) 8 years (e) None of these

**Q11.** The sum of the ages of 5 children born at the intervals of 3 years each is 50 years. What is the age of the youngest child?

(a) 4 years (b) 6 years (c) 8 years

(d) 10 years (e) None of these

**Q12.** A man was asked to state his age in years. His reply was, “Take my age 3 years hence, multiply it by 3 and then subtract 3 times my age 3 years ago and you will know how old I am.” What is the age of the man?

(a) 18 years (b) 20 years

(c) 24 years (d) 32 years

Q13. The sum of the ages of Jayant, Prem and Paras is 93 years. Ten years ago, the ratio of their ages was 2 : 3 : 4. What is the present age of Paras?

(a) 24 years (b) 28 years

(c) 32 years (d) 34 years (e) 38 years

Q14. Sonal is 40 years old and Nitya is 60 years old. How many years ago was the ratio of their ages 3 : 5?

(a) 5 years (b) 10 years (c) 20 years

(d) 37 years (e) None of these

**Q15.** The ratio of a man’s age and his son’s age is 7 : 3 and the product of their ages is 756. The ratio of their ages after 6 years will be

(a) 5 : 2 (b) 2 : 1 (c) 11 : 7 (d) 13 : 9

**Q1.** Hema’s age is 5 years more than twice Hari’s. Suresh age is 13 years less than 10 times Hari’s age. If Suresh is 13 times as old as Hema, how old is Hema? **GATE-2018**

(A) 14 (B) 17 (C) 18 (D)19

Q2.

**REFERENCE BOOKS**

**R S AGGARWAL QUANTITATIVE APTITUDE**

**TATA Mc GRAW HILL QUANTITATIVE APTITUDE, NEW DELHI**

**GULATI OBJECTIVE ARITHMETICS**

**KIRAN PRAKASH QUANTITATIVE APTITUDE**

**FAST TRACK OBJECTIVE ARITHMETICS**

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**AVERAGES**

**TYPE-I : Basic Average Questions**

**Q1.**The arithmetic mean of the following numbers 1, 2, 2, 3, 3, 3, 4, 4, 4, 4, 5, 5, 5, 5, 5, 6, 6, 6, 6, 6, 6 and 7, 7, 7, 7, 7, 7, 7 is

(1) 4 (2) 5 (3) 14 (4) 20

**Q2.** A student was asked to find the arithmetic mean of the following 12 numbers: 3, 11, 7, 9, 15, 13, 8, 19, 17, 21, 14 and x He found the mean to be 12. The value of x will be:

(1) 3 (2) 7 (3) 17 (4) 31

**Q3.** If the average marks of three batches of 55, 60 and 45 students respectively is 50, 55 and 60, then the average marks of all the students is

(1) 54.68 (2) 53.33

(3) 55 (4) None of these

**Q4.** The average of 30 results is 20 and the average of other 20 results is 30. What is the average of all the results?

(1) 24 (2) 48 (3) 25 (4) 50

**Q5.** The average of 10 numbers is 7. If each number is multiplied by 12, then the average of the new set of numbers will be (1) 7 (2) 19 (3) 82 (4) 84

**Q6.** The average weight of five persons sitting in a boat is 38 kg. The average weight of the boat and the persons sitting in the boat is 52kg. What is the weight of the boat?

(1) 228 kg (2) 122 kg

(3) 232 kg (4) 242 kg

**Q7.** Total weekly emoluments of the workers of a factory is 1534. Average weekly emolument of a worker is 118. The number of workers in the factory is :

(1) 16 (2)14 (3) 13 (4)12

**Q8.** 12 kg of rice costing 30 per kg is mixed with 8 kg of rice costing 40 per kg.The average per kg price of mixed rice is

(1) 38 (2) 37 (3) 35 (4) 34

**Q9.** If average of 20 observations x1 , x2 , ....., x20 is y, then the average of x1 – 101, x2 – 101, x3 – 101, ....., x20 –101 is

(1) y – 20 (2) y – 101 (3) 20y (4) 101y

**Q10.** A man bought 13 articles at 70 each, 15 at 60 each and 12 at 65 each. The average price per article is

(1) 60.25 (2) 64.75 (3) 65.75 (4) 62.25

**Q11.** The average of 20 numbers is 15 and the average of first five is 12. The average of the rest is

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

**Q12.** The average monthly expenditure of a family is 2,200 during first three months, 2,550 during next four months and 3,120 during last five months of the year. If the total savings during the year was 1,260, what is the average monthly income?

(1) 1,260 (2) 1,280 (3) 2,805 (4) 2,850

**Q13.** Out of 20 boys, 6 are each of 1 m 15 cm height, 8 are of 1 m 10 cm and rest of 1 m 12 cm. The average height of all of them is

(1) 1 m 12.1 cm (2) 1 m 21.1 cm

(3) 1 m 21 cm (4) 1 m 12 cm

**Q14.** The average monthly salary of all the employees in an industry is 12,000. The average salary of male employees is 15,000 and that of female employees is 8,000. What is the ratio of male employees to female employees?

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

**Q15.** The mean of 9 observations is 16. One more observation is included and the new mean becomes 17. The 10th observation is

(1) 9 (2) 16 (3) 26 (4) 30

**Q16.** The average of 8 numbers is 27. If each of the numbers is multiplied by 8, find the average of new set of numbers.

(1) 1128 (2) 938 (3) 316 (4) 216

**Q17.** The average of 30 numbers is 15. The average of the first 18 numbers is 10 and that of the next 11 numbers is 20. The last number is

(1) 56 (2) 52 (3) 60 (4) 50

**Q18.** The average of all the numbers between 6 and 50 which are divisible by 5 is

(1) 27.5 (2) 30 (3) 28.5 (4) 22

**Q19.** The average weight of first 11 persons among 12 persons is 95 kg. The weight of 12th person is 33 kg more than the average weight of all the 12 persons. The weight of the 12th person is

(1) 128.75 kg (2) 128 kg

(3) 131 kg (4) 97.45 kg

**Q20.** The average weight of A, B and C is 45 kg. If the average weight of A and B be 40 kg and that of B and C be 43 kg, then the weight (in kg) of B is

(1) 20 (2) 26 (3) 31 (4) 17

**TYPE-II : To find nth number when average of first ‘p’ and last ‘q’ numbers are given ....**

**Q21.** The average of 9 numbers is 30. The average of first 5 numbers is 25 and that of the last 3 numbers is 35. What is the 6th number?

(1) 20 (2) 30 (3) 40 (4) 50

**Q22.** The average of 15 numbers is 7. If the average of the first 8 numbers be 6.5 and the average of last 8 numbers be 9.5, then the middle number is

(1) 20 (2) 21 (3) 23 (4) 18

**Q23.** The average of 20 numbers is 12. The average of the first 12 numbers is 11 and that of the next 7 numbers is 10. The last number is :

(1) 40 (2) 38 (3) 48 (4) 50

**Q24.** The average of 8 numbers is 20. The average of first two numbers is 15 and that of the next three is 21 . If the sixth number be less than the seventh and eighth numbers by 4 and 7 respectively, then the eighth number is :

(1) 18 (2) 22 (3) 25 (4) 27

**Q25.** The average temperature of the first 4 days of a week was 37°C and that of the last 4 days of the week was 41°C. If the average temperature of the whole week was 39°C, the temperature of the fourth day was

(1) 38°C (2) 38.5°C (3) 39°C (4) 40°C

**Q26.** The average of 30 numbers is 12. The average of the first 20 of them is 11 and that of the next 9 is 10. The last number is

(1) 60 (2)45 (3) 40 (4)50

**Q27.** The mean of 11 numbers is 35. If the mean of first 6 numbers is 32 and that of the last 6 numbers is 37, find the sixth number.

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

**Q28.** The average of three numbers is 135. The largest number is 195 and the difference between the other two is 20. The smallest number is

(1) 65 (2) 95 (3) 105 (4) 115

**Q29.** The average of eight successive numbers is 6.5. The average of the smallest and the greatest numbers among them will be :

(1) 4 (2) 6.5 (3) 7.5 (4) 9

**Q30.** The average of two numbers is 8 and the average of other three numbers is 3. The average of the five numbers is :

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

**TYPE-III : average of consecutive even, odd and prime numbers etc. ..**

**Q31.** The average of 7 consecutive numbers is 20. The largest of these numbers is :

(1) 24 (2) 23 (3) 22 (4) 20

**Q31.** The average of first nine prime numbers is

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

**Q32.** The average of 5 consecutive natural numbers is m. If the next three natural numbers are also included, how much more than m will the average of these 8 numbers be?

(1) 2 (2) 1 (3) 1.4 (4) 1.5

**Q33.** The average of the first 100 positive integers is

(1) 100 (2) 51 (3) 50.5 (4) 49.5

**Q34.** The average of odd numbers up to 100 is

(1) 50.5 (2) 50 (3) 49.5 (4) 49

**Q35.** The average of the squares of first ten natural numbers is

(1) 35.5 (2) 36 (3) 37.5 (4) 38.5

**Q36.** The arithmetic mean (average) of the first 10 whole numbers is

(1) 5 (2) 4 (3) 5.5 (4) 4.5

**Q37.** The average of three consecutive odd numbers is 12 more than one third of the first of these numbers. What is the last of the three numbers ?

(1) 15 (2) 17

(3) 19 (4) Data inadequate

**Q38.** The average of nine consecutive odd numbers is 53. The least odd number is

(1) 22 (2) 27 (3) 35 (4) 45

**Q39.** The average of the first nine integral multiples of 3 is

(1) 21 (2) 12 (3) 15 (4) 18

**Q40.** The average of seven consecutive positive integers is 26. The smallest of these integers is :

(1) 21 (2)23 (3) 25 (4)26

**Q41.** a, b, c, d, e, f, g are consecutive even numbers. j, k, l, m, n are consecutive odd numbers. The average of all the numbers is (1) 3 (2)

(3) (4)

**Q42.** If the average of 6 consecutive even numbers is 25, the difference between the largest and the smallest number is

(1) 8 (2) 10 (3) 12 (4) 14

**Q43.** The average of 5 consecutive integers starting with ‘m’ is n. What is the average of 6 consecutive integers starting with (m + 2) ?

(1) (2) (n +2)

(3) (n + 3) (4)

**Q44.** The average of nine consecutive numbers is n. If the next two numbers are also included the new average will

(1) increase by 2 (2) remain the same

(3) increase by 1.5 (4) increase by 1

**Q45.** The average of 6 consecutive natural numbers is K. If the next two natural numbers are also included, how much more than K will the average of these 8 numbers be?

(1) 1.3 (2) 1 (3) 2 (4) 1.8

**Q46.** The average of all the odd integers between 2 and 22 is:

(1) 14 (2) 12 (3) 13 (4) 11

**Q47.** The sum of three consecutive even numbers is 28 more than the average of these three numbers. Then the smallest of these three numbers is

(1) 6 (2) 12 (3) 14 (4) 16

**Q48.** The average of 7 consecutive numbers is 20. The largest of these numbers is

(1) 20 (2) 23 (3) 24 (4) 26

**TYPE-IV : If the monthly income of factors (x, y or z) are given, then finding the monthly income of ‘x’ or ‘y’ or ‘z’ or ‘x+y’ or ‘‘x–y’ etc. ..**

**Q49.** The average monthly income of A and B is 14000, that of B and C is 15600 and A and C is 14400. The monthly income of C is (1) 16000 (2) 15000

(3) 14000 (4) 15500

**Q50.** The average expenditure of a man for the first five months is 1200 and for the next seven months is 1300. If he saves 2900 in that year, his monthly average income is :

(1) 1500 2) 1600 (3) 1700 (4) 1400

**Q51.** The average salary, per head, of all the workers of an institution is 60. The average salary of 12 officers is 400; the average salary, per head, of the rest is 56. The total number of workers in the institution is

(1) 1030 (2) 1035 (3) 1020 (4) 1032

**Q52.** The average salary of all the workers in a workshop is 8,000. The average salary of 7 technicians is 12,000 and the average salary of the rest is 6,000. The total number of workers in the workshop is

(1) 20 (2) 21 (3) 22 (4) 23

**Q53.** The average daily income of 7 men, 11 women and 2 boys is Rs. 257.50. If the average daily income of the men is Rs.10 more than that of women and the average daily income of the women is Rs.10 more than that of boys, the average daily income of a man is

(1) Rs. 277.5 (2) Rs. 250

(3) Rs. 265 (4) Rs. 257

**Q54.** The average monthly salary of 19 members of a group is Rs. 16000. If one more member whose monthly salary is Rs. 20000 joins the group, then the average salary of the group is

(1) Rs. 18250 (2) Rs. 16200

(3) Rs. 18000 (4) Rs. 16250

**Q55.** A man spends in 8 months as much as he earns in 6 months. He saves Rs. 6000 in a year. His average monthly income is :

(1) Rs. 2400 (2) Rs. 2000

(3) Rs. 2150 (4) Rs. 1800

**TYPE-V : Questions based on twice, thrice, one-third etc. of numbers...**

**Q56.** Of the three numbers whose average is 60, the first is one fourth of the sum of the others. The first number is :

(1) 30 (2) 36 (3) 42 (4) 45

**Q57.** Of the three numbers, second is twice the first and also thrice the third. If the average of the three numbers is 44, the largest number is :

(1) 24 (2) 72 (3) 36 (4) 108

**Q58.** The average of first three numbers is thrice the fourth number. If the average of all the four numbers is 5, then find the fourth number.

(1) 4.5 (2) 5 (3) 2 (4) 4

**Q59.** Of the three numbers, first is twice the second and second is twice the third. The average of three numbers is 21. The smallest of the three numbers is

(1) 9 (2) 6 (3) 12 (4) 18

**Q60.** The average of first three numbers is double of the fourth number. If the average of all the four numbers is 12, find the 4th number.

(1) 16 (2) 48/7 (3) 20 (4) 18/7

**Q61.** The average of three numbers is 40. The first number is twice the second and the second one is thrice the third number. The difference between the largest and the smallest numbers is

(1) 30 (2) 36 (3) 46 (4) 60

**TYPE-VI : Question where correct average have to be find out as earlier some mistake was done. ...**

**Q62.** The average weight of a group of 20 boys was calculated to be 89.4 kg and it was later discovered that one weight was misread as 78 kg. instead of 87kg. The correct average weight is

(1) 88.95 kg (2) 89.25 kg

(3) 89.55 kg (4) 89.85 kg

**Q63.** The average of a collection of 20 measurements was calculated to be 56 cm. But later it was found that a mistake had occurred in one of the measurements which was recorded as 64 cm., but should have been 61 cm. The correct average must be

(1) 53 cm (2) 54.5 cm

(3) 55.85 cm (4) 56.15 cm

**Q64.** The average of marks of 14 student was calculated as 71. But it was later found that the marks of one student had been wrongly entered as 42 instead of 56 and of another as 74 instead of 32. The correct average is :

(1) 67 (2) 68 (3) 69 (4) 71

**Q65.** The average of 18 observations is recorded as 124. Later it was found that two observations with values 64 and 28 were entered wrongly as 46 and 82. Find the correct average of the 18 observations. (1) 111 (2) 122

(3) 123 (4) 137

**Q66.** The average weight of 15 students in a class increases by 1.5kg when one of the students weighing 40 kg is replaced by a new student. What is the weight (in kg) of the new student ?

(1) 64.5 kg. (2) 56 kg.

(3) 60 kg. (4) 62.5 kg

**Q67.** The average weight of 20 students in a class is increased by 0.75 kg when one of the students weighing 30 kg is replaced by a new student. Weight of the new student (in kg) is :

(1) 35 (2) 40 (3) 45 (4) 50

**Q68.** Average weight of 25 persons is increased by 1 kg when one man weighing 60 kg is replaced by a new person. Weight of new person is :

(1) 50 kg (2) 61 kg (3) 86 kg (4) 85 kg

**Q69.** There are 50 students in a class. One of them weighing 50 kg goes away and a new student joins. By this the average weight of the class increases by 1/2 kg. The weight of the new student is :

(1) 70 kg (2) 72 kg

(3) 75 kg (4) 76 kg

**Q70.** The average weight of the 8 oarsmen in boat is increased by 1 1 2 kg when one of the crew who weighs 60kg is replaced by a new man. The weight of the new man (in kg) is

(1) 70 kg (2) 68 kg (3) 71 kg (4) 72 kg

**Q71.** The average marks obtained by 40 students of a class are 86. If the 5 highest marks are removed, the average reduces by one mark. The average marks of the top 5 students is

(1) 92 (2) 96 (3) 93 (4) 97

**Q72.** The average of six numbers is 20. If one number is removed, the average becomes 15. What is the number removed ?

(1) 5 (2) 35 (3) 112 (4) 45

**TYPE-VII : Questions based on cricket ........**

**Q73.** The average of runs of a cricket player of 10 innings was 32. How many runs must he make in his next inning so as to increase his average of runs by 4 ?

(1) 76 (2) 70 (3) 4 (4) 2

**Q74.** A cricketer has a certain average of runs for his 8 innings. In the ninth innings, he scores 100 runs, thereby increases his average by 9 runs. His new average of runs is

(1) 20 (2) 24 (3) 28 (4) 32

**Q75.** The average of runs scored by a player in 10 innings is 50. How many runs should he score in the 11th innings so that his average is increased by 2 runs ?

(1) 80 runs (2) 72 runs

(3) 60 runs (4) 54 runs

**Q76.** A cricket batsman had a certain average of runs for his 11 innings. In the 12th innings, he made a score of 90 runs and thereby his average of runs was decreased by 5. His average of runs after 12th innings is :

(1) 155 (2) 150 (3) 145 (4) 140

**Q77.** The batting average for 40 innings of a cricket player is 50 runs. His highest score exceeds his lowest score by 172 runs. If these two innings are excluded, the average of the remaining 38 innings is 48 runs. The highest score of the player is

(1) 165 runs (2) 170 runs

(3) 172 runs (4) 174 runs

**Q78.** The batting average of a cricket player for 64 innings is 62 runs. His highest score exceeds his lowest score by 180 runs. Excluding these two innings, the average of remaining innings becomes 60 runs. His highest score was

(1) 180 runs (2) 209 runs

(3) 212 runs (4) 214 runs

**Q79.** A cricket player after playing 10 tests scored 100 runs in the 11th test. As a result, the average of his runs is increased by 5. The present average of runs is

(1) 45 (2) 40 (3) 50 (4) 55

**Q80.** A cricketer whose bowling average is 24.85, runs per wicket, takes 5 wickets for 52 runs and thereby decreases his average by 0.85. The number of wickets taken by him till the last match was :

(1) 64 (2) 72 (3) 80 (4) 96

**Q81.** The bowling average of a cricketer was 12.4. He improves his bowling average by 0.2 points when he takes 5 wickets for 26 runs in his last match. The number of wickets taken by him before the last match was

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

**Q82.** In a 20 over match, the required run rate to win is 7.2. If the run rate is 6 at the end of the 15th over, the required run rate to win the match is

(1) 1.2 (2) 13.2 (3) 10.8 (4) 12

**Q83.** A cricketer whose bowling average is 12.4 runs per wicket, takes 5 wickets for 26 runs and thereby decreases his average by 0.4. The number of wickets taken by him till the last match was

(1) 64 (2) 72 (3) 80 (4) 85

**Q84.** A cricketer, whose bowling average was 12.4 runs/wicket takes 5 wickets for 22 runs in a match, thereby decreases his average by 0.4. The number of wickets, taken by him before this match was :

(1) 78 (2) 87 (3) 95 (4) 105

**TYPE-VIII : Questions where missing number has to be find one as there has been some change in given average. .....**

**Q85.** The average of five numbers is 27. If one number is excluded, the average becomes 25. The excluded number is :

(1) 25 (2) 27 (3) 30 (4) 35

**Q86.** The average of marks of 28 students in Mathematics was 50; 8 students left the school, then this average increased by 5. What is the average of marks obtained by the students who left the school ?

(1) 50.5 (2) 37.5 (3) 42.5 (4) 45

**Q87.** The average weight of 12 parcels is 1.8 kg. Addition of another new parcel reduces the average weight by 50 g. What is the weight of the new parcel ?

(1) 1.50 kg (2) 1.10 kg

(3) 1.15 kg (4) 1.01 kg

**Q88.** The average of 50 numbers is 38. If two numbers namely 45 and 55 are discarded, the average of the remaining numbers is :

(1) 35 (2) 32.5 (3) 37.5 (4) 36

**Q89.** There are 50 students in a class. Their average weight is 45 kg. When one student leaves the class the average weight reduces by 100g. What is the weight of the student who left the class?

(1) 45 kg (2) 47.9 kg

(3) 49.9 kg (4) 50.1 kg

**Q90.** Average weight of 25 students of a class is 50 kg. If the weight of the class teacher is included, the average is increased by 1 kg. The weight of the teacher is

(1) 76 kg (2) 77 kg (3) 74 kg (4) 75 kg

**Q91.** There were 35 students in a hostel. If the number of students is increased by 7 the expenditure on food increases by 42 per day while the average expenditure of students is reduced by 1. What was the initial expenditure on food per day ?

(1) 400 (2) 432 (3) 442 (4) 420

**Q92.** The average of six numbers is 32. If each of the first three numbers is increased by 2 and each of the remaining three numbers is decreased by 4, then the new average is

(1) 35 (2) 34 (3) 31 (4) 30

**Q93.** The average weight of 40 children of a class is 36.2 kg. When three more children with weight 42.3 kg, 39.7 kg and 39.5 kg join the class, the average weight of the 43 children in the class is

(1) 39.2 kg (2) 36.5 kg

(3) 38.35 kg (4) 37.3 kg

**Q94.** In a class, the average score of girls in an examination is 73 and that of boys is 71. The average score for the whole class is 71.8. Find the percentage of girls.

(1) 40% (2) 50% (3) 55% (4) 60%

**Q95.** A student finds the average of 10, 2 – digit numbers. If the digits of one of the numbers are interchanged, the average increases by 3.6. The difference between the digits of the 2-digit numbers is

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

**TYPE–IX : Questions based on determining the average age...**

**Q96.** The average age of 14 girls and their teacher’s age is 15 years. If the teacher’s age is excluded, the average reduces by 1. What is the teacher’s age?

(1) 35 years (2) 32 years

(3) 30 years (4) 29 year

**Q97.** The average age of four brothers is 12 years. If the age of their mother is also included, the average is increased by 5 years. The age of the mother (in years) is : (1) 37 years (2) 43 years

(3) 48 years (4) 53 years

**Q98.** The average age of eleven players of a cricket team decreases by 2 months when two new players are included in the team replacing two players of age 17 years and 20 years. The average age of new player is

(1) 17 years 1 month

(2) 17 years 7 months

(3) 17 years 11 months

(4) 18 years 3 months

**Q99.** There are 30 students in a class. The average age of first 10 students is 12.5 years. The average age of the remaining 20 students is 13.1 years. The average age (in years) of the students of the whole class is (1) 12.5 years (2) 12.7 years

(3) 12.8 years (4) 12.9 years

**Q99.** Out of 10 teachers of a school, one teacher retires and at his place a new teacher of age 25 years joins. As a result of it, the average age of the teachers is reduced by 3 years. The age of the retired teacher is

(1) 60 years (2) 58 years

(3) 56 years (4) 55 years

**Q100.** The present average age of a family of four members is 36 years. If the present age of the youngest member of the family be 12 years, the average age of the family at the birth of the youngest member was (1) 48 years (2) 40 years

(3) 32 years (4) 24 years

**Q101.** Two years ago the average age of a family of 8 members was 18 years. After the addition of a baby, the average age of the family is same today. What is the age of the baby ?

(1) 2 years (2) 1 years

(3) 1 year (4) 2 years

**Q102.** The average age of Ram and his two children is 17 years and the average age of Ram’s wife and the same children is 16 years. If the age of Ram is 33 years, the age of his wife is (in years):

(1) 31 (2) 32 (3) 35 (4) 30

**Q103.** The average age of A and B is 20 years. If A is to be replaced by C, the average would be 19 years. The average age of C and A is 21 years. The ages of A, B and C in order (in years) are

(1) 18, 22, 20 (2) 18, 20, 22

(3) 22, 18, 20 (4) 22, 20, 18

**Q104.** In a family of 5 members, the average age at present is 33 years. The youngest member is 9 years old. The average age of the family just before the birth of the youngest member was

(1) 30 years (2) 29 years

(3) 25 years (4) 24 years

**Q105.** The average age of 30 boys in a class is 15 years. One boy, aged 20 years, left the class, but two new boys came in his place whose age differ by 5 years. If the average age of all the boys now in the class becomes 15 years, the age of the younger newcomer is :

(1) 20 years (2) 15 years

(3) 10 years (4) 8 years

**Q106.** A man had 7 children. When their average age was 12 years, a child aged 6 years died. The average age of remaining six children is

(1) 13 years (2) 10 years

(3) 11 years (4) 14 years

**TYPE-X : Miscellaneous Questions**

**Q107.** A company produces an average of 4000 items per month for the first 3 months. How much items, it must produce on an average per month over the next 9 months to average 4375 items per month over the whole year?

(1) 4500 (2) 4600 (3) 4680 (4) 4710

**Q108.** There are in all, 10 balls; some of them are red and the others white. The average cost of all balls is 28. If the average cost of red balls is 25 and that of white balls is 30, the number of white balls is :

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

**Q109.** The arithmetic mean of the scores of a group of students in a test was 52. The brightest 20% of them secured a mean score of 80 and the dullest 25% a mean score of 31.The mean score of remaining 55% is :

(1) 45% (2) 50%

(3) 51.4% approx. (4) 54.6% approx

**Q110.** The average monthly income (in ) of certain agricultural workers is S and that of other workers is T. The number of agricultural workers is 11 times that of other workers. Then, the average monthly income (in ) of all the workers is :

(1) (2)

(3) (4) + T

**Q111.** On 24th May, 2008 the maximum temperature of Delhi, Kolkata and Mumbai were recorded as 35°C, 33°C and 34°C respectively. What was the maximum temperature of Chennai so that the average maximum temperature of those cities would be 35°?

(1) 34° C (2) 35° C (3) 36° C (4) 38° C

**Q112.** The average weight of 3 men A, B and C is 84 kg. Another man D joins the group and the average now becomes 80 kg. If another man E whose weight is 3 kg more than that of D, replaces A then the average weight of B, C, D and E becomes 79 kg. What is the weight of A?

(1) 70 kg. (2) 72 kg. (3) 75 kg. (4) 80 kg

**PREVIOUS GATE QUESTIONS**

**Q113.** In the summer of 2012, in New Delhi, the mean temperature of Monday to Wednesday was 41°C and of Tuesday to Thursday was 43°C. If the temperature on Thursday was 15% higher than that of Monday, then the temperature in °C on Thursday was **GATE-2013**

(A) 40 (B) 43 (C) 46 (D) 49

**Q114.** A tourist covers half of his journey by train at 60 km/h, half of the remainder by bus at 30 km/h and the rest by cycle at 10 km/h. The average speed of the tourist in km/h during his entire journey is **GATE-2013**

(A) 36 (B) 30 (C) 24 (D) 18

**Q115.** A car travels 8 km in the first quarter of an hour, 6 km in the second quarter and 16 km in the third quarter. The average speed of the car in km per hour over the entire journey is **GATE-2014**

(A) 30 (B) 36 (C) 40 (D) 24

**Q116.** The sum of eight consecutive odd numbers is 656. The average of four consecutive even numbers is 87. What is the sum of the smallest odd number and second largest even number?

**GATE-2014**

**Q117.** In a sequence of 12 consecutive odd numbers, the sum of the first 5 numbers is 425. What is the sum of the last 5 numbers in the sequence? **GATE-2014**

**Q118.**

**BOAT AND STREAM**

**TYPE–I : Questions based on upstream and downstream.**

**Q1.** A man can swim at the rate of 4 km/hr in still water. If the speed of the water is 2 km/hr, then the time taken by him to swim 10 km upstream is

(1) 2 hrs (2) 3 hrs

(3) 5 hrs (4) 4 hrs

**Q2.** Speed of a boat along and against the current are 12 km/hr and 8 km/hr respectively. Then the speed of the current in km/hr is

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

**Q3.** A man can swim 3 km/hr. in still water. If the velocity of the stream is 2 km/hr., the time taken by him to swim to a place 10 km upstream and back is :

(1) 9 hr. (2) 10 hr.

(3) 12 hr. (4) 8 hr

**Q4.** A person can row a distance of one km upstream in ten minutes and downstream in four minutes. What is the speed of the stream?

(1) 4.5 km/h (2) 4 km/h

(3) 9 km/h (4) 5.6 km/h

**Q5.** The speed of a boat in still water is 10 km/hr. It covers (upstream) a distance of 45 km in 6 hours. The speed (in km/hr) of the stream is

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

**Q6.** A man rows 40 km upstream in 8 hours and a distance of 36 km downstream in 6 hours. Then speed of stream is

(1) 0.5 km/hr (2) 1.5 km/hr

(3) 1 km/hr (4) 3 km/hr

**Q7.** A boat travels 24 km upstream in 6 hours and 20 km downstream in 4 hours. Then the speed of boat in still water and the speed of water current are respectively

(1) 4 kmph and 3 kmph

(2) 4.5 kmph and 0.5 kmph

(3) 4 kmph and 2 kmph

(4) 5 kmph and 2 kmph

**Q8.** A motorboat in still water travels at a speed of 36 kmph. It goes 56 km upstream in 1 hour 45 minutes. The time taken by it to cover the same distance down the stream will be :

(1) 2 hours 25 minutes (2) 3 hours

(3) 1 hour 24 minutes

(4) 2 hours 21 minutes

**Q9.** A sailor goes 12 km downstream in 48 minutes and returns in 1 hour 20 minutes. The speed of the sailor in still water is :

(1) 12 km/hr (2) 12.5 km/ hr

(3) 13 km/hr (4) 15 km/hr

**Q10.** The current of a stream runs at the rate of 4 km an hour. A boat goes 6 km and comes back to the starting point in 2 hours. The speed of the boat in still water is

(1) 6 km/hour (2) 8 km/hour

(3) 7.5 km/hour (4) 6·8 km/hour

**TYPE–II : Questions based on a boat/a man takes 'n' times as much time in going the same distance in opposite direction ...**

**Q11.** A boat goes 6 km an hour in still water, but takes thrice as much time in going the same distance against the current. The speed of the current (in km/hour) is :

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

**Q12.** In a fixed time, a boy swims double the distance along the current that he swims against the current. If the speed of the current is 3 km/hr, the speed of the boy in still water is

(1) 6 km/hr (2) 9 km/hr

(3) 10 km/hr (4) 12 km/hr

Q13. A man can row 30 km downstream and return in a total of 8 hours. If the speed of the boat in still water is four times the speed of the current, then the speed of the current is

(1) 1 km/hour (2) 2 km/hour

(3) 4 km/hour (4) 3 km/hour

Q14. A person can row 7 km an hour in still water and he finds that it takes him twice as long to row up as to row down the river. The speed of the stream is :

(1) 2 km/hr (2) 3 km/hr

(3) 2 km/hr (4) 3 km/hr

Q15. A man can row at a speed of 4 km/hr in still water. If he takes 2 times as long to row a distance upstream as to row the same distance downstream, then, the speed of stream (in km/hr) is

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

**TYPE–III : Miscellaneous Questions**

Q16. A man can row at 5 kmph. in still water. If the velocity of current is 1 kmph. and it takes him 1 hour to row to a place and come back, how far is the place?

(1) 2.5 km (2) 3 km (3) 2.4 km (4) 3.6 km

**Q17.** The speed of a motor-boat is that of the current of water as 36 : 5. The boat goes along with the current in 5 hours 10 minutes. It will come back in

(1) 5 hours 50 minutes (2) 6 hours

(3) 6 hours 50 minutes

(4) 12 hours 10 minutes

Q18. Two boats A and B start towards each other from two places, 108 km apart. Speed of the boat A and B in still water are 12km/hr and 15km/hr respectively. If A proceeds down and B up the stream, they will meet after.

(1) 4.5 hours (2) 4 hours

(3) 5.4 hours (4) 6 hours

Q19. A man can row 6 km/h in still water. If the speed of the current is 2 km/h, it takes 3 hours more in upstream than in the downstream for the same distance. The distance is

(1) 30 km (2) 24 km (3) 20 km (4) 32 km

Q20. A boat goes at 14 kmph along the stream and 8 kmph against the stream. The speed of the boat (in kmph) in still water is : (1) 12 kmph (2) 11 kmph

(3) 10 kmph (4) 8 kmph

Q21. If a boat goes 100 km downstream in 10 hours and 75 km upstream in 15 hours, then the speed of the stream is

(1) 2 km/hour (2) 2·5 km/hour

(3) 3 km/hour (4) 3·5 km/hour

Q22. A boat covers 24 km upstream and 36 km downstream in 6 hours, while it covers 36 km upstream and 24 km downstream in 6 hours. The speed of the current is

(1) 1 km/hr (2) 2 km/hr

(3) 1.5 km/hr (4) 2.5 km/hr

Q23. A swimmer swims from a point A against a current for 5 minutes and then swims backwards in favour of the current for next 5 minutes and comes to the point B. If AB is 100 metres, the speed of the current (in km per hour) is :

(1) 0.4 (2) 0.2 (3) 1 (4) 0.6

Q24. If the speed of a boat in still water is 20 km/hr and the speed of the current is 5 km/hr, then the time taken by the boat to travel 100 km with the current is :

(1) 2 hours (2) 3 hours

(3) 4 hours (4) 7 hours

Q25. A boat moves downstream at the rate of 8 km per hour and upstream at 4 km per hour. The speed of the boat in still waters is

(1) 4.5 km per hour(2) 5 km per hour

(3) 6 km per hour (4) 6.4 km per hour

**\*\*\*\*\*END\*\*\*\*\***

**REFERENCE BOOKS**

**R S AGGARWAL QUANTITATIVE APTITUDE**

**TATA Mc GRAW HILL QUANTITATIVE APTITUDE, NEW DELHI**

**GULATI OBJECTIVE ARITHMETICS**

**KIRAN PRAKASH QUANTITATIVE APTITUDE**

**FAST TRACK OBJECTIVE ARITHMETICS**

**Prepared By…..**

**G SURESH**

**COMPOUND INTEREST**

**TYPE–I : Questions based on the basic formula of compound Interest .**

**Q1.** What would be the compound interest accrued on an amount of Rs.8000 at the rate of 15 p.c.p.a. in 3 years?

(a) Rs.4051 (b) Rs.4167

(c) Rs.4283 (d) Rs.4325

**Q2.** The compound interest on Rs. 1000 at 10% per annum for 3 years in (Rs.) is :

(1) Rs. 1331 (2) Rs. 331 (3) Rs. 300 (4) Rs. 1300

**Q3.** The compound interest on Rs.20,480 at 6% per annum for 2 years 73 days, is

(a) Rs.2929 (b) Rs.3000

(c) Rs.3131 (d) Rs.3636

**Q4.** The compound interest on 8,000 at 15% per annum for 2 years 4 months, compounded annually is:

(1) 2980 (2) 3091 (3) 3109 (4) 3100

**Q5.** The compound interest on Rs. 24000 at 10% per annum for 1 years, interest being compounded semi-annually is :

(1) Rs. 3783 (2) Rs. 3777

(3) Rs. 3780 (4) Rs. 3781

**Q6.** In what time (in years) will Rs. 8000 amount to Rs. 9261 at 5% per annum, compounded annually?

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

**Q7.** A sum of money amounts to Rs. 6655 at the rate of 10% compounded annually for 3 years. The sum of money is

(1) Rs. 5000 (2) Rs. 5500

(3) Rs. 6000 (4) Rs. 6100

**Q8.** Find the compound interest on 16000/- at 20% per annum for 9 months, compounded quarterly?

(1) Rs. 2252 (2) Rs. 2522

(3) Rs. 18522 (4) Rs. 18422

**TYPE–II : Questions based on both compound and simple interest ..**

**Q9.** If the compound interest on a certain sum for 2 years at 3% per annum is Rs.101.50, then the simple interest on the same sum at the same rate and for the same time will be

(1) Rs.90.00 (2) Rs.95.50

(3) Rs.100.00 (4) Rs.98.25

**Q10.** If the compound interest on a sum of money for 3 years at the rate of 5% per annum is 252.20, the simple interest on the same sum at the same rate and for the same time is

(1) 220 (2) 240 (3) 245 (4) 250

**Q11.** On a certain sum of money the compound interest for 2 years is 282.15 and the simple interest for the same period of time is 270. The rate of interest per annum is

(1) 6.07% (2) 10% (3) 9% (4) 12.15%

**Q12.** The compound interest on a certain sum of money at a certain rate for 2 years is 40.80 and the simple interest on the same sum is 40 at the same rate and for the same time. The rate of interest is

(1) 2% per annum (2) 3% per annum

(3) 4% per annum (4) 5% per annum

**Q13.** The simple interest on a sum of money at 4% per annum for 2 years is 80. The compound interest in the same sum for the same period is

(1) 82.60 (2) 82.20 (3) 81.80 (4) 81.60

**Q14.** The simple interest on a certain sum of money for 2 years at 5% is Rs. 1600. The compound interest at the same rate after 3 years interest compound annually, is

(1) Rs.2520 (2) Rs.2522

(3) Rs.2555 (4) Rs.2535

**Q15.** The simple interest and compound interest (compounded annually) on a certain sum of money with a given rate for a period of 2 years are 900 and 954 respectively. The sum of money is

(1) 3700 (2) 3650 (3) 3850 (4) 3750

**Q16.** There is 100% increase to an amount in 8 years, at simple interest. Find the compound interest of 8000 after 2 years at the same rate of interest.

(1) 2500 (2) 2000 (3) 2250 (4) 2125

**Q17.** A certain amount of money earns Rs. 540 as Simple Interest in 3 years. If it earns a Compound Interest of Rs. 376.20 at the same rate of interest in 2 years, find the amount (in Rupees).

(1) 1600 (2) 1800 (3) 2000 (4) 2100

**TYPE–III : Difference between compound and simple interest ....**

Q18. The difference between compound interest and simple interest on 2500 for 2 years at 4% per annum is

(1) 40 (2) 45 (3) 14 (4) 4

**Q19.** Find the difference between the compound interest and the simple interest on 32,000 at 10% p.a. for 4 years.

(1) 2051.20 (2) 2052.50

(3) 2025.20 (4) 2501.20

**Q20.** The difference between the simple and compound interest on a certain sum of money at 5% rate of interest per annum for 2 years is 15. Then the sum is :

(1) 6,500 (2) 5,500 (3) 6,000 (4) 7,000

**Q21.** If the difference between the compound interest and simple interest on a sum at 5% rate of interest per annum for three years is 36.60, then the sum is

(1) 8000 (2) 8400 (3) 4400 (4) 4800

**Q22.** The difference between the simple and compound interest on a certain sum of money for 2 years at 4% per annum is 4. The sum is

(1) 2500 (2) 2,400 (3) 2,600 (4) 2,000

**Q23.** The difference between the compound interest and simple interest on 10,000 for 2 years is 25. The rate of interest per annum is

(1) 5% (2) 7% (3) 10% (4) 12%

**Q24.** The difference between the compound interest and simple interest for the amount 5,000 in 2 years is 32. The rate of interest is

(1) 5% (2) 8% (3) 10% (4) 12%

**Q25.** If the difference between the compound interest, compounded every six months, and the simple interest on a certain sum of money at the rate of 12% per annum for one year is 36, the sum is :

(1) 10,000 (2) 12,000 (3) 15,000 (4) 9,000

**Q26.** What is the difference between compound interest on 5,000 for 1 years at 4% per annum according as the interest is compounded yearly or half yearly?

(1) 2.04 (2) 3.06 (3) 8.30 (4) 4.80

**TYPE–IV : If the amount becomes 'n' times of the sum after 't' years at compound interest .....**

**Q27.** A sum of money doubles itself in 4 years at compound interest. It will amount to 8 times itself at the same rate of interest in :

(1) 18 years (2) 12 years

(3) 16 years (4) 24 years

**Q28.** A sum of money at compound interest doubles itself in 15 years. It will become eight times of itself in

(1) 45 years (2) 48 years

(3) 54 years (4) 60 years

**Q29.** A sum of 12,000, deposited at compound interest becomes double after 5 years. How much will it be after 20 years ?

(1) 1,44,000 (2) 1,20,000

(3) 1,50,000 (4) 1,92,000

**Q30.** At what rate percent per annum of compound interest, will a sum of money become four times of itself in two years ?

(1) 100% (2) 75% (3) 50% (4) 20%

**Q31.** If the amount is 2.25 times of the sum after 2 years at compound interest (compound annually), the rate of interest per annum is :

(1) 25% (2) 30% (3) 45% (4) 50%

**Q32.** If a sum of money compounded annually becomes 1.44 times of itself in 2 years, then the rate of interest per annum is

(1) 25% (2) 22% (3) 21% (4) 20%

**TYPE–V : A sum of money amounts to Rs. in years and to Rs. in years at compound interest ...**

**Q33.** A sum of money amounts to 4,840 in 2 years and to 5,324 in 3 years at compound interest compounded annually. The rate of interest per annum is :

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

**Q34.** A certain sum of money amounts to 2,420 in 2 years and 2,662 in 3 years at some rate of compound interest, compounded annually. The rate of interest per annum is

(1) 6% (2) 8% (3) 9% (4) 10%

**Q35.** A certain amount of money at r%, compounded annually after two and three years becomes 1440 and 1728 respectively. r is (1) 5 (2) 10 (3) 15 (4) 20

**Q36.** An amount of money appreciates to 7,000 after 4 years and to 10,000 after 8 years at a certain compound interest compounded annually. The initial amount of money was

(1) 4,700 (2) 4,900 (3) 4,100 (4) 4,300

**Q37.** A sum becomes 4500 after two years and 6750 after four years at compound interest. The sum is

(1) 4000 (2) 2500 (3) 3000 (4) 3050

**Q38.** A sum of money at compound interest will amount to 650 at the end of the first year and 676 at the end of the second year. The amount of money is

(1) 1,300 (2) 650 (3) 1,250 (4) 625

**Q39.** The compound interest on a certain sum for 2 years at 10% per annum is Rs. 525 . The simple interest on the same sum for double the time at half the rate per cent per annum is :

(1) Rs. 520 (2) Rs. 550 (3) Rs. 500 (4) Rs. 515

**TYPE–VI : Questions based on Installments ......**

**Q40.** A builder borrows 2550 to be paid back with compound interest at the rate of 4% per annum by the end of 2 years in two equal yearly instalments. How much will each instalment be

(1) 1352 (2) 1377 (3) 1275 (4) 1283

**Q41.** A man buys a scooter on making a cash down payment of 16224 and promises to pay two more yearly instalments of equivalent amount in next two years. If the rate of interest is 4% per annum, compounded yearly, the cash value of the scooter, is

(1) 40000 (2) 46824 (3) 46000 (4) 50000

**Q42.** Rs. 16,820 is divided between two brothers of age 27 years and 25 years. They invested their money at 5% per annum compound interest in such a way that both will receive equal money at the age of 40 years. The share (in Rs.) of elder brother is

(1) 8,280 (2) 8,410 (3) 8,820 (4) 8,000

**Q43.** A man wants to invest Rs.16850 in bank account of his two sons whose age are 12 years and 16 years in such a way that they will get equal amount at an age of 120 years at the rate of 33% per annum. Find the share of younger son?

(1) 12800 (2) 405 (3) 14860 (4) 2050

**Q44.** A man borrows a sum of Rs.25, 220 from a bank and promise to pay the amount in 3 annual equal installments at the rate of 5% per annum. Find the value of each installment?

(1) 9261 (2) 9361 (3) 9461 (4) 9561

**Q45.** A man purchased a motor bike for a certain price and promises to pay the price in 3 equal annual installments of 10,800 at the rate of 20% per annum. Find the cost price of motor bike?

(1) 22,750 (2) 33,750 (3) 22,550 (4) 33,550

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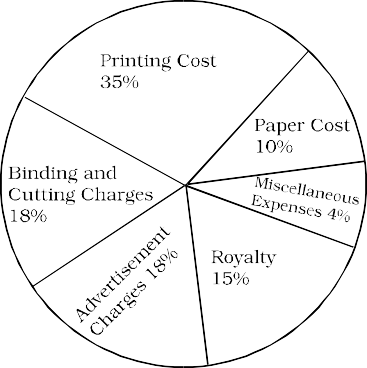
**G SURESH**

**DATA INTERPRETATION**

**TYPE–I : Pie-Chart ......**

**Directions (Q1-Q5) :** Read the following pie-chart to answer the questions given below it.

**Per cent of money spent by a family on various items during 1998**

Q1. If the total amount spent during the year 1998 was 46000/-, the amount spent on food, was :

(1) 2000/- (2) 10580/-

(3) 23000/- (4) 2300/-

Q2. If the total amount spent was 46000/-, how much was spent on clothing and housing together?

(1) 11500/- (2) 1150/-

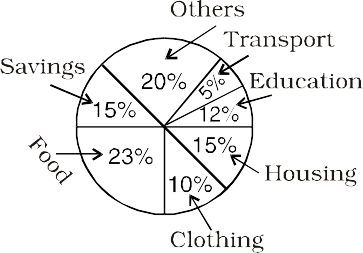
(3) 10000/- (4) 15000/-

Q3. The ratio of the total amount of money spent on housing to that spent on education was :

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

Q4. Graph shows that the maximum amount was spent on:

(1) Food (2) Housing

(3) Clothing (4) Others

Q5. If the total expenditure of the family for the year 1998 was 46000/-, the family saved during the year.

(1) 1500/- (2) 15000/-

(3) 6900/- (4) 3067/- approx.

**Directions (Q6-Q10) :** The following questions are based on the pie-chart given below. Study the pie-chart and answer the questions.

**The percentage expenses on various items during book production and sale.**

Q6. The central angle for the sector on “Paper-Cost” is

(1) 22 ° (2) 16° (3) 54.8° (4) 36°

Q7. If the ‘Printing-Cost’ is 17500, the royalty paid is

(1) 8750 (2) 7500 (3) 3150 (4) 6300

Q8. If the “miscellaneous expenses” are 6000. How much more are “binding and cutting charges” than “Royalty” ?

(1) 6000 (2) 5500 (3) 4500 (4) 10500

Q9. The central angle corresponding to the sector on “Printing Cost” is more than that of “Advertisement Charges ” by :

(1) 72° (2) 61.2° (3) 60° (4) 54.8°

Q10. The “Paper Cost” is approximately what per cent of “Printing Cost” ?

(1) 20.3% (2) 28.6% (3) 30% (4) 32.5%

Q11. **Directions (Q11–Q15) :** The following Pie Chart shows the export of different food grains from India in 2010. Study the chart and answer the questions :



B

72°

A

72°

C

36º 99°

Others

Q11. Of the total export of food grains, the percentage of crop B exported is

(1) 15% (2) 20% (3) 18% (4) 10%

Q12. If a total of 1.5 million quintals of crop F was exported, the amount of total food grains exported (in million) quintals was

(1) 8.7 (2) 12 (3) 10.8 (4) 9.6

Q13. The three crops which combine to contribute to exactly 50% of the total export of food grains are

(1) A, F and others (2) B, C and F

(3) A, B and C (4) C, F and others

Q14. If a total of 1.5 million quintals of crop F was exported, then the total quantity of D and E that was exported (in million quintals) was

(1) 1.2 (2) 1.5 (3) 4.5 (4) 6.5

Q15. If the revenue from 1 quintal of crop A is thrice that from 1 quintal of crop C, then the ratio of the total revenues of A and C is

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

**Directions (141-144) :** Study the pie-chart and table given below and answer the questions.

**Details of percentage of employees working in various departments in an organization and number of males among them.**

|  |  |
| --- | --- |
| **Department** | **No. of Males** |
| Production | 245 |
| HR | 12 |
| IT | 74 |
| Marketing | 165 |
| Accounts | 93 |

Total number of employees = 800.

Q16. The respective ratio between the number of females working in HR department to the total number of employees working in the HR department is

(1) 7 : 10 (2) 8 : 17 (3) 8 : 19 (4) 5 : 7

Q17. The percentage of the number of male employees working in Marketing department to the total number of employees in Marketing department is

(1) 84% (2) 86% (3) 88% (4) 91%

Q18. The percentage of females working in IT department to the total number of employees working in the organization is

(1) 10.25% (2) 10.75%

(3) 15.25% (4) 15.75%

Q19. The ratio of number of males in Marketing department to the number of females working in that department is

(1) 52 : 7 (2) 52 : 9 (3) 55 : 7 (4) 55 : 9

**TYPE–II : Line graph .....**

**Directions (36–40) :** The following graph shows production (in thousands) of two types (P and Q) of vehicles by a factory over the years 2009 to 2014. Study the graph and answer the given questions.

Q20. In how many of the given years, was the production of Type P vehicles of the company more than the average production of this type vehicles in the given years?

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

Q21. Approximate percentage decrease in production of Type Q vehicles from 2010 to 2011 is

(1) 10.1 (2) 16.7 (3) 14.3 (4) 12.5

Q22. The total production of Type P vehicles in the years 2009 and 2011 is what percent of total production of Type Q vehicles in 2010 and 2014?

(1) 75 (2) 69.25 (3) 80 (4) 81.25

Q23. The ratio of total production of Type P vehicles to total production of type Q vehicles over the years is

(1) 48 : 41 (2) 5 : 8 (3) 8 : 5 (4) 41 : 48

Q24. The production of Type Q vehicles in 2010 was approximately what percent of Type P vehicles in 2014?

(1) 60 (2) 45.5 (3) 54.5 (4) 75

**Directions (44–48) :** Study the following line chart carefully and answer the questions given below it. The following line chart represents the number of employees recruited in different years in a company.

Q25. What was the ratio of number of employees recruited in the year 2011 to that in the year 2013?

(1) 2 : 3 (2) 9 : 10 (3) 10 : 9 (4) 5 : 9

Q26. The number of employees recruited in the year 2012 was what percent of the number employees recruited in the year 2014 ?

(1) 50% (2) 60% (3) 62.5% (4) 70%

Q27. If the total number of employees before the year 2010 was 640, then the total number of employees after 2014 was :

(1) 820 (2) 835 (3) 815 (4) 845

Q28. If the number of employees before 2010 was 640, what was percentage increase in 2010?

(1) 5% (2) 5.5% (3) 4% (4) 4.5%

Q29. The number of employees recruited in 2015 was 40% more than that recruited in 2014. How many employees were recruited in 2015? (1) 56 (2) 16 (3) 64 (4) 60

**TYPE–III : Simple Bar Diagram**

**Directions (1-5) :** The bar graph given below shows the spending of family income on various items and savings during 1993. Observe the graph and answer the following questions :

Q30. The per cent of income spent on food is : (1) 5% (2) 10% (3) 12.5% (4) 20%

Q31. The per cent of income spent on clothing exceeds that on savings by :

(1) 12.5% (2) 2.5% (3) 10% (4) 22.5%

Q32. If the total income of the family during 1993 was 100000, the savings of the family in 1993 was :

(1) 1,750 (2) 20,000 (3) 12,500 (4) 50,000

Q33. The total expenses of the family on transport is equal to those spent on :

(1) savings (2) clothing (3) food (4) others

Q34. The savings of the family is more than that of expenditure incurred on :

(1) housing (2) clothing

(3) transport (4) others

**Directions (6–10) :** Study the bar diagram given below carefully and answer the following questions based on it.

Q35. The birth-rate of which country is 25% more than that of Germany?

(1) India (2) China

(3) England (4) New Zealand

Q36. The birth rate of India is what per cent of the birth-rate of England?

(1) 165% (2) 155% (3) 140% (4) 100%

Q37. The birth-rate of China is how many times the birth-rate of Germany?

(1) 0.4 (2) 5.2 (3) 4.0 (4) 2.5

Q38. What is the ratio of birth-rate of India to that of Sweden ?

(1) 5 : 11 (2) 11 : 5 (3) 2 : 1 (4) 1 : 2

Q39. By how much per cent is the birth-rate of England less than the birth-rate of New Zealand?

(1) 30% (2) 33 % (3) 45% (4) 50%

**TYPE–IV : Horizontal and Divide Bar Diagram...**

Directions (6–9) : The bar graph given here shows the number of jobseekers of a state in various years at different stages of education. Study the graph carefully and answer the questions based on it.

Q40. In which year was the number of Graduate job-seekers the same as that of Senior Secondary jobseekers ?

(1) 1973 (2) 1974 (3) 1975 (4) 1976

Q41. In comparison to the year 1973, how many more job-seekers in all, were there in the year 1977?

(1) 700 (2) 1700 (3) 2375 (4) 2150

Q42. In which year, was the number of Matriculate job-seekers maximum?

(1) 1973 (2) 1975 (3) 1972 (4) 1977

Q43. The number of job-seekers, having their qualification as Senior Secondary, in the year 1974 was :

(1) 525 (2) 800 (3) 1050 (4) 1875

Directions (30 – 33) : The subdivided bar diagram given below depicts the result of B.Com. Students of a college for 3 years. Study the graph and answer the given questions.

Q44. How many percent of students passed in first division in 2007?

(1) 15 % (2) 11 %

(3) 16 % (4) 12 %

Q45. What was the pass percentage in 2008 ?

(1) 33 % (2) 82 % (3) 75% (4) 78%

Q46. What was the number of third divisions in 2006 ?

(1) 60 (2) 140 (3) 59 (4) 120

Q47. In which year, did the college have the best result for B. Com ?

(1) 2007 and 2008 (2) 2008

(3) 2007 (4) 2006

**TYPE–V : Multi Bar Diagram ...**

**Directions (1-5) :** The following questions are based on the bar graph. Read the graph and answer the questions.

Q48. What is the percentage increase in the gross traffic receipts in 1995-96 as compared to 1993-94?

(1) 33.9% (2) 41.5% (3) 20.7% (4) 17%

Q49. If profit » gross traffic receipts— total expenditure, then in 1996- 97, what percentage of gross traffic receipts is the profit made?

(1) 5.9% (2) 6.4% (3) 7.2% (4) 8%

Q50. In which year was the profit as a percentage of gross traffic receipts the highest? (1) 1997-98 (2) 1996-97

(3) 1995-96 (4) 1994-95

Q51. In order to make a profit of 10%. What should have been the gross traffic receipts (in crores) in 1994-95, total expenditure remaining the same?

(1) 5,667 (2) 5,876 (3) 6,444 (4) 7,667

Q52. By what amount (in crores) has the expenditure increased over the period 1993-94 to 1997-98?

(1) 4,100 (2) 3,900 (3) 3,850 (4) 3,700

**Directions (23–26) :** The following graph shows the production of wheat flour (in 1000 tonnes) by three companies X, Y and Z over the years. Study the graph and answer the questions.

Q53. What is the difference between the production of company Z in 2004 and company Y in 2000 (in thousand tonnes) ?

(1) 100 (2) 200 (3) 20 (4) 2

Q54. What is the ratio of the average production of company X in the period 2002-2004 to the average production of company Y in the same period ?

(1) 1 : (2) 15 :17 (3) 23 : 25 (4) 27 : 29

Q55. What is the percentage increase in the production of company Y from 2002 to 2003? (1) 14% (2) 16 % (3) 25% (4) 40%

Q56. The average production for five years was maximum for which company (s) ?

(1) X and Z bot (2) Y (3) Z (4) X and Y both

**TYPE–VI : Histogram ..........**

**Directions (1–5) :** The histogram shows the marks obtained by 45 students of a class. Look at the histogram and answer the questions.

Q57. How many students have obtained marks 50 and above ?

(1) 9 (2) 10 (3) 11 (4) 16

Q58. If the pass mark be 30, what is the number of failures ?

(1) 2 (2) 6 (3) 18 (4) 20

Q59. . If the pass mark be 30, what is the percentage of successful students ?

(1) 75% (2) 60% (3) 50% (4) 40%

Q60. How many students have obtained marks less than 10 ?

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

Q61. How many students have obtained 30 or more marks but less than 40 ?

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

**Directions (17-20) :** Study the following Histogram and answer the following questions.

Q62. The total number of students involved in the data is

(1) 33 (2) 32 (3) 43 (4) 42

Q63. The maximum number of students got the marks in the interval of

(1) 10 – 20 (2) 20 – 30 (3) 30 – 40 (4) 40 – 50

Q64. The least number of students got the marks in the interval

(1) 40 – 50 (2) 20 – 30 (3) 10 – 20 (4) 0 – 10

Q65. The ratio of the students obtaining marks in the first and the last interval is

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

**TYPE–VII : Table ....**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| YEAR | TYPES OF CYCLES ( IN 1000) | | | | |
|  | A | B | C | D | E |
| 1997 | 200 | 150 | 78 | 90 | 65 |
| 1998 | 150 | 180 | 100 | 105 | 70 |
| 1999 | 180 | 175 | 92 | 110 | 85 |
| 2000 | 195 | 160 | 120 | 125 | 75 |
| 2001 | 220 | 185 | 130 | 135 | 80 |

**Directions (66-70) :** A survey of film watching habits of people living in five cities P, Q, R, S and T is summarized below in a table. The column I in the table gives percentage of film-watchers in each city who see only one film a week. The column II gives the total number of film-watchers who see two or more films per week.

Read the table and answer the following questions.

|  |  |  |
| --- | --- | --- |
| **CITY** | **I** | **II** |
| P | 60 | 24,000 |
| Q | 20 | 30,000 |
| R | 85 | 24,000 |
| S | 55 | 27,000 |
| T | 75 | 80,000 |

Q66. How many film-watchers in city R see only one film in a week ?

(1) 24850 (2) 36000 (3) 136000 (4) 160000

Q67. Which city has the highest number of film watchers who see only one film in a week?

(1) P (2) R (3) S (4) T

Q68. A city with the lowest number of film-watchers is :

(1) P (2) Q (3) R (4) S

Q69. The highest number of film watchers in any given city is :

(1) Q (2) R (3) S (4) T

Q70. The total number of all film-watchers in the five cities who see only one film in a week is (1) 113000 (2) 425200

(3) 452500 (4) 500000

**Directions (71–74) :** Study the table and answer the questions. The number of 5 types of cycles manufactured by a company over the years is given below :

Q71. What was the approximate percentage of increase in production of ‘D’ type of the cycle from 1998 to 2000?

(1) 10 (2) 19 (3) 15 (4) 17

Q72. In the case of which type of cycles was total production of the given 5 years the maximum ?

(1) A (2) B (3) C (4) D

Q73. What was the percentage drop in production of A type cycle from 1997 to 1999? (1) 10 (2) 25 (3) 20 (4) 15

Q74. The production of E type of cycle in 2001 was what per cent of production of B type in 2000?

(1) 40 (2) 50 (3) 45 (4) 25

**L. C. M & H. C. F**

**TYPE–I : Questions based on the formula (LCM × HCF = First Number × Second Number) ....**

**Q1.**  The LCM of two numbers is 864 and their HCF is 144. If one of the number is 288, the other number is :

(1) 576 (2) 1296 (3) 432 (4) 144

**Q2.** LCM of two numbers is 225 and their HCF is 5. If one number is 25, the other number will be:

(1) 5 (2) 25 (3) 45 (4) 225

**Q3.** The HCF of two numbers 12906 and 14818 is 478. Their LCM is

(1) 400086 (2) 200043

(3) 600129 (4) 800172

**Q4.** The H.C.F. and L.C.M. of two 2- digit numbers are 16 and 480 respectively. The numbers are :

(1) 40, 48 (2) 60, 72

(3) 64, 80 (4) 80, 96

**Q5.** The HCF and LCM of two numbers are 12 and 924 respectively. Then the number of such pairs is

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

**Q6.** The HCF and product of two numbers are 15 and 6300 respectively. The number of possible pairs of the numbers is

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

**Q7.** The product of two numbers is 2160 and their HCF is 12. Number of such possible pairs is (1) 1 (2) 2 (3) 3 (4) 4

**Q8.** Product of two co-prime numbers is 117. Then their L.C.M. is

(1) 117 (2) 9 (3) 13 (4) 39

**Q9.** The HCF and LCM of two numbers are 13 and 455 respectively. If one of the number lies between 75 and 125, then, that number is :

(1) 78 (2) 91 (3) 104 (4) 117

**Q10.** The H.C.F. of two numbers is 8. Which one of the following can never be their L.C.M.?

(1) 24 (2) 48 (3) 56 (4) 60

**Q11.** The L.C.M. of three different numbers is 120. Which of the following cannot be their H.C.F.?

(1) 8 (2) 12 (3) 24 (4) 35

**Q12.** The H.C.F. and L.C.M. of two numbers are 44 and 264 respectively. If the first number is divided by 2, the quotient is 44. The other number is

(1) 147 (2) 528 (3) 132 (4) 264

**TYPE–II : Questions based on only finding the LCM of the numbers ..**

**Q13.** The least number which when divided by 4, 6, 8, 12 and 16 leaves a remainder of 2 in each case is :

(1) 46 (2) 48 (3) 50 (4) 56

**Q14.** The least number, which when divided by 12, 15, 20 or 54 leaves a remainder of 4 in each case, is :

(1) 450 (2) 454 (3) 540 (4) 544

**Q15.** Find the greatest number of five digits which when divided by 3, 5, 8, 12 have 2 as remainder :

(1) 99999 (2) 99958 (3) 99960 (4) 99962

**Q16.** Let the least number of six digits which when divided by 4, 6, 10, 15 leaves in each case same remainder 2 be N. The sum of digits in N is (1) 3 (2) 5 (3) 4 (4) 6

**Q17.** The least number, which when divided by 4, 5 and 6 leaves remainder 1, 2 and 3 respectively, is

(1) 57 (2) 59 (3) 61 (4) 63

**Q18.** The smallest square number divisible by 10, 16 and 24 is

(1) 900 (2) 1600 (3) 2500 (4) 3600

**Q19.** If the students of a class can be grouped exactly into 6 or 8 or 10, then the minimum number of students in the class must be

(1) 60 (2) 120 (3) 180 (4) 240

Q20. The least number which when divided by 4, 6, 8 and 9 leave zero remainder in each case and when divided by 13 leaves a remainder of 7 is :

(1) 144 (2) 72 (3) 36 (4) 85

**Q21.** The least number which when divided by 16, 18, 20 and 25 leaves 4 as remainder in each case but when divided by 7 leaves no remainder is

(1) 17004 (2) 18000 (3) 18002 (4) 18004

**Q22.** The traffic lights at three different road crossings change after 24 seconds, 36 seconds and 54 seconds respectively. If they all change simultaneously at 10 : 15 : 00 AM, then at what time will they again change simultaneously?

(1) 10 : 16 : 54 AM (2) 10 : 18 : 36 AM

(3) 10 : 17 : 02 AM (4) 10 : 22 : 12 AM

**Q23.** Four bells ring at intervals of 4, 6, 8 and 14 seconds. They start ringing simultaneously at 12.00 O’clock. At what time will they again ring simultaneously?

(1) 12 hrs. 2 min. 48 sec.

(2) 12 hrs. 3 min.

(3) 12 hrs. 3 min. 20 sec.

(4) 12 hrs. 3 min. 44 sec

**Q24.** Four bells ring at the intervals of 5, 6, 8 and 9 seconds. All the bells ring simultaneously at some time. They will again ring simultaneously after

(1) 6 minutes (2) 12 minutes

(3) 18 minutes (4) 24 minutes

**Q25.** Four runners started running simultaneously from a point on a circular track. They took 200 seconds, 300 seconds, 360 seconds and 450 seconds to complete one round. After how much time do they meet at the starting point for the first time ?

(1) 1800 seconds (2) 3600 seconds

(3) 2400 seconds (4) 4800 seconds

**Q26.** From a point on a circular track 5 km long A, B and C started running in the same direction at the same time with speed of 2 km per hour, 3 km per hour and 2 km per hour respectively. Then on the starting point all three will meet again after

(1) 30 hours (2) 6 hours

(3) 10 hours (4) 15 hours

Q27. L.C.M. of is

(1) 8/27 (2) 20/3 (3) 10/3 (4) 20/27

**Q28.** The number nearest to 10000, which is exactly divisible by each of 3, 4, 5, 6, 7 and 8, is : (1) 9240 (2) 10080 (3) 9996 (4) 10000

Q29. H.C.F of is

(1) 48/105 (2) 2/105

(3) 1/105 (4) 24/105

**Q29.** The LCM fo two prime numbers x and y, (x > y) is 161. The value of (3y – x) :

(1) –2 (2) –1 (3) 1 (4) 2

**Q30.** Three electronic devices make a beep after every 48 seconds, 72 seconds and 108 seconds respectively. They beeped together at 10 a.m. The time when they will next make a beep together at the earliest is

(1) 10 : 07 : 12 hours (2) 10 : 07 : 24 hours

(3) 10 : 07 : 36 hours (4) 10 : 07 : 48 hours

**TYPE–III : Questions based on only finding the HCF of the numbers ..**

**Q31.** The maximum number of students among whom 1001 pens and 910 pencils can be distributed in such a way that each student gets same number of pens and same number of pencils, is :

(1) 91 (2) 910 (3) 1001 (4) 1911

**Q32.** What is the greatest number that will divide 307 and 330 leaving remainders 3 and 7 respectively ?

(1) 19 (2) 16 (3) 17 (4) 23

**Q33.** Which greatest number will divide 3026 and 5053 leaving remainders 11 and 13 respectively?

(1) 18 (2) 30 (3) 45 (4) 60

**Q34.** The largest number, which divides 25, 73 and 97 to leave the same remainder in each case, is

(1) 24 (2) 23 (3) 21 (4) 6

**Q35.** A milkman has 75 litres milk in one can and 45 litres in another. The maximum capacity of container which can measure milk of either container exact number of times is :

(1) 1 litre (2) 5 litres

(3) 15 litres (4) 25 litres

**Q36.** What is the least number of square tiles required to pave the floor of a room 15 m 17 cm long and 9 m 2 cm broad?

(1) 840 (2) 841 (3) 820 (4) 814

**Q37.** Three sets of English, Mathematics and Science books containing 336, 240, 96 books respectively have to be stacked in such a way that all the books are stored subject-wise and the height of each stack is the same. Total number of stacks will be

(1) 14 (2) 21 (3) 22 (4) 48

**Q38.** 84 Maths books, 90 Physics books and 120 Chemistry books have to be stacked topicwise. How many books will be there in each stack so that each stack will have the same height too ? (1) 12 (2) 18 (3) 6 (4) 21

**Q39.** In a school, 391 boys and 323 girls have been divided into the largest possible equal classes, so that each class of boys numbers the same as each class of girls. What is the number of classes ?

(1) 23 (2) 19 (3) 44 (4) 17

**Q40.** Two pipes of length 1.5 m and 1.2 m are to be cut into equal pieces without leaving any extra length of pipes. The greatest length of the pipe pieces of same size which can be cut from these two lengths will be

(1) 0.13 metre (2) 0.4 metre

(3) 0.3 metre (4) 0.41 metre

**TYPE–IV : Questions based on ratio of the numbers .....**

**Q41.** The LCM and the HCF of the numbers 28 and 42 are in the ratio :

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

**Q42.** If the ratio of two numbers is 2 : 3 and their L.C.M. is 54, then the sum of the two numbers is

(1) 5 (2) 15 (3) 45 (4) 270

**Q43.** The ratio of two numbers is 4 : 5 and their L.C.M. is 120. The numbers are

(1) 30, 40 (2) 40, 32

(3) 24, 30 (4) 36, 20

**Q44.** Three numbers are in the ratio 2 : 3 : 4 and their H.C.F. is 12. The L.C.M. of the numbers is (1) 144 (2) 192 (3) 96 (4) 72

**Q45.** Two numbers are in the ratio 3 : 4. If their LCM is 240, the smaller of the two number is

(1) 100 (2)80 (3) 60 (4)50

**Q46.** Two numbers are in the ratio 3 : 4. If their HCF is 4, then their LCM is

(1) 48 (2) 42 (3) 36 (4) 24

**Q47.** The ratio of two numbers is 3 : 4 and their HCF is 5. Their LCM is :

1) 10 (2) 60 (3) 15 (4) 12

**Q48.** Three numbers are in the ratio 1 : 2 : 3 and their HCF is 12. The numbers are

(1) 12, 24, 36 (2) 5, 10, 15

(3) 4, 8, 12 (4) 10, 20, 30

**Q49.** If x : y be the ratio of two whole numbers and z be their HCF, then the LCM of those two numbers is

(1) yz (2) xz/y (3) xy/z (4) xyz

**Q50.** The H.C.F. and L.C.M. of two numbers are 21 and 84 respectively. If the ratio the two numbers is 1 : 4, then the larger of the two numbers is

(1) 12 (2) 108 (3) 48 (4) 84

**TYPE–V : Questions based on addition, subtraction, multiplication and division of the numbers .......**

**Q51.** The product of the LCM and HCF of two numbers is 24. The difference of the two numbers is 2. Find the numbers ?

(1) 8 and 6 (2) 8 and 10

(3) 2 and 4 (4) 6 and 4

**Q52.** The LCM of two numbers is 495 and their HCF is 5. If the sum of the numbers is 100, then their difference is :

(1) 10 (2) 46 (3) 70 (4) 90

**Q53.** The sum of the H.C.F. and L.C.M of two numbers is 680 and the L.C.M. is 84 times the H.C.F. If one of the number is 56, the other is : (1) 84 (2) 12 (3) 8 (4) 96

**Q54.** L.C.M. of two numbers is 120 and their H.C.F. is 10. Which of the following can be the sum of those two numbers ?

(1) 140 (2) 80 (3) 60 (4) 70

**Q55.** Three numbers which are coprime to one another are such that the product of the first two is 551 and that of the last two is 1073. The sum of the three numbers is :

(1) 75 (2) 81 (3) 85 (4) 89

**Q56.** The smallest five digit number which is divisible by 12,18 and 21 is :

(1) 10224 (2) 30256 (3) 10080 (4) 50321

**Q57.** The HCF (GCD) of a, b is 12, a, b are positive integers and a > b > 12. The smallest values of (a, b) are respectively

(1) 12, 24 (2) 24, 12

(3) 24, 36 (4) 36, 24

**Q58.** The number between 3000 and 4000 which is exactly divisible by 30, 36 and 80 is

(1) 3625 (2) 3250 (3) 3500 (4) 3600

**REFERENCE BOOKS**

**R S AGGARWAL QUANTITATIVE APTITUDE**

**TATA Mc GRAW HILL QUANTITATIVE APTITUDE, NEW DELHI**

**GULATI OBJECTIVE ARITHMETICS**

**KIRAN PRAKASH QUANTITATIVE APTITUDE**

**FAST TRACK OBJECTIVE ARITHMETICS**

**Prepared By…..**

**G SURESH**

**MENSURATION 2D**

**TYPE–I : (2-D : Area)**

**Q1.** If the length of the diagonal AC of a square ABCD is 5.2 cm, then the area of the square is : (1) 15.12 sq.cm (2) 13.52 sq.cm

(3) 12.62 sq.cm (4) 10.00 sq.cm.

**Q2.** The diagonal of a square is 4 cm. The diagonal of another square whose area is double that of the first square is :

(1) 8 cm (2) 16 cm (3) cm (4) 8 cm

**Q3.** The difference of the areas of two squares drawn on two line segments of different lengths is 32 sq.cm. Find the length of the greater line segment if one is longer than the other by 2 cm. (1) 7 cm (2) 9 cm (3) 11 cm (4) 16 cm

**Q4.** If the diagonals of two squares are in the ratio of 2 : 5, their area will be in the ratio of

(1) : (2) 2 : 5 (3) 4 : 25 (4) 4 : 5

**Q5.** The perimeter of five squares is 24 cm, 32 cm, 40 cm, 76 cm and 80 cm respectively. The perimeter of another square equal in area to sum of the areas of these squares is :

(1) 31 cm (2) 62 cm (3) 124 cm (4) 961 cm

**Q6.** The ratio of the area of a square to that of the square drawn on its diagonal is :

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

**Q7.** From four corners of a square sheet of side 4 cm, four pieces, each in the shape of arc of a circle with radius 2 cm, are cut out. The area of the remaining portion is :

(1) (8–p) sq.cm. (2) (16–4p) sq.cm.

(3) (16–8p) sq.cm. (4) (4–2 p)sq.cm

**Q8.** The length of a rectangular garden is 12 metres and its breadth is 5 metres. Find the length of the diagonal of a square garden having the same area as that of the rectangular garden :

(1) 2 30 m (2) 13 m (3) 13 m (4) 8 15 m

**Q9.** The difference between the length and breadth of a rectangle is 23 m. If its perimeter is 206 m, then its area is

(1) 1520 m2 (2) 2420 m2

(3) 2480 m2 (4) 2520 m2

**Q10.** The length of a rectangular hall is 5m more than its breadth. The area of the hall is 750m2. The length of the hall is :

(1) 15 m (2) 22.5 m (3) 25 m (4) 30 m

**Q11.** The length and breadth of a rectangle are increased by 20% and 25% respectively. The increase in the area of the resulting rectangle will be :

(1) 60% (2) 50% (3) 40% (4) 30%

**Q12.** In measuring the sides of a rectangle, there is an excess of 5% on one side and 2% deficit on the other. Then the error percent in the area is

(1) 3·3% (2) 3·0% (3) 2·9% (4) 2·7%

**Q13.** A street of width 10 metres surrounds from outside a rectangular garden whose measurement is 200 m × 180 m. The area of the path (in square metres) is

(1) 8000 (2) 7000 (3) 7500 (4) 8200

**Q13.** A path of uniform width runs round the inside of a rectangular field 38 m long and 32 m wide. If the path occupies 600m2 , then the width of the path is

(1) 30 m (2) 5 m (3) 18.75 m (4) 10 m

**Q14.** The length of a room floor exceeds its breadth by 20 m. The area of the floor remains unaltered when the length is decreased by 10 m but the breadth is increased by 5 m. The area of the floor (in square metres) is :

(1) 280 (2) 325 (3) 300 (4) 420

**Q15.** A circular wire of diameter 42 cm is folded in the shape of a rectangle whose sides are in the ratio 6 : 5 . Find the area enclosed by the rectangle. (Take p = 22/7 )

(1) 540 cm2 (2) 1080 cm2

(3) 2160 cm2 (4) 4320 cm2

**Q16.** A took 15 sec. to cross a rectangular field diagonally walking at the rate of 52 m/min. and B took the same time to cross the same field along its sides walking at the rate of 68 m/ min. The area of the field is :

(1) 30 m2 (2) 40 m2 (3) 50 m2 (4) 60 m2

Q17. The difference between the length and breadth of a rectangle is 23 m. If its perimeter is 206 m, then its area is

(1) 1520 m2 (2) 2420 m2

(3) 2480 m2 (4) 2520 m2

**Q18.** If the area of a triangle is 1176 cm2 and base : corresponding altitude is 3 : 4, then the altitude of the triangle is :

(1) 42 cm (2) 52 cm (3) 54 cm (4) 56 cm

**Q19.** The base of a triangle is 15 cm and height is 12 cm. The height of another triangle of double the area having the base 20 cm is :

(1) 9 cm (2) 18 cm (3) 8 cm (4) 12.5 cm

**Q20.** The sides of a triangle are 3 cm, 4 cm and 5 cm. The area (in cm2) of the triangle formed by joining the mid points of this triangle is :

(1) 6 (2) 3 (3) 3/2 (4) ¾

**Q21.** The diagonal of a right angle isosceles triangle is 5 cm. Its area will be

(1) 5 sq.cm (2) 6.25 sq.cm

(3) 6.50 sq.cm (4) 12.5 sq.cm

**Q22.** The area of two equilateral triangles are in the ratio 25 : 36. Their altitudes will be in the ratio :

(1) 36 : 25 (2)25 : 36 (3) 5 : 6 (4) :

**Q23.** The sides of a triangle are in the ratio 2 : 3 : 4. The perimeter of the triangle is 18 cm. The area (in cm2) of the triangle is

(1) 9 (2) 36 (3) (4) 3

**Q24.** If the numerical value of the perimeter of an equilateral triangle is times the area of it, then the length of each side of the triangle is

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

**Q25.** The measures (in cm) of sides of a right angled triangle are given by consecutive integers. Its area (in cm2) is

(1) 9 (2) 8 (3) 5 (4) 6

**Q26.** A right angled isosceles triangle is inscribed in a semi-circle of radius 7 cm. The area enclosed by the semi-circle but exterior to the triangle is

(1) 14 cm2 (2) 28 cm2

(3) 44 cm2 (4) 68 cm2

**Q27.** The height of an equilateral triangle is 15 cm. The area of the triangle is

(1) 50 sq. cm. (2) 70 sq. cm.

(3) 75 sq. cm. (4) 150 sq. cm.

**Q28.** 360 sq. cm and 250 sq. cm are the area of two similar triangles. If the length of one of the sides of the first triangle be 8 cm, then the length of the corresponding side of the second triangle is

(1) 6 cm (2) 6 cm

(3) 6 cm (4) 6 cm

**Q29.** The altitude drawn to the base of an isosceles triangle is 8 cm and its perimeter is 64 cm. The area (in cm2 ) of the triangle is

(1) 240 (2) 180 (3) 360 (4) 120

**Q30.** The perimeter of a rhombus is 40 m and its height is 5 m. Its area is :

(1) 60 m2 (2) 50 m2 (3) 45 m2 (4) 55m2

**Q31.** The perimeter of a rhombus is 40 cm and the measure of an angle is 60°, then the area of it is :

(1)100 3 cm2 (2) 50 3 cm2

(3)160 3 cm2 (4) 100 cm2

**Q32.** If the measure of one side and one diagonal of a rhombus are 10 cm and 16 cm respectively, then its area (in cm2) is :

(1) 60 (2) 64 (3) 96 (4) 100

**Q33.** The perimeter of a rhombus is 100 cm. If one of its diagonals is 14 cm, then the area of the rhombus is

(1) 144 cm2 (2) 225 cm2

(3) 336 cm2 (4) 400 cm2

**Q34.** The area of a rhombus is 150 cm2. The length of one of its diagonals is 10 cm. The length of the other diagonal is :

(1) 25 cm (2) 30 cm (3) 35 cm (4) 40 cm

**Q35.** A parallelogram has sides 15 cm and 7 cm long. The length of one of the diagonals is 20 cm. The area of the parallelogram is

(1) 42 cm2 (2) 60 cm2 (3) 84 cm2 (4) 96 cm2

**Q36.** Sides of a parallelogram are in the ratio 5 : 4. Its area is 1000 sq. units. Altitude on the greater side is 20 units. Altitude on the smaller side is

(1) 30 units (2) 25 units

(3) 10 units (4) 15 units

**Q37.** The ratio of the length of the parallel sides of a trapezium is 3:2. The shortest distance between them is 15 cm. If the area of the trapezium is 450 cm2 , the sum of the length of the parallel sides is

(1) 15 cm (2) 36 cm (3) 42 cm (4) 60 cm

**Q38.** The area of a field in the shape of a trapezium measures 1440 m2. The perpendicular distance between its parallel sides is 24 m. If the ratio of the parallel sides is 5 : 3, the length of the longer parallel side is : (1) 75 m (2) 45 m (3) 120 m (4) 60 m

**Q39.** The area of a regular hexagon of side 2 3 cm is :

(1) 18 cm2 (2) 12 cm2

(3) 36 cm2 (4) 27 cm2

**Q40.** Each side of a regular hexagon is 1 cm. The area of the hexagon is

(1) cm2 (2) cm2

(3) 4 cm2 (4) 3 cm2

**Q41.** The ratio of the area of a regular hexagon and an equilateral triangle having same perimeter is

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

**Q42.** The area of a sector of a circle of radius 5 cm, formed by an arc of length 3.5 cm is :

(1) 8.5 cm2 (2) 8.75 cm2

(3) 7.75 cm2 (4) 7.50 cm2

**Q43.** The area (in sq. cm.) of the largest circle that can be drawn inside a square of side 28 cm, is :

(1) 17248 (2) 784 (3) 8624 (4) 616

**Q44.** If the circumference of a circle increases from 4p to 8p, what change occurs in its area? (1) It doubles (2) It triples

(3) It quadruples (4) It is halved

**Q45.** The area of the ring between two concentric circles, whose circumference are 88 cm and 132 cm, is :

(1) 780 cm2 (2) 770 cm2

(3) 715 cm2 (4) 660 cm2

**Q46.** Three circles of radius 3.5 cm each are placed in such a way that each touches the other two. The area of the portion enclosed by the circles is

(1) 1.975 cm2 (2) 1.967 cm2

(3) 19.67 cm2 (4) 21.21 cm2

Q47. Four equal circles each of radius ‘a’ units touch one another. The area enclosed between them (p = 22/7 ), in square units, is

(1) 3a2 (2)

(3) (4)

**Q48.** The area of circle whose radius is 6 cm is trisected by two concentric circles. The radius of the smallest circle is

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

**Q49.** The radius of circle A is twice that of circle B and the radius of circle B is twice that of circle C. Their area will be in the ratio

(1) 16 : 4 : 1 (2) 4 : 2 : 1

(3) 1 : 2 : 4 (4) 1 : 4 : 16

**Q50.** The radii of two circles are 10 cm and 24 cm. The radius of a circle whose area is the sum of the area of these two circles is

(1) 36 cm (2) 17 cm (3) 34 cm (4) 26 cm

**Q51.** A circle is inscribed in an equilateral triangle of side 8 cm. The area of the portion between the triangle and the circle is

(1) 11 cm2 (2) 10.95 cm2

(3) 10 cm2 (4) 10.50 cm2

Q52. If the area of a circle inscribed in a square is 9p cm2,then the area of the square is

(1) 24 cm2 (2) 30 cm2 (3) 36 cm2 (4) 81 cm2

Q53. The ratio of the areas of the circumcircle and the incircle of an equilateral triangle is

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

Q54. Length of the perpendiculars from a point in the interior of an equilateral triangle on its sides is 3 cm, 4 cm and 5 cm. Area of the triangle is

(1) 48 cm2 (2) 54 cm2

(3) 72 cm2 (4) 80 cm2

Q55. . A circle and a square have equal areas. The ratio of a side of the square and the radius of the circle is

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

**TYPE–II : (2-D : Perimeter) ..**

Q56. The perimeter of two squares are 24 cm and 32 cm. The perimeter (in cm) of a third square equal in area to the sum of the areas of these squares is :

(1) 45 (2) 40 (3) 32 (4) 48

Q53. The perimeter of two squares are 40 cm and 32 cm. The perimeter of a third square whose area is the difference of the area of the two squares is

(1) 24 cm (2) 42 cm (3) 40 cm (4) 20 cm

Q54. If the ratio of areas of two squares is 225 : 256, then the ratio of their perimeter is :

(1) 225 : 256 (2) 256 : 225

(3) 15 : 16 (4) 16 : 15

Q55. The length and breadth of a rectangular field are in the ratio of 3 : 2. If the perimeter of the field is 80m, its breadth (in metres) is :

(1) 18 (2) 16 (3) 10 (4) 24

Q56. The sides of a rectangular plot are in the ratio 5:4 and its area is equal to 500 sq.m. The perimeter of the plot is :

(1) 80m. (2) 100m. (3) 90m. (4) 95m

Q57. The area of a triangle is 216 cm2 and its sides are in the ratio 3 : 4 : 5. The perimeter of the triangle is :

(1) 6 cm (2) 12 cm (3) 36 cm (4) 72 cm

Q58. The area of a circle is 38.5 sq. cm. Its circumference (in cm) is

(1) 22 (2) 24 (3) 26 (4) 32

Q59. The diameter of a toy wheel is 14 cm. What is the distance travelled by it in 15 revolutions?

(1) 880 cm (2) 660 cm

(3) 600 cm (4) 560 cm

Q60. The radius of a circular wheel is 1.75 m. The number of revolutions that it will make in travelling 11 km., is

(1) 1000 (2) 10,000 (3) 100 (4) 10

Q61. If the difference between the circumference and diameter of a circle is 30 cm, then the radius of the circle must be

(1) 6 cm (2) 7 cm (3) 5 cm (4) 8 cm

Q62. The ratio of the radii of two wheels is 3 : 4. The ratio of their circumference is

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

Q63. The length (in cm) of a chord of a circle of radius 13 cm at a distance of 12 cm from its centre is

(1) 5 (2) 8 (3) 10 (4) 12

Q64. If the perimeter of a square and a rectangle are the same, then the area P and Q enclosed by them would satisfy the condition (1) P < Q (2) P < Q (3) P > Q (4) P = Q

Q65. If diagonals of a rhombus are 24 cm and 32 cm, then perimeter of that rhombus is

(1) 80 cm (2) 84 cm (3) 76 cm (4) 72 cm

**TYPE–III : (2-D : Percentage/Cost/ Quantity).**

Q66. Three sides of a triangular field are of length 15 m, 20 m and 25 m long respectively. Find the cost of sowing seeds in the field at the rate of 5 rupees per sq.m.

(1) 300 (2) 600 (3) 750 (4) 150

Q67. If each edge of a square be doubled, then the increase percentage in its area is

(1) 200% (2) 250% (3) 280% (4) 300%

Q68. If radius of a circle is increased by 5%, then the increase in its area is

(1) 10.25 % (2) 10 % (3) 5.75 % (4) 5 %

Q69. The percentage increase in the area of a rectangle, if each of its sides is increased by 20% is equal to

(1) 32% (2) 34% (3) 42% (4) 44%

Q70. If the radius of a circle is decreased by 10%, then the area of the circle is decreased by (1) 89% (2) 18% (3) 19% (4) 25%

Q71. The outer circumference of a circular race-track is 528 metre. The track is everywhere 14 metre wide. Cost of levelling the track at the rate of Rs. 10 per sq. metre is :

(1) Rs. 77660 (2) Rs. 66760

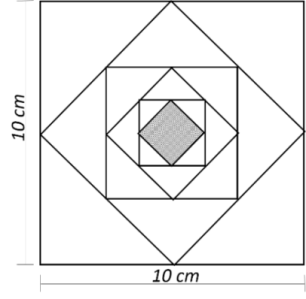
(3) Rs. 76760 (4) Rs. 67760

Q72. If the length and breadth of a rectangle are increased by 10% and 8% respectively, then the area of the rectangle increases by :

(1) 18 % (2) 18 %

(3) 18% (4) 18 %

Q73. In the figure shown above, each inside square is formed by joining the midpoints of the sides of the next larger square. The area of the smallest square (shaded) as shown, in cm2 is: **GATE-2021**



(1) 12.5 (2) 6.25 (3) 3.125 (4) 1.5625

**Q74.** The ratio of the area of the inscribed circle to the area of the circumscribed circle of an equilateral triangle is **GATE-2021**

(1) 1/8 (2) 1/6 (3) 1/4 (4) ½

**Q75.** Consider a square sheet of side 1 unit. The sheet is first folded along the main diagonal. This is followed by a fold along its line of symmetry. The resulting folded shape is again folded along its line of symmetry. The area of each face of the final folded shape, in square units, equal to

**GATE-2021**

(1) 1/4 (2) 1/8 (3) 1/16 (4) 1/32

**Q76.** The area of an equilateral triangle is . What is the perimeter of the triangle? **GATE-2018**

(A) 2 (B) 4 (C) 6 (D) 8

**Q77.** Arrange the following three-dimensional objects in the descending order of their volumes:

(i) A cuboid with dimensions 10 cm, 8 cm and 6 cm

(ii) A cube of side 8 cm

(iii) A cylinder with base radius 7cm and height 7cm

(iv) A sphere of radius 7 cm **GATE-2018**

(A) (i), (ii), (iii), (iv) (B) (ii),(i), (iv), (iii)

(C) (iii), (ii), (i), (iv) (D) (iv), (iii), (ii), (i)

**Q78.** A wire would enclose an area of 1936 m 2 , if it is bent into a square. The wire is cut into two pieces. The longer piece is thrice as long as the shorter piece. The long and the short pieces are bent into a square and a circle, respectively. Which of the following choices is closest to the sum of the areas enclosed by the two pieces in square meters? **GATE-2018**

(A) 1096 (B) 1111 (C)1243 (D) 2486

**Q79.** The perimeters of a circle, a square and an equilateral triangle are equal. Which one of the following statements is true? **GATE-2018**

(A)The circle has the largest area.

(B)The square has the largest area.

(C)The equilateral triangle has the largest area. (D)All the three shapes have the same area.

**Q80.** The area of a square is d, What is the area of the circle which has the diagonal of the square as its diameter? **GATE-2018**

(A) Πd (B) Π (C) (D)

**Q81.** A rectangle becomes a square when its length and breadth are reduced by 10m and 5m, respectively. During this process, the rectangle loses 650 m 2 of area. What is the area of the original rectangle in square meters? **GATE-2018**

(A) 1125 (B) 2250 (C)2924 (D) 4500

**REFERENCE BOOKS**

**R S AGGARWAL QUANTITATIVE APTITUDE**

**TATA Mc GRAW HILL QUANTITATIVE APTITUDE, NEW DELHI**

**GULATI OBJECTIVE ARITHMETICS**

**KIRAN PRAKASH QUANTITATIVE APTITUDE**

**FAST TRACK OBJECTIVE ARITHMETICS**

**Prepared By…..**

**G SURESH**

**MENSURATION**

**Definition**: Mensuration is a science of measurement ofthe lengths oflines, areas ofsurfaces and volumes of solids.

**Planes**: Planes are two dimensional i.e., these two dimensions are namely length and breadth. These occupy surface.

**Solids**: Solids are three dimensional, namely length, breadth and height. These occupy space.

**ÇONVERSION OF SOME IMPORTANT UNITS**

1 km = 10 hectometre = 100 decametre = 1000 metre

= 10,000 decimetre = centimetre = 10,00,000 millimetre

1 hectare = 10,000 square metre

1 are = 100 square metre

1 square hectometre = 100 square decametre

1 square decametre = 100 square metre

1 square metre = 100 square decimetre

1 square decimetre = 100 square centimetre

1 square centimetre = 100 square millimetre

=1.414, =1.732,=2.236.

Weight = (Volume x density)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Figure | Nomenclature | Area | Perimeter |
| Rectangle | |  | | --- | | b |   l | L= length  b= breadth | l = lb | 2l + 2b = 2(l+b) |
| Square |  | a = side  d =diagonal  d = a | a × a = a2 | a+a+a+a = 4a |
| Triangle  (Scalene) |  | a, b and c are three sides of triangle and s the semi perimeter, where  b is the base and h is the altitude of triangle | b×h | a+b+c = 2s |
| Equilateral  Triangle | **Equilateral triangle(from height)|Calculate triangle|Calculator Site** | a = Side  h = Altitude or Height  h = a | a×h  a2 | 3a |
| Isosceles  Triangle | Area of isosceles triangle - Formula with Examples - Teachoo | a= equal sides  b= base  h= Altitude or Height = | b×h | 2a + b |
| Right Angle Triangle | How to draw right Triangles shape in android xml - Stack Overflow | b= base  h= Altitude or Height.  d = Diagonal  = | b×h | b+h+d |
| Isosceles Right Angle  Triangle | Square of hypotenuse of an isosceles right triangle is 72 sq. m The Triangle  and its Properties-Maths-Class-7 | a = Equal sides  d = Diagonal  = a |  | 2a + d |
| Quadrilateral | Area of Quadrilateral - General Formula - with Examples - Teachoo | AC is the diagonal are altitudes on AC from the vertices D and B respectively. |  | AB+BC+CD+DA |
| Parallelogram | Area and Perimeter | a and b are sides adjacent to each other.  h = Distance between the parallel sides. | a × h | 2(a+b) |
| Rhombus | Math Labs with Activity - Derive a Formula for Finding the Area of a Rhombus  (Method 1) - A Plus Topper | a = each equal side of rhombus.  , are the diagonals. | × | 4a |
| Trapezium | Trapezoid - Wikipedia | a and b parallel side to each other h is the perpendicular distance between parallel sides. | (a+b)×h | AB+BC+CD+DA |
| Regular hexagon | Hexagon | Math Wiki | Fandom | a = each of the equal side | a2 | 6a |
| Regular Octagon |  | a = each of the equal side | 2a2(1+) | 8a |
| Circle |  | r = radius of the circle.  Π = = 3.1416 | Πr2 | 2πr =  circumference |
| Semicircle |  | r = radius of the circle. | Πr2 | πr+2r |
| Quadrant |  | r = Radius | Πr2 | πr+2r |
| Ring or circular path (shaded region) |  | R = outer Radius  r = inner Radius | Π(R2-r2) | Outer= 2πR  Inner= 2πr |
| Sector of a circle |  | O = centre of the circle  r = Radius  I = length of the arc  θ - Wiktionary= angle of the sector  l = 2πr() | Πr2() | r+2r |
| Segment of a circle |  | 0 = angle of the sector  R = radius  AB = chord  ACB = arc of the circle | Area of segment ÄCB  (minor segment)  =r2( - ) | 2r( +sin) |
| Pathways running across the middle of a rectangle |  | l = length  b = breadth  w = width ofthe path (road) |  | =2(l+b-2w) |

**RIGHT TRIANGLES AND THE PYTHAGOREAN TRIPLETS:**

As already shown by Euclid in his “Elements”, there are an infinite number of such right angle triangles whose sides have all integer values. They are referred to as triangle integer triplets and designated by [a,b,c]. The first few of these triplets where a<b

[3,4,5],[5,12,13],[7,24,25],[8,15,17],[9,40,41],[11,60,61],[12,35,37],[13,84,85],[14,48,50] [15,112,113],[16,63,65],[17,144,145],[18,80,82],[19,180,181],[20,99,101],[20,21,29],..

One notices at once that some of the triplets are just an earlier triplet multiplied by an integer and thus form similar triangles. Thus [6,8,10], [9,12,15],[12,16,20] are all similar to the [3,4,5] base triplet for the group. Likewise [5,12,13] is the base triplet for the group [10,24,26],[15,36,39], etc.

**MENSURATION-3D**

**CUBOID;**

**Q1**. litre is equal to

(*a*) 1 cu. Cm (*b*) 10 cu. cm

(*c*) 100 cu. cm (*d*) 1000 cu. Cm

**Q2.** A rectangular water tank is 8 m high, 6 m long and 2.5 m wide. How many litres of water can it hold?

(*a*) 120 litres (*b*) 1200 litres

(*c*) 12000 litres (*d*) 120000 litres

**Q3.** The dimensions of a cuboid are 7cm, 11 cm and 13cm. The total surface area is

(*a*) 311 cm2 (*b*) 622 cm2

(*c*) 1001 cm2 (*d*) 2002 cm2

**Q4.** The dimensions of a room are 15 m, 10 m and 8m. The volume of a bag is 2.25 m3. The maximum number of bags that can be a accommodated in the room is

(*a*) 531 (*b*) 533

(*c*) 535 (*d*) 550

**Q5.** A rectangular water reservoir contains 42000 litres of water. If the length of reservoir is 6 m and breadth of the reservoir is 3.5 m, then the depth of the reservoir will be

(*a*) 2 m (*b*) 5 m (*c*) 6 m (*d*) 8 m

**Q6.** A cistern 6 m long and 4 m wide contains water up to a depth of 1 m 25 cm. The total area of the wet surface is

(*a*) 49 m2 (*b*) 50 m2

(*c*) 53.5 m2 (*d*) 55 m2

**Q7.** A boat having a length 3 m and breadth 2 m is floating on a lake. The boat sinks by 1 cm when a man gets on it. The mass of man is

(*a*) 12 kg (*b*) 60 kg

(*c*) 72 kg (*d*) 96 kg

**Q8.** Half cubic metre of gold sheet is extended by hammering so as to cover an area of 1 hectare. The thickness of the sheet is

(*a*) 0.0005 cm (*b*) 0.005 cm

(*c*) 0.05 cm (*d*) 0.5 cm

**Q9.** In a shower, 5 cm of rain falls. The volume of water that falls on 1.5 hectares of ground is :

(*a*) 75 cu. m (*b*) 750 cu. m

(*c*) 7500 cu. m (*d*) 75000 cu. M

**Q10.** The breadth of a room is twice its height and half its length. The volume of the room is 512 cu. m. The length of the room is

(*a*) 16 m (*b*) 18 m

(*c*) 20 m (*d*) 32 m

**Q11.** The length of the longest rod that can be placed in a room of dimensions 10 m × 10 m × 5 m is

(*a*) 15 (*b*) 15

(*c*) 10 (*d*) 5

**Q12.** How many bricks, each measuring 25 cm × 11.25cm × 6 cm, will be needed to build a wall 8 m× 6m × 22.5 cm?

(*a*) 5600 (*b*) 6000

(*c*) 6400 (*d*) 7200

**Q13.** The number of bricks, each measuring 25 cm × 12.5cm × 7.5 cm, required to construct a wall 6 m long, 5 m high and 0.5 m thick, while the mortar occupies 5% of the volume of the wall, is

(*a*) 3040 (*b*) 5740

(*c*) 6080 (*d*) 8120

**Q14.** 50 men took a dip in a water tank 40 m long and 20 m broad on a religious day. If the average displacement of water by a man is 4 m3, then therise in the water level in the tank will be

(*a*) 20 cm (*b*) 25 cm

(*c*) 35 cm (*d*) 50 cm

**Q15.** swimming bath is 24 m long and 15 m broad. When a number of men dive into the bath, the height of the water rises by 1 cm. If the average amount of water displaced by one of the men be 0.1 cu. m, how many men are there in the bath?

(*a*) 32 (*b*) 36 (*c*) 42 (*d*) 46

Q16. Each side of a cube measures 8 metres. What is the volume of the cube?

(*a*) 72 cu. m (*b*) 144 cu. m

(*c*) 196 cu. m (*d*) None of these

**Q17.** If the volume of a cube is 729 cm3, then the surface area of the cube will be

(*a*) 456 cm2 (*b*) 466 cm2

(*c*) 476 cm2 (*d*) 486 cm2

**Q18.** The cost of painting the whole surface area of a cube at the rate of 13 paise per sq. cm is ` 343.98. Then the volume of the cube is :

(*a*) 8500 cm3 (*b*) 9000 cm3

(*c*) 9250 cm3 (*d*) 9261 cm3

**Q19.** The length of an edge of a hollow cube open at one face is 3 metres. What is the length of the largest pole that it can accommodate?

(*a*) 3 m (*b*) 3 m

(*c*) 3 m (*d*) m

**Q20.** If the surface area of a cube is 13254 cm2, then the length of its diagonal is

(*a*) 44 cm (*b*) 45 cm

(*c*) 46 cm (*d*) 47 cm

**Q21.** *V*1, *V*2, *V*3 and *V*4 are the volumes of four cubes of side lengths *x* cm, 2*x* cm, 3*x* cm and 4*x* cm respectively. Some statements regarding these volumes are given below

(1) *V*1 + *V*2 + 2*V*3 < *V*4

(2) *V*1 + 4*V*2 + *V*3 < *V*4

(*3*) 2(*V*1 + *V*3) + *V*2 = *V*4

Which of these statements are correct?

(*a*) 1 and 2 (*b*) 2 and 3

(*c*) 1 and 3 (*d*) 1, 2 and 3

**Q22.** The volume of a cube is numerically equal to the sum of its edges. What is its total surface area in square units?

(*a*) 36 (*b*) 66 (*c*) 72 (*d*) 183

**Q23.** A cube of length 1 cm is taken out from a cube of length 8 cm. What is the weight of the remaining portion?

(*a*) 7/8 of the weight of the original cube

(*b*) 8/9 of the weight of the original cube

(*c*) 63/64 of the weight of the original cube

(*d*) 511/512 of the weight of the original cube

**Q24.** How many cubes of 10 cm edge can be put in a cubical box of 1 m edge?

(*a*) 10 (*b*) 100

(*c*) 1000 (*d*) 10000

**Q25.** A 4 cm cube is cut into 1 cm cubes. The total surface area of all the small cubes is

(*a*) 24 cm2 (*b*) 96 cm2

(*c*) 384 cm2 (*d*) None of these

**Q26.** A rectangular box measures internally 1.6 m long, 1 m broad and 60 cm deep. The number of cubical blocks each of edge 20 cm that can be packed inside the box is

(*a*) 30 (*b*) 53

(*c*) 60 (*d*) 120

**CUBE**

**Q27.** How many cubes of 3 cm edge can be cut out of a cube of 18 cm edge?

(*a*) 36 (*b*) 216 (*c*) 218 (*d*) 432

**Q28.** A cuboidal block of 6 cm × 9 cm × 12 cm is cut up into an exact number of equal cubes. The least

possible number of cubes will be**779**

(*a*) 6 (*b*) 9 (*c*) 24 (*d*) 30

**Q29.** The size of a wooden block is 5 × 10 × 20 cm. How many such blocks will be required to construct a solid wooden cube of minimum size?

(*a*) 6 (*b*) 8 (*c*) 12 (*d*) 16

Q30. Five equal cubes, each of side 5 cm, are placed adjacent to each other. The volume of the new solid formed will be

(*a*) 125 cm3 (*b*) 625 cm3

(*c*) 15525 cm3 (*d*) None of these

**Q31.** If the volumes of two cubes are in the ratio 27 : 1, the ratio of their edges is

(*a*) 1 : 3 (*b*) 1 : 27

(*c*) 3 : 1 (*d*) 27 : 1

**Q32.** The volumes of two cubes are in the ratio 8 : 27. The ratio of their surface areas is

(*a*) 2 : 3 (*b*) 4 : 9

(*c*) 12 : 9 (*d*) None of these

**Q33.** Two cubes have volumes in the ratio 1 : 27. Then the ratio of the area of the face of one of the cubes to that of the other is

(*a*) 1 : 3 (*b*) 1 : 6 (*c*) 1 : 9 (*d*) 1 : 12

**Q34.** If each edge of a cube is doubled, then its volume:

(*a*) is doubled (*b*) becomes 4 times

(*c*) becomes 6 times (*d*) becomes 8 times

**Q35.** By what percent the volume of a cube increases if the length of each edge was increased by 50%?

(*a*) 50% (*b*) 125%

(*c*) 237.5% (*d*) 273.5%

**Q36.** If each edge of a cube is increased by 25%, then the percentage increase in its surface area is :

(*a*) 25% (*b*) 48.75%

(*c*) 50% (*d*) 56.25%

Q37. cube of edge 20 cm is completely immersed in a rectangular vessel containing water. If the dimensions of the base of the vessel are 20 cm by 40 cm, the rise in water level will be

(*a*) 2 cm (*b*) 8 cm

(*c*) 10 cm (*d*) 14 cm

**CYLINDER**

**Q38.** A circular well with a diameter of 2 metres, is dug to a depth of 14 metres. What is the volume of the earth dug out?

(*a*) 32 m3 (*b*) 36 m3

(*c*) 40 m3 (*d*) 44 m3

**Q39.** Find the cost of a cylinder of radius 14 m and height 3.5 m when the cost of its metal is ` 50 per cubic metre.

(*a*) Rs.100208 (*b*) Rs.107800

(*c*) Rs.10800 (*d*) Rs.109800

**Q40.** If the radius and height of a right circular cylinder are 21 cm and 35 cm respectively, then the total surface area of the cylinder is

(*a*) 7092 sq cm (*b*) 7192 sq cm

(*c*) 7292 sq cm (*d*) 7392 sq cm

**Q41.** The volume of a right circular cylinder, 14 cm in height is equal to that of a cube whose edge is 11cm. The radius of the base of the cylinder is

(*a*) 5.2 cm (*b*) 5.5 cm

(*c*) 11 cm (*d*) 22 cm

**Q42.** Capacity of a cylindrical vessel is 25.872 litres. If the height of the cylinder is three times the radius of its base, what is the area of the base?

(*a*) 336 cm2 (*b*) 616 cm2 (*c*) 1232 cm2

(*d*) Cannot be determined

(*e*) None of these

**Q43.** Two rectangular sheets of paper, each 30 cm × 18cm are made into two right circular cylinders, one by rolling the paper along its length and the other

along the breadth. The ratio of the volumes of the

two cylinders, thus formed, is

(*a*) 2 : 1 (*b*) 3 : 2

(*c*) 4 : 3 (*d*) 5 : 3

**Q44.** A well has to be dug out that is to be 22.5 m deep and of diameter 7m. Find the cost of plastering the inner curved surface at ` 3 per sq. meter.

(*a*) Rs.1465 (*b*) Rs.1475

(*c*) Rs.1485 (*d*) Rs.1495

**Q45.** The ratio of total surface area to lateral surface area of a cylinder whose radius is 20 cm and height 60cm, is

(*a*) 2 : 1 (*b*) 3 : 2

(*c*) 4 : 3 (*d*) 5 : 3

**Q46.** The diameter of the base of a cylindrical drum is 35dm and the height is 24 dm. It is full of kerosene. How many tins each of size 25 cm × 22 cm × 35 cm can be filled with kerosene from the drum?

(*a*) 120 (*b*) 600

(*c*) 1020 (*d*) 1200

**Q47.** If the radius of the base of a right circular cylinder is halved, keeping the height same, what is the ratio of the volume of the reduced cylinder to that of the original one?

(*a*) 1 : 2 (*b*) 1 : 4

(*c*) 1 : 8 (*d*) 8 : 1

**Q48.** The radii of the bases of two cylinders are in the ratio 3 : 4 and their heights are in the ratio 4 : 3. The ratio of their volumes is

(*a*) 2 : 3 (*b*) 3 : 2

(*c*) 3 : 4 (*d*) 4 : 3

**Q49.** If the height of a cylinder is increased by 15 percent and the radius of its base is decreased by 10 percent then by what percent will its curved surface area change?

(*a*) 3.5 percent decrease

(*b*) 3.5 percent increase

(*c*) 5 percent decrease

(*d*) 5 percent increase

**Q50.** If the radius of a cylinder is decreased by 50% and the height is increased by 50% to form a new cylinder, the volume will be decreased by

(*a*) 0% (*b*) 25%

(*c*) 62.5% (*d*) 75%

**Q51.** Diameter of a jar cylindrical in shape is increased by 25%. By what percent must the height be decreased so that there is no change in its volume?

(*a*) 10 (*b*) 25

(*c*) 36 (*d*) 50

**Q52.** Water flows out through a circular pipe whose internal diameter is 2 cm, at the rate of 6 metres per second into a cylindrical tank, the radius of whose base is 60 cm. By how much will the level of water rise in 30 minutes?

(*a*) 2 m (*b*) 3 m (*c*) 4 m (*d*) 5 m

**CONE**

**Q53.** 66 cubic centimetres of silver is drawn into a wire 1 mm in diameter. The length of the wire in metres will be

(*a*) 84 (*b*) 90 (*c*) 168 (*d*) 336

**Q54.** Find the slant height of the cone whose height is 4.8 cm and the diameter of base is 4 cm.

(*a*) 4.2 cm (*b*) 5.2 cm

(*c*) 6.2 cm (*d*) 7.2 cm

**Q55.** The curved surface of a right circular cone of height 84 cm and base diameter 70 cm is

(*a*) 1001 cm2 (*b*) 9900 cm2

(*c*) 10001 cm2 (*d*) 10010 cm2

**Q56.** What is the total surface area of a right circular cone of height 14 cm and base radius 7 cm?

(*a*) 344.35 cm2 (*b*) 462 cm2

*c*) 498.35 cm2 (*d*) None of these

**Q57.** A right triangle with sides 3 cm, 4 cm and 5 cm is rotated about the side of 3 cm to form a cone. The volume of the cone so formed is

(*a*) 12π cm3 (*b*) 15π cm3

(*c*) 16π cm3 (*d*) 20π cm3

**Q58.** The slant height of a conical mountain is 2.5 km and the area of its base is 1.54 km2. The height of the mountain is

(*a*) 2.2 km (*b*) 2.4 km

(*c*) 3 km (*d*) 3.11 km

**Q59.** A vertical cone of volume *V* with vertex downwards is filled with water upto half of its height. The volume of the water is

(*a*) V/2 (*b*) V/4

(*c*) V/8 (*d*) V/16

**Q60.** The length of canvas 1.1 m wide required to build a conical tent of height 14 m and the floor area 346.5 sq. m is

(*a*) 490 m (*b*) 525 m

(*c*) 665 m (*d*) 860 m

**Q61.** If the height of a cone is doubled and its base diameter is trebled, then the ratio of the volume of the resultant cone to that of the original cone is

(*a*) 6 : 1 (*b*) 9 : 1

(*c*) 9 : 2 (*d*) 18 : 1

**Q62.** If both the radius and height of a right circular cone are increased by 20%, its volume will be increased by

(*a*) 20% (*b*) 40%

(*c*) 60% (*d*) 72.8%

**Q63.** If the height of a right circular cone is increased by 200% and the radius of the base is reduced by 50%, then the volume of the cone

(*a*) remains unaltered (*b*) decreases by 25%

(*c*) increases by 25% (*d*) increases by 50%

**Q64.** The radii of two cones are in the ratio 2 : 1, their volumes are equal. Find the ratio of their heights.

(*a*) 1 : 8 (*b*) 1 : 4

(*c*) 2 : 1 (*d*) 4 : 1

**Q65.** Find the volume of the largest right circular cone that can be cut out from a cube whose edge is 9 cm.

(*a*) 170.93 cm3 (*b*) 180.93 cm3

(*c*) 190.93 cm3 (*d*) 200.93 cm3

**Q66.** A cone of height 7 cm and base radius 3 cm is carved from a rectangular block of wood 10 cm × 5 cm × 2 cm. The percentage of wood wasted is

(*a*) 34% (*b*) 46%

(*c*) 54% (*d*) 66%

**Q67.** Water flows at the rate of 10 metres per minute from a cylindrical pipe 5 mm in diameter. How long will it take to fill up a conical vessel whose diameter at the base is 40 cm and depth 24 cm?

(*a*) 48 min. 15 sec. (*b*) 51 min. 12 sec.

(*c*) 52 min. 1 sec. (*d*) 55 min.

A sphere, cylinder and cone of dimensions radius = *r* cm and height = 2*r* cm are made. Which one has the greatest volume?

(*a*) Cone (*b*) Sphere

(*c*) Cylinder (*d*) All have equal volume

**SPHERE**

**Q68.** The volume of a sphere is 4851 cu. cm. Its curved surface area is

(*a*) 1386 cm2 (*b*) 1625 cm2

(*c*) 1716 cm2 (*d*) 3087 cm2

**Q69.** The volume of a sphere of radius *r* is obtained by multiplying its surface area by

(*a*) 4/3 (*b*) r/3

(*c*) 4r/3 (*d*) 3r

**Q70.** For a sphere of radius 10 cm, what percent of the numerical value of its volume would be the numerical value of the surface area?

(*a*) 24% (*b*) 26.5%

(*c*) 30% (*d*) 45%

**Q71.** If the radii of two spheres are in the ratio 1 : 4, then their surface areas are in the ratio

(*a*) 1 : 2 (*b*) 1 : 4

(*c*) 1 : 8 (*d*) 1 : 16

**Q72.** The radii of two spheres are in the ratio 3 : 2. Their volumes will be in the ratio

(*a*) 9 : 4 (*b*) 8 : 27

(*c*) 27 : 8 (*d*) 3 : 2

**Q73.** If the radius of a sphere is doubled, how many times does its volume become?

(*a*) 2 times (*b*) 4 times

(*c*) 6 times (*d*) 8 times

**Q74.** The volumes of two spheres are in the ratio of 64 : 27. The ratio of their surface areas is

(*a*) 1 : 2 (*b*) 2 : 3

(*c*) 9 : 16 (*d*) 16 : 9

**Q75.** If the volume and surface area of a sphere are numerically the same, then its radius is

(*a*) 1 unit (*b*) 2 units

(*c*) 3 units (*d*) 4 units

**Q76.** If three metallic spheres of radii 6 cms, 8 cms and 10 cms are melted to form a single sphere, the diameter of the new sphere will be

(*a*) 12 cms (*b*) 24 cms

(*c*) 30 cms *d*) 36 cms

**Q77.** If a solid sphere of radius 10 cm is moulded into 8 spherical solid balls of equal radius, then the surface area of each ball is

(*a*) 50p cm2 (*b*) 60p cm2

(*c*) 75p cm2 (*d*) 100p cm2

**Q78.** How many bullets can be made out of a cube of lead whose edge measures 22 cm, each bullet being 2 cm in diameter?

(*a*) 1347 (*b*) 2541

(*c*) 2662 (*d*) 5324

**Q79.** How many lead shots each 3 mm in diameter can be made from a cuboid of dimensions 9 cm × 11 cm

× 12 cm?

(*a*) 7200 (*b*) 8400

(*c*) 72000 (*d*) 84000

**Q80.** A metallic sphere of radius 5 cm is melted to make a cone with base of the same radius. What is the height of the cone?

(*a*) 5 cm (*b*) 10 cm

(*c*) 15 cm (*d*) 20 cm

**HEMI SPHERE**

**Q81.** Volume of a hemisphere is 19404 cu. cm. Its radius is

(*a*) 10.5 cm (*b*) 17.5 cm

(*c*) 21 cm (*d*) 42 cm

**Q82.** The external and internal diameters of a hemispherical bowl are 10 cm and 8 cm respectively. What is the total surface area of the bowl?

(*a*) 257.7 cm2 (*b*) 286 cm2

(*c*) 292 cm2 (*d*) 302 cm2

**Q83.** A hemispherical bowl of internal radius 12 cm contains liquid. This liquid is to be filled into

cylindrical container of diameter 4 cm and height 3 cm. The number of containers that is necessary to empty the bowl is

(*a*) 80 (*b*) 96 (*c*) 100 (*d*) 112

**Q84.** A hemispherical bowl is filled to the brim with a beverage. The contents of the bowl are transferred into a cylindrical vessel whose radius is 50% more than its height. If the diameter is same for both the bowl and the cylinder, the volume of the beverage in the cylindrical vessel is

(*a*) 66 (*b*) 78% (*c*) 100%

(*d*) More than 100% (*i.e.*, some liquid will be left in the bowl)

**Q85.** Sphere of maximum volume is cut out from a solid hemisphere of radius *r*. The ratio of the volume of the hemisphere to that of the cut out sphere is :

(*a*) 3 : 2 (*b*) 4 : 1

(*c*) 4 : 3 (*d*) 7 : 4

**Q86.** Hemispherical bowl is made of steel 0.5 cm thick. The inside radius of the bowl is 4 cm. The volume of steel used in making the bowl is

(*a*) 55.83 cm3 (*b*) 56.83 cm3

(*c*) 57.83 cm3 (*d*) 58.83 cm3

**Q87.** The external and internal diameters of a hemispherical bowl are 10 cm and 8 cm respectively. What is the total surface area of the bowl?

(*a*) 257.7 cm2 (*b*) 286 cm2

(*c*) 292 cm2 (*d*) 302 cm2

**Q88.** Metallic hemisphere is melted and recast in the shape of a cone with the same base radius (*R*) as that of the hemisphere. If H is the height of the cone, then

(*a*) *H* = 2*R* (*b*) *H* = 3*R*

(*c*) *H* = 3*R* (*d*) H = R

**PYRAMID**

**Q89.** What is the volume in cubic cm of a pyramid whose area of the base is 25 sq cm and height 9 cm?

(*a*) 60 (*b*) 75 (*c*) 90 (*d*) 105

**Q90.** If a regular square pyramid has a base of side 8 cm and height 30 cm, its volume is

(*a*) 120 cc (*b*) 240 cc

(*c*) 640 cc (*d*) 900 cc

**Q91.** The base of a pyramid is an equilateral triangle of side 1 m. If the height of the pyramid is 4 metres, then the volume is

(*a*) 0.550 m3 (*b*) 0.577 m3

(*c*) 0.678 m3 (*d*) 0.750 m3

**Q92.** A right pyramid is on a regular hexagonal base. Each side of the base is 10 m and the height is 60m. The volume of the pyramid is

(*a*) 5000 m3 (*b*) 5100 m3

(*c*) 5195 m3 (*d*) 5196 m3

**PRISM**

**Q93.** The base of a right prism is an equilateral triangle. If the lateral surface area and volume is 120 cm2 , 40 3 cm3 respectively then the side of base of the prism is

(1) 4 cm (2) 5 cm (3) 7 cm (4) 40 cm

**Q1.** Q.6 We have 2 rectangular sheets of paper, M and N, of dimensions 6 cm x 1 cm each. Sheet M is rolled to form an open cylinder by bringing the short edges of the sheet together. Sheet N is cut into equal square patches and assembled to form the largest possible closed cube. Assuming the ends of the cylinder are closed, the ratio of the volume of the cylinder to that of the cube is **GATE-2021**

(A) 𝜋/2 (B) 3/ 𝜋/ (C) 9/𝜋 (D) 3𝜋

**Q2.** The radius as well as the height of a circular cone increases by 10%. The percentage increase in its volume is?

**GATE-2019**

(*a*) 17.1 (*b*) 21.0 (*c*) 33.1 (*d*) 72.8

**Q3.** A remaining wall with measurements 30m 12m 6m was constructed with bricks of dimensions 8cm 6cm 6cm. if 60% of the wall consists of bricks the number of bricks used for the construction is …………lakhs.

(*a*) 30 (*b*) 40 (*c*) 45 (*d*) 75

**Q4.** Arrange the following three-dimensional objects in the descending order of their volumes:

(i) A cuboid with dimensions 10 cm, 8 cm and 6 cm

(ii) A cube of side 8 cm

(iii) A cylinder with base radius 7cm and height 7cm

(iv) A sphere of radius 7 cm **GATE-2018**

(A) (i), (ii), (iii), (iv) (B) (ii),(i), (iv), (iii)

(C) (iii), (ii), (i), (iv) (D) (iv), (iii), (ii), (i)

**Q5.** If the radius of a right circular cone is increased by 50%, Its volume increased by

**GATE-2018**

(*a*) 75% (*b*) 100% (*c*) 125% (*d*) 237.5%

**Q6.** A square pyramid has a base perimeter *x*, and the slant height is half of the perimeter. What is the lateral surface area of the pyramid?

**GATE-2017**

(A) *x*2 (B) 0.75 *x*2 (C) 0.50 *x*2 (D) 0.25 *x*2

**Q7.** A cube is built using 64 cubic blocks of side one unit. After it is built, one cubic block is removed from every corner of the cube. The resulting surface area of the body (in square units) after the removal is \_\_\_\_\_\_\_\_\_\_.

**GATE-2016**

(A) 56 (B) 64 (C) 72 (D) 96

Q8.

**MIXTURE AND ALLEGATION**

**1) If the average weight of a class is 15kg and the average weight of another class is 30kg then Find the ratio of the students of the first class to another class student when the average weight of both the classes is 25kg.**

**2). The average weight of girls 15 and the average weight of boys is 30 and the average weight of boys and girls both is 25kg. If the number of boys are 12, then the number of girls is:**

**Q3) The ration of number of girls to number of boys is 1:2. If the average weight of the boys is 30kg and the average weight of both the boys and girls be 25kg, then the average weight of girls is:**

**Q4)The average weight of a class of 40 students is 30kg and the average weight of a class of 20 students is 15kg. Find the average weight of both the classes combined.**

**Q5) In an alloy 80% is copper and the remaining Hn. Inanotheralloy, copper is 85% and tin is 12% in what ratio should the two alloys be mixed so that the new mixture must have 15% tin. Also find the percentage of copper in the new mixture.**

**Q6)An alloy contains 90% copper and 10% tin, in another alloy copper is 93% and 4% is tin. In what ratio should both alloys be mixed so that the newly formed alloy contains 9% Hn and also find the % of copper in this:**

**Q7) Two varieties of milk with different pieces is mixed in the ration 2:3 the price of 1st type of milk is 10/- per litre while the price of 2nd type of milk is 15rs/litre. The average price of the mixture:**

**Q8) 5kg of superior quality of rice is mixed with 25kg of inferior quality rice. The price of superior quality & inferior quality rice is Rs 18 & Rs 12 respectively. The average price per kg of the mixture is:**

**Q9)Bhuvnesh travels 30 minutes at the speed of 25km/Hr further the travels 20 minutes at the speed of 40km/Hr. find this average speed.**

**Q10)Bhuvnesh covered 150km distance in 10 hours. The 1st part of this journey he covered by car, then he mixed a rickshaw. The speed of car & rickshaw is 20km/Hr and 12km/Hr respectively. The ratio of distance covered by car and the rickshaw respectively are:**

**Q11)A milkman has two types of milk in the 1st container the % of milk is 80% and in the 2nd container the percentage of milk is 60%. If he mixes 28 litres of the milk of first container to the 32 litre of milk of the 2nd container, then the % of milk in the mixture is:**

**Q12)A sum of 41/- was divided 50 students. If each boy get 90paise & each girl get 65paise. Find the number of boys.**

**Q13)A sum of Rs 36.90 is made up of 90 coins that are either 20paise coins or 50paise coins. Find out how many 20paise coins are there in the total amount.**

**Q14)Rs 69 were divided among 115 students so that each girl gets 50paise less than a boy. Thus each boy received twice the paise as each girl received. The number of girls in the class is:**

**Q15)A student get +3 marks for each right answer and -0.5 mark for each wrong answer in an exam consists of 250 questions. If the student gets 477 marks in the exam, find the number of wrong questions attempted by student.**

**Q16)In the centre of a square room of side 10 metre, there is a square carpet and the rest of the floor is covered with cloth. If the cost of covering the full floor is 1338.50 Rs and the price of carpet and cloth is 15 Rs/m2 and 6.60 Rs/m2 respectively. Find the width of the cloth border.**

**Q17)In a Delhi zoo, there are deers& ducks. If the heads are counted there are 180 while the legs are 448. What will be the number of deers in the zoo?**

**Q18) In a MCD parking there are some two wheelers & rest are four wheelers. If wheels are counted, there are total 520 wheels but the incharge of the parking told me that there are only 175 vehicles. If no vehicle has a Stepney then the number of two vehicles is:**

**Q19)In my pocket there are Rs 25 consisting of only the denominators of 20paise & 50paise. Thus there are total 80 coins in my pocket. The number of coins of the denomination of 50paise is:**

**Q20) Rakesh Yadav reader publication sold the 30% books at the profit of 50% and 70% books at the profit of 10%. The average profit percent of the publication shop is, if it sells only these two kinds of books.**

**Q21)A bus agency has 108 buses. He sold some buses at 9% p and rest at 36% profit. Thus he gains 17% on the sale of all his buses. The number of buses sold at 36% p is:**

**Q22)A man purchases a pen & book for Rs.1300. He sold the pen at a profit of 20% and the book at a profit of 25% in this way, his total profit was 23%. Find the CP of book.**

**Q23)How many kg of sugar worth Rs 3.60 per kg should be mixed with 8 kg of sugar worth Rs 4.20 per kg, such that by selling the mixture at Rs.4.40 per kg. there may be a gain of 10%**

**Q24)A shopkeeper purchased two qualities of pulses at the rate of 200 Rs per quintal and Rs 260 per quintal. In 52 quintals of the 2nd quality, how much pulse of the 1st quality should be mixed so that by selling the resulting mixture at Rs 300 per quintal, he gains a profit of 25%**

**Q25)A man purchased 5 horses and 10 cows of Rs 10,000. He sells the horse at 15%p and cow at 10% loss. Find the cost of each horse if he earns a profit of 375**

**Q26)20 pens and 16 pencils are purchased by a man for Rs 360. He said the pens at 25%p and pencils at 7/5 of its cost price. Find the price of each pencil, if he earns profit of Rs 120 at the end:**

**Q27)A man purchased two chairs in Rs 900, he sells the 1st chair at 4/5 of its cost price while the 2nd chair is sold at 5/4 of its cost price. If during the whole transaction he earns a profit of 90/-, find the cost price of cheaper chair.**

**Q28)A mixture of sugar is sold at Rs 3.00 per kg. This mix is formed by mixing the sugar of Rs 2.10 per kg and Rs.2.52per kg. What is the ratio of cheaper to the costlier quality in the mixture if profit of 25% is earned?**

**Q29) Rakesh Yadav sells two types of books viz national books and international books. He sells national books at Rs 18 per book and incurs at loss of 10% whereas on selling the international books at Rs 30 per book, he gains 20% in what proportion should the national books and international books be mixes such that he can gain a profit of 25% by selling the combined books at 27.5 Rs per book.**

**Q30)A milkman has 20 litres of milk. If the mixes 5 litres of water, which is freely available in 20 litres of pure milk. If the cost of pure milk is Rs 18 per litre, then the profit of the milkman when he sells all the mixture at cost price is:**

**Q31)In what ratio should water and soda be mixed that after selling the mixture at the cost price at profit of 33.33% is made?**

**Q32)A milkman sells the milk at cost price but he mixes the water in it and thus he gains 9.09%. The quantity of water in the mixture of 1L is:**

**Q33)A dishonest grocer professes to sell pure milk at CP, but he mixes it with adulterated fat and therebygains 25%. Find the percentage of adulterated fat in the mixture assuming that adulterated fat is freely available**

**Q34) The price of petrol is Rs60 per litre and the price of oil is RS40 per litre. M what ratio the petrol and oil be mixed such that the profit after selling the mixture at Rs75 per litre be 25%**

**Q35)Two vessels contain milk & water. In 1st vessel milk is 90% and in 2nd vessel milk is 40%. In what ratio should be mix both these vessels to obtain a new mixture which contain 70% milk.**

**Q36)Two vessels contain milk and water in the ratio 9:1 and 2:3. In what ratio should both vessel is mixed which contain milk and water in the ratio 7:3.**

**Q37)The ratio of water and wine in two dist. Containers is 2:3 and 4:5. In what ratio we are required to mix the mixture of two containers in order to get the new mixture in which the ratio of wine and water be 7:5.**

**Q38)Two vessels contain spirit and water respectively in the ration 1:3 and 3:5. Find the ratio in which they are to be mixed to get a new mixture in which the ratio of spirit to water is 1:2**

**Q39)Two vessels contain a mixture of milk and water. In the 1st vessel the ratio of milk to water is 8:3 and in 2nd vessel the ratio is 5:1. A 35 L cask is filled from the vessels so as to contain a mixture of milk and water in the ratio of 4:1. How many litres are taken from the 1st vessel?**

**Q40) Rakesh Yadav purchased two dist. kinds of alcohol in the first mixture the ratio of alcohol to water is 3:4 and in the 2nd mixture it is 5:6. If he mixes the two given mixture and makes a third mixture of 18 litre in which the ratio of alcohol to water us 4:5. The quantity of first mixture is required to make the 18 litres of the 3rd kind of the mixture is.**

**Q41) A mixture of water & milk contains 80% milk. In 50 litres of such a mixture, how many litres of water is required to increase the percent of water to 50%?**

**Q42)In 25L mix of milk and water, water is only 20%. How many litres of water is required to increase the percent of water to 90%?**

**Q43)A mix of 125 gallons of wine and water contains 20% wine. How much wine must be added to mix in order to increase the percent of wine to 25% of the new mixture?**

**Q44)A mix of 20 litres of milk and water contains 10% water. How much water should be added to it to increase the percent of water to 25%**

**Q45) In the 75 litres of mix of soda and water, ratio of soda and water is 4:2. The quantity of water required to make the ratio of soda and water 3:1 is:**

**Q46)The quantity of mix of milk and water is 70 litres. This mix contains 10% water. How many litres of water should be mixed in the mixture to make 25% water in the mixture?**

**Q47)In 50L of water & milk mixture, water is 20%. The milk man gives 10L of this mix to a customer and then he adds up 10L of pure water in the remaining mix. The percent of water in the final mix is**

**Q48)The directed alcohol contains 8 litres of alcohol and the rest is water. A new mixture is which concentration of alcohol is 30% is to be formed by replacing directed alcohol. How many litres of mixture shall be replaced with pure alcohol If there was initially 32 litres of water in the mixture.**

**Q49)In a mix of milk & water, there is only 26% water. After replacing the mixture with 7 litres of pure milk, the percent of milk in the mixture becomes 76%. The quantity of mixture is?**

**Q50) The ratio of oil & kerosene in the container is 3:2 when 10 litres of mixture is taken out and replaced by kerosene, the ratio becomes 2:3. The total quantity of the mixture in the container is?**

**Q51)A bar tender stole beer from a bottle that contained 50% of spirit and he replaced what he fixed stolen with beer having 20% spirit. The bottle then contained only 25% spirit. How much of the bottle did he steal?**

**Q52)A butler stole wine from shop containing 50% spirit, then the replanished it by diff wine containing 20% spirit. Thus there was only 30% spirit in the new mixture. How much of the original wine did he steal?**

**Q53) In wine 40% alcohol and rest is water. 50ml quantity of wine taken out is replaced with same quantity of another wine containing 25% alcohol. Now the bottle contains 30% alcohol. Find what part of wine was taken out from bottle?**

**Q54) In a wine 32% spirit, some quantity taken out and replaced with another type that contains 18% spirit. Now the spirit in the bottle is 28%. Find what part of the wine is taken out?**

**Q55) A vessel is full of 80 litres milk, 8 litres taken out and replaced by water. Again 8 litres taken out and replaced by water. Find the amount of milk in the final mixture so formed?**

**Q56) 25 litres cylinder contains mixture of oxygen and nitrogen. In which oxygen is 36% of the mixture. Some litres of the mixture is taken out and replaced by nitrogen and this process is repeated one more time. At the end oxygen remained 9% of the mixture, find the quantity of mixture taken out at a time?**

**Q57) From the 50 litres of pure milk, 5 litres of milk is taken out and 5litres water is added. This process is repeated 3 times, the amount of milk left after the 3rd replacement?**

**Q58) From a 200 litres tank of petrol, the seller replaces each time with kerosene when he sells 40 litres of petrol (or its mixture) every time he sells out only 40 litres of petrol (pure or impure). After replacing the petrol with kerosene 4th time the total amount of kerosene in the mix is?**

**Q59)A jar is full of milk. A person draws out 20% of the milk from the jar and replaced it with sugar solution. He has repeated the same process 4 times and thus there was only 512 gm of milk left in the jar, the rest part of the jar was filled with sugar solution. The initial amount of the milk in the jar was?**

**Q60) A vessel is full of milk 63 litres. If 9 litres of milk is taken out and replaced by same amount of water and further 7 litres mixture is taken out and replaced by same amount of water, then find at the end of 2nd process the amount of water in the mixture?**

**Q61)A vessel is full of milk 15 litres of milk is taken out and replaced by water this process is repeated once more. Find the initial amount of milk in the vessel if at the end the ratio of the milk & water becomes 16:9?**

**Q62)From a container of beer, a thief has stolen 15 litres of beer and replaced it with same quantity of water. He again repeated the same process. Thus in three attempts the ratio of beer and water became 343:169. The initial amount of beer in the container was?**

**Q63)Some amount out of Rs.6000 was lent out at 10% per annum and the rest amount at 20% per annum and thus in 4 years the total interest from both the amounts collected was Rs3400. What is the amount which was lent out 10% per annum?**

**Q64) Two vessels contain a mixture of milk and water in ratio 1:2 and 2:3 if both vessel is mixed in the ratio 1:1 then find the ratio of milk and water in new mixture?**

**NUMBER SYSTEM**

**TYPE–I : Questions based on Smallest and Largest fraction etc...**

**Q1.** Which of the following fraction is the smallest?

7/6, 7/9, 4/5, 5/7

(1) 7/6 (2) 7/9 (3) 4/5 (4) 5/7

**Q2.** The smallest number of five digits exactly divisible by 476 is

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

**Q3.** The least number of five digits which has 123 as a factor is

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

**Q4.** The greatest among the following numbers , , 1, is :

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

**Q5.** When 335 is added to 5A7, the result is 8B2. 8B2 is divisible by 3. What is the largest possible value of A ?

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

**Q6.** Which of the following is correct ?

(1) 2/3 < 3/5 < 11/15 (2) 3/5 < 2/3 < 11/15

(3) 11/15 < 3/5 < 2/3 (4) 3/5 < 11/15 < 2/3

**TYPE–II : Questions based on Division Multiplication, Addition and Subtraction .....**

**Q7.** A number when divided by 899 gives a remainder 63. If the same number is divided by 29, the remainder will be :

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

**Q8.** A six digit number is formed by repeating a three digit number; for example, 256, 256 or 678, 678 etc. Any number of this form is always exactly divisible by :

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

**Q9.** The smallest number to be added to 1000, so that 45 divides the sum exactly, is :

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

**Q10.** The divisor is 25 times the quotient and 5 times the remainder. If the quotient is 16, the dividend is :

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

**Q11.** When a number is divided by 56, the remainder obtained is 29. What will be the remainder when the number is divided by 8 ? (1) 4 (2) 5 (3) 3 (4) 7

**Q12.** In a division problem, the divisor is 4 times the quotient and 3 times the remainder. If remainder is 4, the dividend is

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

**Q13.** How many natural numbers divisible by 7 are there between 3 and 200 ?

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

**Q14.** (719 + 2) is divided by 6, the remainder is : (1) 5 (2) 3 (3) 2 (4) 1

**Q15.** The remainder when 321 is divided by 5 is (1) 1 (2) 2 (3) 3 (4) 4

**Q16.** 96 – 11 when divided by 8 would leave a remainder of :

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

**Q17.**  If 17200 is divided by 18, the remainder is—

(1) 17 (2) 16 (3) 1 (4) 2

**Q18.** A number when divided by 6 leaves remainder 3. When the square of the same number is divided by 6, the remainder is :

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

**Q19.** The expression 26n – 42n, where n is a natural number is always divisible by

(1) 15 (2) 18 (3) 36 (4) 48

**Q20.** (461 + 462 + 463) is divisible by

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

**Q21.** How many numbers between 400 and 800 are divisible by 4, 5 and 6 ?

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

**Q22.** (271 + 272 + 273 + 274) is divisible by

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

**Q23.** (325 + 326 + 327 + 328) is divisible by

(1) 11 (2) 16 (3) 25 (4) 30

**Q24.** If a and b are two odd positive integers, by which of the following integers is (a 4 – b 4 ) always divisible ?

(1) 3 (2) 6 (3) 8 (4) 12

**Q25.** If m and n are positive integers and (m – n ) is an even number, then (m2 – n 2 ) will be always divisible by

(1) 4 (2) 6 (3) 8 (4) 12

**DIVIGIBILITY :**

**Q26.** If 5432\*7 is divisible by 9, then the digit in place of \* is :

(1) 0 (2) 1 (3) 6 (4) 9

**Q27.** The least number, which must be added to 6709 to make it exactly divisible by 9, is

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

**Q28.** If \* is a digit such that 5824\* is divisible by 11, then \* equals :

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

**Q29.** If the number 4 8 3 2 7 \* 8 is divisible by 11, then the missing digit (\*) is

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

**Q30.** What least value must be assigned to ‘\*’ so that the number 63576\*2 is divisible by 8 ? (1) 1 (2) 2 (3) 3 (4) 4

**Q31.** Which of the following numbers is completely divisible by 99?

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

**Q32.** A number 476\*\*0 is divisible by both 3 and 11. The non-zero digits in the hundred's and ten's place respectively are

(a) 7, 4 (b) 5, 3 (c) 5, 2 (d) None of these

**Q33.** If x and y are two digits of the number 653xy such that the number is divisible by 80, then x + y is equal to

(a) 3 (b) 4 (c) 5 (d) 6

**Q34.** The number 334 × 545 × 7p is dividible by 3340 if p is at least.

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

**Q35.** The least number to be added to 13851 to get a number which is divisible by 87 is :

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

**TYPE–III : Questions based on the Fraction of numbers ........**

**Q36.** One-fourth of a tank holds 135 litres of water. What part of the tank is full if it contains 180 litres of water?

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

**Q37.** If one-third of one-fourth of a number is 15, then three-tenth of the number is

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

**Q38.** Express 45 minutes as the fraction of one day.

(1) 1 40 (2) 1/32 (3) 1/60 (4) 1/24

**Q39.** A man read 2/5 th of a book on the first day. He read 1/3 rd more on second day than he read on the first day. 15 pages were left for the third day. The number of pages in the book is (1) 100 (2) 105 (3) 225 (4) 250

**Q40.** The value of is

(1) 5/39 (2) 4/39 (3) 2/39 (4) 7/39

**Q41.** The value of is

(1) 1/10 (2) 3/5 (3) 3/20 (4) 7/20

**Q42.** The denominator of a fraction is 3 more than its numerator. If the numerator is increased by 7 and the denominator is decreased by 2, we obtain 2. The sum of numerator and denominator of the fraction is (1) 5 (2) 13 (3) 17 (4) 19

**Q42.** A, B, C and D purchase a gift worth 60. A pays 1 2 of what others are paying, B pays 1 3 of what others are paying and C pays 1 4 of what others are paying. What is the amount paid by D ?

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

**Q43.** 2. If 1 2 is added to a number and the sum is multiplied by 3, the result is 21. Then the number is :

(1) 6.5 (2) 5.5 (3) 4.5 (4) – 6.5

**Q44.** A mason can build a wall in 70 hours. After 7 hours he takes a break. What fraction of the wall is yet to be built?

(1) 0.9 (2) 0.8 (3) 0.5 (4) 0.75

**TYPE–IV : Questions based on finding the ascending & descending order of numbers etc. ......**

**Q45.** Arrange 4/5, 7/8, 6/7, 5/6 in the ascending order :

(1) 4/5, 7/8, 6/7, 5/6 (2) 5/6, 6/7, 7/8, 4/5

(3) 4/5, 5/6, 6/7, 7/8 (4) 7/8, 6/7, 5/6, 4/5

**Q46.** Arrange the following fractions in decreasing order: 3/5, 7/9, 11/13

(1) 3/5, 7/9, 11/13 (2) 7/9, 3/5, 11/13

(3) 11/13, 7/9, 3/5 (4) 11/13, 3/5, 7/9

**Q47.** The fractions 1/3, 4/7 and 2/5 written in ascending order given by:

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

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

**Q48.** Six numbers are arranged in decreasing order. The average of the first five numbers is 30 and the average of the last five numbers is 25. The difference of the first and the last numbers is :

(1) 20 (2) 25 (3) 5 (4) 30

**Q49.** The sum of three consecutive integers is 51. The middle one is :

(1) 14 (2) 15 (3) 16 (4) 17

**Q50.** Divide 50 into two parts so that the sum of their reciprocals is 1/12 .

(1) 35, 15 (2) 20, 30

(3) 24, 36 (4) 28, 22

**TYPE–V : Questions based on finding the unit place of a number …..**

Q51. . The digit in unit’s place of the product 81 × 82 × 83 × ... × 89 is

(1) 0 (2) 2 (3) 6 (4) 8

Q52. The digit in unit’s place of the product (2153)167 is :

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

Q53. The digit in the unit’s place of the product (2464)1793 (615)317 (131)491 is

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

Q54. Unit digit in (264)102 + (264)103 is :

(1) 0 (2) 4 (3) 6 (4) 8

Q55. The digit in the unit’s place of [(251)98 + (21)29 – (106)100 + (705)35 – 164 + 259 is :

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

Q56. The last digit of 340 is

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

Q57. The last digit of (1001)2008 + 1002 is

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

Q58. In a two–digit number, the digit at the unit’s place is 1 less than twice the digit at the ten’s place. If the digits at unit’s and ten’s place are interchanged, the difference between the new and the original number is less than the original number by 20. The original number is (1) 59 (2) 23 (3) 35 (4) 47

Q59. two digit number we get a number which is four times the original number minus 24. If the unit’s digit of the original number exceeds its ten’s digit by 7, then original number is

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

Q60. There is a number consisting of two digits, the digit in the units’ place is twice that in the tens’ place and if 2 be subtracted from the sum of the digits, the difference is equal to 1/6 th of the number. The number is

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

**TYPE–VI : Questions based on the sum of Consecutive numbers (Odd, even, etc.) .......**

Q61. The sum of three consecutive odd natural numbers is 147. Then, the middle number is : (1) 47 (2) 48 (3) 49 (4) 51

Q62. The sum of first 20 odd natural numbers is equal to :

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

Q63. The sum of all natural numbers from 75 to 97 is :

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

Q64. The sum of all natural numbers between 100 and 200, which are multiples of 3 is :

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

Q65. The sum of first 50 odd natural numbers is (1)1000 (2)1250 (3)5200 (4)2500

Q66. The sum of all the 3-digit numbers is (1)98901 (2)494550 (3)8991 (4)899

Q67. The sum of all the 3-digit numbers, each of which on division by 5 leaves remainder 3, is (1)180 (2)1550 (3)6995 (4)99090

Q68. Out of six consecutive natural numbers, if the sum of first three is 27, what is the sum of the other three ?

(1) 36 (2) 35 (3) 25 (4) 24

Q69. The sum of three consecutive natural numbers divisible by 3 is 45. The smallest number is :

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

Q70. If the sum of five consecutive integers is S, then the largest of those integers in terms of’S is

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

**PREVIOUS GATE QUESTIONS**

|  |  |
| --- | --- |
| **Q.4** | **Which one of the following numbers is exactly divisible by** (1113 + 1)**?** |
| (A) | 1126 + 1 |
| (B) | 1133 + 1 |
| (C) | 1139 + 1 |
| (D) | 1152 + 1 |
| **GATE-2021** | |

Q1.

Q2. The sum of two positive numbers is 100. After subtracting 5 from each number, the product of the resulting numbers is 0. One of the original numbers is **GATE-2020**

(1) 80 (2) 85 (3) 90 (4) 95

Q3. The unit’s place in (26591749)110016 is

**GATE-2020**

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

Q4.

**PARTNERSHIP**

**I. Partnership:** When two or more than two persons run a business jointly, they are called partners and the deal is known as partnership.

**II. Ratio of Division of Gains:**

***(i)* Simple Partnership:** *A simple partnership is the one in which the capitals of all the partners are invested for the same time.*

In this partnership, the gain or loss is distributed among the partners in the ratio of their investments.

Suppose A and B invest ` *x* and ` *y* respectively for a year in a business, then at the end of the year:

(A’s share of profit) : (B’s share of profit) = *x* : *y*.

***(ii)* Compound Partnership:** *A compound partnership is the one in which the capitals of the partners are invested for different time periods.*

In this partnership, the equivalent capitals are calculated for a unit of time by taking (capital × number

of units of time). Now, gain or loss is divided in the ratio of these capitals.

Suppose A invests ` *x* for *p* months and B invests ` *y* for *q* months, then

(A’s share of profit) : (B’s share of profit) = *xp* : *yq*.

**III. Working and Sleeping Partners:** *A partner who manages the business is known as a working partner and the one who simply invests the money is a sleeping partner.*

**1Q.** Rahul, Arun and Sumit started a business. Rahul invested 1/2 part, Arun 1/3 part and rest of the capital was invested by Sumit. The ratio of their profits will be

(*a*) 2 : 3 : 1 (*b*) 3 : 2 : 1

(*c*) 2 : 3 : 6 (*d*) 3 : 2 : 5

**2Q.** P and Q started a business investing Rs.85000 and Rs.15000 respectively. In what ratio the profit earned after 2 years be divided between P and Q respectively?

(*a*) 3 : 4 (*b*) 3 : 5

(*c*) 15 : 23 (*d*) 17 : 23

**3Q.** Anand and Deepak started a business investing Rs.22500 and Rs.35000 respectively. Out of a total profit of Rs.13800, Deepak’s share is

(*a*) Rs.5400 (*b*) Rs.7200

(*c*) Rs.8400 (*d*) Rs.9600

**4Q.** P, Q and R invested Rs.45000, Rs.70000 and Rs.90000 respectively to start a business. At the end of 2 years, they earned a profit of ` 164000. What will be Q’s share in the profit?

(*a*) Rs.36000 (*b*) Rs.56000

(*c*) Rs.64000 (*d*) Rs.72000

**Q5.** Two friends invested ` 1500 and ` 2500 in a business. They earned a profit of ` 800. One-half of the profit was divided equally between them and the other half was divided in proportion to their capitals. How much did each of them receive?

(*a*) Rs.350 and Rs.450 (*b*) Rs.360 and Rs.440

(*c*) Rs.370 and Rs.430 (*d*) Rs.375 and Rs.425

**Q6.** Reena and Shaloo are partners in a business. Reena invests Rs.35000 for 8 months and Shaloo invests Rs.42000 for 10 months. Out of a profit of Rs.31570 Reena’s share is :

(*a*) Rs.9471 (*b*) Rs.12,628

(*c*) Rs.18,040 (*d*) Rs.18942

**Q7.** Shankar started a business with an investment of Rs.120,000. After three months, Aniket joined him with an investment of Rs.190,000. They earned a profit of Rs.17,50,000 after one year. What is Aniket’s share in the profit?

(*a*) Rs.800000 (*b*) Rs.850000

(*c*) Rs.900000 (*d*) Rs.950000

**Q8.** Gautam started a business with a sum of Rs.60000. Jatin joined him 8 months later with a sum of Rs.35000. At what respective ratio will the two share the profit after two years?

(*a*) 2 : 1 (*b*) 3 : 1

(*c*) 18 : 7 (*d*) 37 : 14

**Q9.** Dilip, Ram and Avtar started a shop by investing Rs.2700, Rs.8100 and Rs.7200 respectively. At the end of one year, the profit earned was distributed. If Ram’s share was Rs.3600, what was their total profit?

(*a*) Rs.8000 (*b*) Rs.10800

(*c*) Rs.11600 (*d*) Data inadequate

**Q10.** A and B started a business in partnership investing Rs.20000 and Rs.15000 respectively. After six months, C joined them with Rs.20000. What will be B’s share in the total profit of ` 25000 earned at the end of 2 years from the starting of the business?

(*a*) Rs.7500 (*b*) Rs.9000

(*c*) Rs.9500 (*d*) Rs.10000

**Q11.** Aman started a business investing Rs.70000. Rakhi joined him after six months with an amount of Rs.105000 and Sagar joined them with Rs.1.4 lakhs after another six months. The amount of profit earned should be distributed in what ratio among Aman, Rakhi and Sagar respectively, 3 years after Aman

started the business?

(*a*) 7 : 6 : 10 (*b*) 12 : 15 : 16

(*c*) 42 : 45 : 56 (*d*) Cannot be determined

**Q13.** A, B and C enter into a partnership. A initially invests Rs.25 lakhs and adds another Rs.10 lakhs after one year. B initially invests Rs.35 lakhs and withdraws Rs.10 lakhs after 2 years and C invests Rs.30 lakhs. In what ratio should the profits be divided at the end of 3 years?

(*a*) 10 : 10 : 9 (*b*) 20 : 20 : 19

(*c*) 20 : 19 : 18 (*d*) None of these

**Q14**. A, B and C enter into a partnership. They invest Rs.40000, Rs.80000 and Rs.120000 respectively. At the end of the first year, B withdraws Rs.40,000, while at the end of the second year, C withdraws Rs.80000. In what ratio will the profit be shared at the end of 3 years?

(*a*) 2 : 3 : 5 (*b*) 3 : 4 : 7

(*c*) 4 : 5 : 9 (*d*) None of these

**Q13.** Subhash starts a business by investing Rs.25000. 6 months later Aditya joins him by investing Rs.15000. After another 6 months Aditya invests an additional amount of Rs.15000. At the end of 3 years they earn a profit of Rs.247000. What is Aditya’s share in the profit?

(*a*) Rs.105000 (*b*) Rs.111500

(*c*) Rs.123000 (*d*) Rs.130000

**Q14.** Three partners A, B, C start a business. Twice A’s capital is equal to thrice B’s capital and B’s capital is four times C’s capital. Out of a total profit of Rs.16500 at the end of the year, B’s share is :

(*a*) Rs.4000 (*b*) Rs.6000

(*c*) Rs.7500 (*d*) Rs.6600

**Q15.** If 4 (A’s capital) = 6 (B’s capital) = 10 (C’s capital), then out of a profit of Rs.4650, C will receive

(*a*) Rs.465 (*b*) Rs.900

(*c*) Rs.1550 (*d*) Rs.2250

**Q16.** A and B enter into a partnership with Rs.50000 and Rs.60000 respectively. C joins them after *x* months, contributing Rs.70000 and B leaves *x* months before the end of the year. If they share the profit in the ratio of 20 : 18 : 21, then the value of *x* is

(*a*) 3 (*b*) 6 (*c*) 8 (*d*) 9

**REFERENCE BOOKS**

**R S AGGARWAL QUANTITATIVE APTITUDE**

**TATA Mc GRAW HILL QUANTITATIVE APTITUDE, NEW DELHI**

**GULATI OBJECTIVE ARITHMETICS**

**KIRAN PRAKASH QUANTITATIVE APTITUDE**

**FAST TRACK OBJECTIVE ARITHMETICS**

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**PERCENTAGE**

**TYPE-1:** **Questions based on the basic concept of percentage:**

**Q1**. If x is 80% of y, what percent of y is x ?

(1) 75% (2) 80% (3) 100% (4) 125%

**Q2.** 2 is what percent of 50?

(1) 2 (2) 2.5 (3) 4 (4) 5

**Q3.** . 2/3 is what percent of 1/3 ?

(1) 50% (2) 33 % (3) 150% (4) 200%

**Q4.** If 15% of (A + B) = 25% of (A – B), then what per cent of B is equal to A?

(1) 10% (2) 60% (3) 200% (4) 400%

**Q5.** In a school 40% of the students play football and 50% play cricket. If 18% of the students neither play football nor cricket, the percentage of the students playing both is :

(1) 40% (2) 32% (3) 22% (4) 8%

**Q6.** If 20% of (P + Q) = 50% of (P –Q), then find P : Q

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

**Q7.** If 30% of A is added to 40% of B, the answer is 80% of B. What percentage of A is B?

(1) 30% (2) 40% (3) 70% (4) 75%

**Q8.** The population of a village is 25,000. One fifth are females and the rest are males. 5% of males and 40% of females are uneducated. What percentage on the whole is educated?

(1) 75% (2) 88% (3) 55% (4) 85%

**Q9.** In a college, 40% of the students were allotted group A, 75% of the remaining were given group B and the remaining 12 students were given group C. Then the number of students who applied for the group is

(1) 100 (2) 60 (3) 80 (4) 92

**Q10.** When 60 is subtracted from 60% of a number, the result is 60. The number is :

(1) 120 (2) 150 (3) 180 (4) 200

**Q11.** When 75 is added to 75% of a number, the answer is the number. Find 40% of that number.

(1) 100 (2) 80 (3) 120 (4) 160

**Q12.** A student multiplied a number by 3/5 instead of 5/3 . What is the percentage error in the calculation ?

(1) 44% (2) 34% (3) 54% (4) 64%

**Q13.** The number of students in a class is increased by 20% and the number now becomes 66. Initially the number was

(1) 45 (2) 50 (3) 55 (4) 60

**TYPE-2: If ‘x’ is less/more than ‘y’ by ‘m%’ then ‘y’ exceed/less:**

**Q14.** If x is 10% more than y, then by what per cent is y less than x ?

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

**Q15.** If A’s height is 10% more than B’s height, by how much per cent less is B’s height than that of A ?

(1) 10% (2) 10 % (3) 10 % (4) 9 %

**Q16.** B got 20% marks less than A. What per cent marks did A got more than B ?

(1) 20% (2) 25% (3) 12% (4) 80%

**Q17.** A’s income is 25% more than B’s income. B’s income is what per cent of A’s income?

(1) 80 (2) 75 (3) 50 (4) 25

**Q18.** The percentage change in a number when it is first decreased by 10% and then increased by 10% is

(1) 0.1 % increase (2) 1 % decrease

(3) 0.1 % decrease (4) No changes

**Q19.** x is 5 times longer than y. The percentage by which y is less than x is :

(1) 50% (2) 40% (3) 80% (4) 70%

**Q20.** . If a number x is 10% less than another number y and y is 10% more than 125, then x is equal to :

(1) 150 (2) 143 (3) 140.55 (4) 123.75

**TYPE-3: Questions based on Income, expenditure, Salary and Wages ….**

**Q21.** A person who spends 66 % of his income is able to save 1,200 per month. His monthly expenses (in ) is :

(1) 1,200 (2) 2,400 (3) 3,000 (4) 3,200

**Q22.** A person gave 20% of his income to his elder son, 30% of the remaining to the younger son and 10% of the balance, he donated to a trust. He is left with 10080. His income was :

(1) 50000 (2) 40000 (3) 30000 (4) 2000

**Q23.** Radha spends 40% of her salary on food, 20% on house rent, 10% on entertainment and 10% on conveyance. If her savings at the end of a month are 1500, then her salary per month (in ) is

(1) 8000 (2) 7500 (3) 6000 (4) 10000

**Q24.** A man spends 12 % of his salary on items of daily use and 30% of the remainder on house rent. After that he is left with 2940. How much is his salary?

(1) 4800 (2) 5200 (3) 4500 (4) 4000

**Q25**. A worker suffers a 20% cut in his wages. He may regain his original wages by obtaining a rise of

(1) 27.5% (2) 25.0% (3) 22.5% (4) 20.0%

**Q26.** A saves 20% of his monthly salary. If his monthly expenditure is 6,000, then his monthly savings is

(1) 1,500 (2) 1,800 (3) 1,200 (4) 4,800

**Q27.** Kishan spends 30% of his salary on food and donates 3% in a Charitable Trust. He spends 2,310 on these two items, then total salary for that month is

(1) 6,000 (2) 8,000 (3) 9,000 (4) 7,000

**Q28.** A clerk received an annual salary of 3,660 in the year 1975. This was 20% more than his salary in 1974. What was his salary in 1974 ?

(1) 3,005 (2) 3,000 (3) 3,500 (4) 3,050

**Q29.** A man spends 75% of his income. His income increases by 20% and his expenditure also increases by 10%. Find the percentage increase in his savings.

(1) 25% (2) 50% (3) 15% (4) 10%

**Q30.** The average monthly salary of all the employees in a factory is Rs. 8840. If the average salary of all the officers is Rs. 15000 and that of the remaining employees is Rs. 8000, then what is the percentage of the officers among the employees?

(1) 10% (2) 12% (3) 8 % (4) 11%

**TYPE–IV : Questions based on Ratio**

**Q31.** The ratio of the number of boys to that of girls in a school is 4 : 1. If 75% of boys and 70% of the girls are scholarship-holders, then the percentage of students who do not get scholarship is

(1) 50% (2) 28% (3) 75% (4) 26%

**Q32.** If A exceeds B by 40%, B is less than C by 20%, then A : C is :

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

**Q33.** The ratio of the number of boys and girls in a college is 3 : 2. If 20% of boys and 25% of girls are adults, the percentage of those students who are not adults, is

(1) 58% (2) 67.5% (3) 78% (4) 82.5%

**Q34.** The ratio of the number of boys and girls in a school is 3 : 2. If 20% of the boys and 30% of the girls are scholarship holders, then the percentage of students, who do not get scholarship, is

(1) 50% (2) 72% (3) 75% (4) 76%

**Q35.** The expenses on rice, fish and oil of a family are in the ratio 12 : 17 : 3. The prices of these articles are increased by 20%, 30% and 50% respectively. The total expenses of family on these articles are increased by

(1) 14 % (2) 7 % (3) 56% (4) 28%

**Q36.** The difference of two numbers is 15% of their sum. The ratio of the larger number to the smaller number is

(1) 23 : 17 (2) 11 : 9 (3) 17 : 11 (4) 23 : 11

**Q37.** The ratio of two numbers is 4:5 when the first is increased by 20% and the second is decreased by 20%, the ratio of the resulting numbers is

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

**TYPE–V : Questions based on Allegation & Mixture .......**

**Q38.** 1 litre of water is added to 5 litres of alcohol-water solution containing 40% alcohol strength. The strength of alcohol in the new solution will be

(1) 30% (2) 33% (3) 33 % (4) 33 %

**Q39.** 75 gm of sugar solution has 30% sugar in it. Then the quantity of sugar that should be added to the solution to make the quantity of the sugar 70% in the solution, is

(1) 125 gm (2) 100 gm (3) 120 gm (4) 130 gm

**Q40.** A litre of pure alcohol is added to 6 litres of 30% alcohol solution. The percentage of water in the solution is

(1) 50% (2) 65% (3) 60% (4) 40%

**Q41.** 15 litres of a mixture contains alcohol and water in the ratio 1 : 4. If 3 litres of Water is mixed in it, the percentage of alcohol in the new mixture will be

(1) 15% (2) 16 % (3) 17% (4) 18 %

**Q42.** 300 grams of sugar solution has 40% of sugar in it. How much sugar should be added to make it 50% in the solution?

(1) 40 gram (2) 10 gram

(3) 60 gram (4) 80 gram

**Q43.** A sugar solution of 3 litre contain 60% sugar. One liter of water is added to this solution. Then the percentage of sugar in the new solution is:

(1) 30 (2) 45 (3) 50 (4) 60

**TYPE–VI : Questions based on consumption and expenditure ...**

**Q44.** Price of sugar rises by 20%. By how much percent should the consumption of sugar be reduced so that the expenditure does not change?

(1) 20% (2) 10% (3) 16 % (4) 15%

**Q45.** In the new budget, the price of kerosene oil rose by 25%. By how much per cent must a person reduce his consumption of kerosene oil so that his expenditure on it does not increase ? (1) 20% (2) 25% (3) 50% (4) 40%

**Q46.** . If the price of a commodity is decreased by 20% and its consumption is increased by 20%, what will be the increase or decrease in the expenditure on the commodity ?

(1) 4% increase (2) 4% decrease

(3) 8% decrease (4) 8% increase

**Q47.** The price of a commodity rises from 6 per kg to 7.50 per kg. If the expenditure cannot increase, the percentage of reduction in consumption is

(1) 15% (2) 20% (3) 25% (4) 30%

**Q48**. Price of a commodity has increased by 60%. By what per cent must a consumer reduce the consumption of the commodity so as not to increase the expenditure ?

(1) 37% (2) 37.5% (3) 40.5% (4) 60%

**TYPE–VII : Questions based on examination and marks obtained ....**

**Q49.** In an examination, there were 1000 boys and 800 girls. 60% of the boys and 50% of the girls passed. Find the percent of the candidates failed ?

(1) 46.4% (2) 48.4% (3) 44.4% (4) 49.6%

**Q50.** In an examination, a student who gets 20% of the maximum marks fails by 5 marks. Another student who scores 30% of the maximum marks gets 20 marks more than the pass marks. The necessary percentage required for passing is :

(1) 32% (2) 23% (3) 22% (4) 20%

**Q51.** In an examination a candidate must secure 40% marks to pass. A candidate, who gets 220 marks, fails by 20 marks. What are the maximum marks for the examination?

(1) 1200 (2) 800 (3) 600 (4) 450

**Q52.** A student has to obtain 33% of total marks to pass. He got 25% of total marks and failed by 40 marks. The number of total marks is

(1) 800 (2) 300 (3) 500 (4) 1000

**Q53.** In an examination, 65% of the students passed in Mathematics, 48% passed in Physics and 30% passed in both. How much per cent of students failed in both the subjects ?

(1) 17% (2) 43% (3) 13% (4) 47%

**Q54.** In an examination 80% of the boys passed in English and 85% passed in Mathematics, while 75% passed in both. If 45 boys failed in both, the number of boys who sat for the examination was

(1) 400 (2) 450 (3) 200 (4) 150

**Q55.** In an examination 70% of the candidates passed in English. 80% passed in Mathematics. 10% failed in both the subjects. If 144 candidates passed in both, the total number of candidates were :

(1) 125 (2) 200 (3) 240 (4) 375

**Q56.** A class has two sections, which contain 20 and 30 students. The pass percentage of these sections are 80% and 60% respectively. The pass percentage of whole class is

(1) 60 (2) 68 (3) 70 (4) 78

Q57. Three sets of 40, 50 and 60 students appeared for an examination and the pass percentage was 100, 90 and 80 respectively. The pass percentage of the whole set is

(1) 88 % (2) 84% (3) 88% (4) 84%

**Q58.** Two students appeared for an examination. One of them secured 9 marks more than the other and his marks were 56% of the sum of their marks. The marks obtained by them are

(1) 40 and 31 (2) 72 and 63

(3) 42 and 33 (4) 68 and 59

**Q59.** An engineering student has to secure 25% marks to pass. He gets 47 and fails by 43 marks. What are the maximum marks of the examination ?

(1) 385 marks (2) 410 marks

(3) 360 marks (4) 435 marks

**Q60.** An examiner has to secure 40% marks to pass an examination. He secures 180 marks and fails by an equal number of marks. The total number of marks in the examination is

(1) 900 (2) 1000 (3) 1050 (4) 800

**TYPE–VIII : Questions based on tricks Net increase or Decrease %**

**Q61.** Salary of a person is first increased by 20%, then it is decreased by 20%. Percentage change in his salary is :

(1) 4% decreased (2) 4% increased

(3) 8% decreased (4) 20% increased

**Q62.** A number is increased by 20% and then it is decreased by 10%. Find the net increase or decrease per cent.

(1) 10% increase (2) 10% decrease

(3) 8% increase (4) 8% decrease

Q63. A number is increased by 10% and then it is decreased by 10%. The net change in the number is

(1) no increase or decrease (2) 2% decrease

(3) 1% increase (4) 1% decrease

**Q64.** If price of a book is first decreased by 25% and then increased by 20%, the net change in the price of the book will be

(1) 10% decrease (2) 5% decrease

(3) no change (4) 5% increase

**Q65.** The length of a rectangle is increased by 10% and breadth decreased by 10% Then the area of the new rectangle is

(1) neither decreased nor increased

(2) increased by 1%

(3) decreased by 1%

(4) decreased by 10%

**Q66.** The price of an article was first increased by 10% and then again by 20%. If the last increased price be 33, the original price was

(1) 30 (2) 27.50 (3) 26.50 (4) 25

**Q67.** The numerator of a fraction is increased by 20% and denominator is decreased by 20%. The value of the fraction becomes 4/5 . The original fraction is

(1) 2/3 (2) 8/15 (3) 7/11 (4) 4/5

**Q68.** If the numerator of a fraction is increased by 20% and the denominator is decreased by 5%, the value of the new fraction becomes 5 2 . The original fraction is

(1) 24/19 (2) 3/18 (3) 95/48 (4) 48/95

**Q69.** The strength of a school increases and decreases in every alternate year by 10%. It started with increase in 2000. Then the strength of the school in 2003 as compared to that in 2000 was

(1) increased by 8.9% (2) decreased by 8.9%

(3) increased by 9.8% (4) decreased by 9.8%

**Q70.** A number increased by 22% gives 98. The number is

(1) 45 (2) 18 (3) 80 (4) 81

**TYPE–IX : Questions based on Voters in an Election ......**

**Q71.** Two candidates contested in an election. One got 60% of the votes and won by 1600 votes. What is the number of votes polled ?

(1) 9000 (2) 8000 (3) 10000 (4) 7500

Q72. In an election, three candidates contested. The first candidate got 40% votes and the second got 36% votes. If total number of votes polled were 36000, find the number of votes got by the 3rd candidate.

(1) 8040 (2) 8640 (3) 9360 (4) 9640

**Q73.** 8% of the voters in an election did not cast their votes. In this election, there were only two candidates. The winner by obtaining 48% of the total votes defeated his contestant by 1100 votes. The total number of voters in the election was :

(1) 21000 (2) 23500 (3) 22000 (4) 27500

**Q74.** Two persons contested an election of Parliament. The winning candidate secured 57% of the total votes polled and won by a majority of 42,000 votes. The number of total votes polled is

(1) 5,00,000 (2) 6,00,000

(3) 3,00,000 (4) 4,00,000

**Q75.** In a college election a candidate secured 62% of the votes and is elected by a margin of 144 votes. The total number of votes polled is :

(1) 925 (2) 600 (3) 1200 (4) 800

**TYPE–X : Questions based on Depreciation & Population increase**

**Q76.** The present population of a city is 180000. If it increases at the rate of 10% per annum, its population after 2 years will be :

(1) 207800 (2) 227800 (3) 217800 (4) 237800

**Q77.** The value of an equipment depreciates by 20% each year. How much less will the value of the equipment be after 3 years ?

(1) 48.8% (2) 51.2% (3) 54% (4) 60%

**Q78.** The population of a town 2 years ago was 62,500. Due to migration to big cities, it decreases every year at the rate of 4%. The present population of the town is:

(1) 57,600 (2) 56,700 (3) 76,000 (4) 75,000

**Q79.** The value of a machine depreciates by 5% every year. If its present value is 2,00,000, its value after 2 years will be

(1) 1,80,500 (2) 1,99,000

(3) 1,80,000 (4) 2,10,000

**Q80.** The present price of a scooter is Rs. 7,290. If its value decreases every year by 10%, then its value 3 years back was

(1) Rs. 10, 500 (2) Rs. 8,000

(3) Rs. 10,000 (4) Rs. 11,500

**Q81.** The population of a town is 9000. It the number of females increases by 5% and the males by 7.5%, what will be the total population after increase. The number of females currently is 3000.

(1) 9600 (2) 9200 (3) 10500 (4) 9540

**Q82.** The population of a city is 20000. It increases by 20% during the first year and 30% during the second year. The population after two years will be:

(1) 32000 (2) 40000 (3) 31200 (4) 30000

**TYPE–XI : Questions based on reducing & exceeding prices .....**

**Q83.** The price of sugar is reduced by 20%. Now a person can buy 500g more sugar for 36. The original price of the sugar per kilogram was

(1) 14.40 (2) 18 (3) 15.60 (4) 16.50

Q84. When the price of sugar decreases by 10%, a man could buy 1 kg more for 270. Then the original price of sugar per kg is

(1) 25 (2) 30 (3) 27 (4) 32

**Q85.** A reduction of 20% in the price of an apple enables a man to buy 10 apples more for 54. The reduced price of apples per dozen is

(1) 4.32 (2) 12.96 (3) 10.80 (4) 14.40

**Q86.** Due to an increase of 50% in the price of eggs, 4 eggs less are available for 24. The present rate of eggs per dozen is :

(1) 24 (2) 27 (3) 36 (4) 42

**Q87.** Due to an increase of 20% in the price of eggs, 2 eggs less are available for 24. The present rate of eggs per dozen is :

(1) 25.00 (2) 26.20 (3) 27.80 (4) 28.80

**Q88.** If the price of sugar increases by 20%, one can buy 2 kg less for Rs. 50. What is the amount of sugar that could be bought before price hike? (1) 10 kg. (2) 12 kg. (3) 14 kg. (4) 16 kg.

**Q89.** The salary of a person is reduced by 20%. To restore the previous salary, his present salary is to be increased by

(1) 20% (2) 25% (3) 17.5% (4) 22.5%

**Q90.** In 2001, the price of a building was 80% of its original price. In 2002, the price was 60% of its original price. By what percent did the price decrease?

(1) 15% (2) 20% (3) 25% (4) 30%

**REFERENCE BOOKS**

**R S AGGARWAL QUANTITATIVE APTITUDE**

**TATA Mc GRAW HILL QUANTITATIVE APTITUDE, NEW DELHI**

**GULATI OBJECTIVE ARITHMETICS**

**KIRAN PRAKASH QUANTITATIVE APTITUDE**

**FAST TRACK OBJECTIVE ARITHMETICS**

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**PIPES AND CISTRERN**

**TYPE–I : Questions based on the concept of pipe and cistern ..**

**Q1.** Two pipes A and B can fill a tank in 20 minutes and 30 minutes respectively. If both pipes are opened together, the time taken to fill the tank is :

(1) 50 minutes (2) 12 minutes

(3) 25 minutes (4) 15 minutes

**Q2.** Three taps A, B, C can fill an overhead tank in 4, 6 and 12 hours respectively. How long would the three taps take to fill the tank if all of them are opened together ?

(1) 2 hrs. (2) 4 hrs. (3) 3 hrs. (4) 5 hrs.

**Q3.** A tap can fill a cistern in 8 hours and another tap can empty it in 16 hours. If both the taps are open, the time (in hours) taken to fill the tank will be :

(1) 8 (2) 10 (3) 16 (4) 24

**Q4.** Two pipes can fill a cistern in 3 hours and 4 hours respectively and a waste pipe can empty it in 2 hours. If all the three pipes are kept open, then the cistern will be filled in :

(1) 5 hours (2) 8 hours

(3) 10 hours (4) 12 hours

**Q5.** Two pipes can fill a tank in 15 hours and 20 hours respectively, while the third can empty it in 30 hours. If all the pipes are opened simultaneously, the empty tank will be filled in (1) 10 hours (2) 12 hours

(3) 15 hours (4) 15 hours

**Q5.** Two pipes A and B can fill a cistern in 3 hours and 5 hours respectively. Pipe C can empty in 2 hours. If all the three pipes are open, in how many hours the cistern will be full?

(1) can’t be filled (2) 10 hours

(3) 15 hours (4) 30 hours

**Q6.** Two pipes A and B can fill a tank in 36 minutes and 45 minutes respectively. Another pipe C can empty the tank in 30 minutes. First A and B are opened. After 7 minutes, C is also opened. The tank is filled up in

(1) 39 minutes (2)46 minutes

(3) 40 minutes (4)45 minutes

**Q7.** Pipe A can fill an empty tank in 6 hours and pipe B in 8 hours. If both the pipes are opened and after 2 hours pipe. A is closed, how much time B will take to fill the remaining tank?

(1) 7 hours (2) 2 hours

(3) 2 hours (4) 3 hours

**TYPE–II : Questions based on fractions/ part of filled tank ....**

**Q8.** If 1/3 of a tank holds 80 litres of water, then the quantity of water that 1/2 tank holds is :

(1) 240 litres (2) 120 litres

(3) 80 3 litres (4) 100 litres

**Q9.** 3/4 part of a tank is full of water. When 30 litres of water is taken out, the tank becomes empty. The capacity of the tank is

(1) 36 litres (2) 42 litres

(3) 40 litres (4) 38 litres

**Q10.** A tap can fill an empty tank in 12 hours and another tap can empty half the tank in 10 hours. It both the taps are opened simultaneously, how long would it take for the empty tank to be filled to half its capacity?

(1) 30 hours (2) 20 hours

(3) 15 hours (4) 12 hours

**Q11.** Pipes P and Q can fill a tank in 10 and 12 hours respectively and C can empty it in 6 hours. If all the three are opened at 7 a.m., at what time will one-fourth of the tank be filled ? (1) 10 a.m. (2) 10 p.m.

(3) 11 p.m. (4) 11 a.m

**Q12.** If 3 5 th of a cistern is filled in 1 minute, the time needed to fill the rest is

(1) 40 sec (2) 30 sec (3) 36 sec (4) 24 sec

**TYPE–III : Questions based on taps are opened alternatively or a leak in a tank ..**

**Q13.** An empty tank can be filled by pipe A in 4 hours and by pipe B in 6 hours. If the two pipes are opened for 1 hour each alternately with first opening pipe A, then the tank will be filled in

(1) 1 hours (2) 2 hours

(3) 4 hours (4) 5 hours

**Q14.** Pipe A can fill a tank in 4 hours and pipe B can fill it in 6 hours. If they are opened on alternate hours and if pipe A is opened first, in how many hours, the tank shall be full ?

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

**Q14.** Three taps A, B and C can fill a tank in 12, 15 and 20 hours respectively. If A is open all the time and B and C are open for one hour each alternatively, the tank will be full in :

(1) 6 hours (2) 6 hours

(3) 7 hours (4) 7 hours

**Q15.** A tap can fill a tank in 6 hours. After half the tank is filled, three more similar taps are opened. What is the total time taken to fill the tank completely ?

(1) 4 hours

(2) 4 hours 15 minutes

(3) 3 hours 15 minutes

(4) 3 hours 45 minutes

**Q16.** Two pipes A and B can fill a tank with water in 30 minutes and 45 minutes respectively. The water pipe C can empty the tank in 36 minutes. First A and B are opened. After 12 minutes C is opened. Total time (in minutes) in which the tank will be filled up is : (1) 30 (2) 12 (3) 36 (4) 24

**Q17.** A pipe can fill a tank in 24 hrs. Due to a leakage in the bottom, it is filled in 36 hrs. If the tank is half full, how much time will the leak take to empty the tank?

(1) 48 hrs (2) 72 hrs (3) 36 hrs (4) 24 hrs

**Q18.** Two pipes, P and Q can fill a cistern in 12 and 15 minutes respectively. Both are opened together, but at the end of 3 minutes, P is turned off. In how many more minutes will Q fill the cistern ?

(1) 7 minutes (2) 7 minutes

(3) 8 minutes (4) 8 minutes

**TYPE–IV : Miscellaneous Questions**

**Q19.** One pipe can fill a tank three times as fast as another pipe. If together the two pipes can fill the tank in 36 minutes, the slower pipe alone will be able to fill the tank in

(1) 81 minutes (2)108 minutes

(3) 144 minutes (4)192 minutes

**Q20.** Two pipes can fill a tank with water in 15 and 12 hours respectively and a third pipe can empty it in 4 hours. If the pipes be opened in order at 8, 9 and 11 a.m. respectively, the tank will be emptied at

(1) 11 : 40 a.m. (2) 12 : 40 p.m.

(3) 1 : 40 p.m. (4) 2 : 40 p.m

**Q21**. A Boy and girl together fill a cistern with water. The boy pours 4 litres of water every 3 minutes and the girl pours 3 litres every 4 minutes. How much time will it take to fill 100 litres of water in the cistern ?

(1) 36 minutes (2) 42 minutes

(3) 48 minutes (4) 44 minutes

**Q22.** A pipe of diameter d can drain a certain water tank in 40 minutes. The time taken by a pipe of diameter 2d for doing the same job in : (1) 5 minutes (2) 10 minutes

(3) 20 minutes (4) 80 minutes

**Q23.** Two pipes A and B can fill a water tank in 20 and 24 minutes respectively and a third pipe C can empty at the rate of 3 gallons per minute. If A, B and C are opened together to fill the tank in 15 minutes, the capacity (in gallons) of the tank is :

(1) 180 (2) 150 (3) 120 (4) 60

**Q24.** A tap drips at a rate of one drop/ sec. 600 drops make 100ml. The number of litres wasted in 300 days is

(1) 4320000 (2) 432000 (3) 43200 (4) 4320

**Q25.** Having the same capacity 9 taps fill up a water tank in 20 minutes. How many taps of the same capacity are required to fill up the same water tank in 15 minutes ?

(1) 10 (2) 12 (3) 15 (4) 18

**GATE PREVIOUSN QUESTIONS**

**Q1.** An oil tank can filled by pipe X in 5 hours and pipe Y in 4 hours, each pump working on its own. When th oil tank is full and the drainage hole is open, the oil is drained in 20 hours. If initially the tank was empty and someone started the two pumps together but left the drainage hole open, how many hours will it take for the tank to be filled? (Assume that the rate of drainage is independent of the Head).

**GATE-2021**

(1) 1.5 (2) 2.00 (3) 2.5 (4) 4.00

**Q2.** It takes two hours for a person X to mow the lawn. Y can mow the same lawn. In four hours. How long ( in minutes) will it take X and y, if they work together to mow the lawn?

**GATE-2019**

(1) 60 (2) 80 (3) 90 (4) 120

**Q3.** It would take one machine 4 hours to complete a production order and another machine two hours complete the same order. If both machines work simultaneously at their respective constant rates, the time taken to complete the same order is ……………hours?

**GATE-2019**

(1) 2/3 (2) 3/4 (3) 4/3 (4) 7/3

**Q4.** two pipes P and Q can fill a tank in 6 hours and 9 hours respectively, while third pipe R can empty the tank in 12 hours. Initially, P and Q are open for 4 hours. Then P is closed and Q is opened. After 6 more hours R is closed. The total time taken to fill the tank ( in hours) is …..

**GATE-2019**

**Q5.** A contract is to be completed in 52 days and 125 identical robots were employed, each operational for 7 hours a day. After 39 days, five-seventh of the work was completed. How many additional robots would be required to complete the work on time, if each robot is now operational for 8 hours a day? **GATE-2018**

(A) 50 (B) 89 (C) 146 (D)175

**Q6.** Sevenmachinestake7 minutes to make 7 identical toys. At the same rate, how many minutes would it take for 100 machines to make 100 toys? **GATE-2018**

(A) 1 (B) 7 (C) 100 (D) 700

Q7. 1200 men and 500 women can build a bridge in 2 weeks. 900 men and 259 women will take 3 weeks to build the same bridge. How many men will needed to build the same bridge in one week? **GATE-2017**

(A) 3000 (B) 3300 (C) 3600 (D) 3900

**Q8. X** bullocks and Y tractors take 8 days to plough a field. If we halve the number of bullocks and double the number of tractors, it take 5 days to plough the same field. How many days will it take X bullocks alone to plough the field? **GATE-2017**

(A) 30 (B) 35 (C) 40 (D) 45

**Q9.** It takes 30 minutes to empty a half-full tank by draining it at a constant rate. It is decided to simultaneously pump water into the half-full tank while draining it. What is the rate at which water has to be pumped in so that it gets fully filled in 10 minutes? **GATE-2014**

(A) 4 times the draining rate

(B) 3 times the draining rate

(C) 2.5 times the draining rate

(D) 2 times the draining rate.

**\*\*\*\*\*END\*\*\*\*\***

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**PROBABILITY**

**I. Experiment:** An operation which can produce some well-defined outcomes is called an experiment.

**II. Random Experiment:** An experiment in which all possible outcomes are known and the exact output cannot

be predicted in advance, is called a random experiment.

**Examples of Performing a Random Experiment:**

**(*i*)** Rolling an unbiased dice

**(*ii*)** Tossing a fair coin

**(*iii*)** Drawing a card from a pack of well-shuffled cards

**(*iv*)** Picking up a ball of certain colour from a bag containing balls of different colours

**Details :**

**(*i*)** When we throw a coin, then either a Head (H) or a Tail (T) appears.

**(*ii*)** A dice is a solid cube, having 6 faces, marked 1, 2, 3, 4, 5, 6 respectively.

When we throw a die, the outcome is the number that appears on its upper face.

**(*iii*)** A pack of cards has 52 cards.

It has 13 cards of each suit, namely **Spades, Clubs, Hearts** and **Diamonds.**

Cards of spades and clubs are **black cards.**

Cards of hearts and diamonds are **red cards.**

There are 4 honours of each suit.

These are **Aces, Kings, Queens** and **Jacks.**

These are called **face cards.**

**Q1.** In a simultaneous throw of two coins, the probability of getting at least one head is

(a) 1/2 (b) 1/3 (c) 2/3 (d) 3/4

**Q2.** Three unbiased coins are tossed. What is the probability of getting at least 2 heads

(a) 1/4 (b) 1/2 (c) 1/3 (d) 1/8

**Q3.** Three unbiased coins are tossed. What is the probability of getting at most two heads ?

(a) 3/4 (b) 1/4 (c) 3/8 (d) 7/8

**Q4.** In a single throw of a die, what is the probability of getting a number greater than 4 ?

(a) 1/2 (b) 1/3 (c) 2/3 (d) 1/4

**Q5.** In a simultaneous throw of two dice, what is the probability of getting a total of 7 ?

(a) 1/2 (b) 1/3 (c) 2/3 (d) ¾

**Q6.** What is the probability of getting a sum 9 from two throws of a dice ?

(a) 1/6 (b) 1/8 (c) 1/9 (d) 1/12

**Q7.** In a simultaneous throw of two dice, what is the probability of getting a doublet ?

(a) 1/6 (b) 1/4 (c) 2/3 (d) 3/7

**Q8.** In a simultaneous throw of two dice, what is the probability of getting a total of 10 or 11 ?

(a) 1/6 (b) 1/4 (c) 7/12 (d) 5/36

**Q9.** Two dice are thrown simultaneously. What is the probability of getting two numbers whose product is even ?

(a) 1/2 (b) 3/4 (c) 3/8 (d) 5/16

**Q10.** Tickets numbered 1 to 20 are mixed up and then a ticket is drawn at random. What is the probability that the ticket drawn bears a number which is a multiple of 3 ?

(a) 3/10 (b) 3/20 (c) 2/5 (d) ½

**Q11.** Tickets numbered 1 to 20 are mixed up and then a ticket is drawn at random. What is the probability that the ticket drawn has a number which is a multiple of 3 or 5?

(a) 8/15 (b) 9/20 (c) 2/5 (d) 1/2

**Q12.** In a lottery, there are 10 prizes and 25 blanks. A lottery is drawn at random. What is the probability of getting a prize?

(a) 1/10 (b) 2/7 (c) 2/5 (d) 5/7

**Q13.** One card is drawn at random from a pack of 52 cards. What is the probability that the card drawn is a face card ?

(a) 1/13 (b) 4/13 (c) 1/4 (d) 9/52

**Q14.** A card is drawn from a pack of 52 cards. The probability of getting a queen of club or a king of heart is

(a) 1/13 (b) 2/13 (c) 1/26 (d) 1/52

**Q15.** One card is drawn from a pack of 52 cards. What is the probability that the card drawn is either a red card or a king ?

(a) 1/2 (b) 6/13 (c) 7/26 (d) 27/52

**Q16.** From a pack of 52 cards, one card is drawn at random. What is the probability that the card drawn is a ten or a spade ?

(a) 1/13 (b) 4/13 (c) 1/4 (d) 1/26

**Q17.** The probability that a card drawn from a pack of 52 cards will be a diamond or a king, is

(a) 2/13 (b) 4/13 (c) 1/13 (d) 1/52

Q18. From a pack of 52 cards, two cards are drawn together at random. What is the probability of both the cards being kings ?

(a) 1/15 (b) 25/5 (c) 35/256 (d) 1/221

**Q19.** Two cards are drawn together from a pack of 52 cards. The probability that one is a spade and one is a heart, is

(a) 3/20 (b) 29/34 (c) 47/100 (d) 13/102

**Q20.** Two cards are drawn from a pack of 52 cards. The probability that either both are red or both are kings,is

(a) 7/13 (b) 3/2 (c) 63/221 (d) 55/221

**Q21.** Bag contains 6 black and 8 white balls. One ball is drawn at random. What is the probability that the ball drawn is white ?

(a) 3/4 (b) 4/7 (c) 1/8 (d) 3/7

**Q22.** In a box, there are 8 red, 7 blue and 6 green balls. One ball is picked up randomly. What is the probability that it is neither red nor green ?

(a) 2/3 (b) 3/4 (c) 7/19 (d) 8/21 (e) 9/21

**Q23.** A box contains 4 red, 5 green and 6 white balls. A ball is drawn at random from the box. What is the probability that the ball drawn is either red or green ?

(a) 2/5 (b) 3/5 (c) 1/5 (d) 7/15 (e) None

**Q24.** In a class, 30% of the students offered English, 20% offered Hindi and 10% offered both. If a student is selected at random, what is the probability that he

has offered English or Hindi ?

(a) 2/5 (b) 3/5 (c) 3/4 (d) 3/10

**Q25.** A man and his wife appear in an interview for two vacancies in the same post. The probability of husband’s selection is 1/7 and the probability of wife’s selection is 1/5 What is the probability that only one of them is selected?

(a) 4/5 (b) 2/7 (c) 4/7 (d) 8/15

**Q26.** Speaks truth in 75% cases and B in 80% of the cases. In what percentage of cases are they likely to contradict each other, in narrating the same incident?

(*a*) 5% (*b*) 15%

(*c*) 35% (*d*) 45%

(*e*) None of these

**Q27.** Committee of 3 members is to be selected out of 3 men and 2 women. What is the probability that the committee has at least 1 woman?

(a) 1/10 (b) 9/20 (c) 1/20 (d) 9/20

**Q28.** Two dice are tossed. The probability that the total score is a prime number is

(a) 1/6 (b) 1/2 (c) 5/12 (d) 7/9

**Q29.** A speaks truth in 60% cases and B speaks truth in 70% cases. The probability that they will say the same thing while describing a single event, is

(*a*) 0.54 (*b*) 0.56

(*c*) 0.68 (*d*) 0.94

(*e*) None of these

**Q30.** box contains 20 electric bulbs, out of which 4 are defective. Two balls are chosen at random from this box. The probability that at least one of them is defective, is

(a) 4/19 (b) 7/19 (c) 12/19 (d) 21/95

**Q1.** A box contains 15 blue balls and 45 black balls. If 2 balls are selected randomly, without replacement, the probability of an outcome in which the first selected is a blue ball and the second selected is a black ball, is **GATE-2021**

(a) 3/16 (b) 45/236 (c) 1/4 (d) 3/4

**Q2.** Two identical cube shaped dice each with faces numbered 1 to 6 are rolled simultaneously. The probability that an even number is rolled out on each dice is:

**GATE-2021**

(a) 1/16 (b) 1/12 (c) 1/8 (d) ¼

**Q3.** The probability that a k-digit number does not containing the digits 0, 5 or 9 is

**GATE-2017**

(a) 0.3k (b) 0.6k (c) 0.7k (d) 0.9k

**Q4.** A couple has 2 children. the probability that both the children are boys if the older one is a boy is **GATE-2017**

(a) 1/4 (b) 1/3 (c) 1/2 (d) 1

**Q5.** Two dice are thrown simultaneously. The probability that the product of the numbers appearing on the top faces of the dice is a perfect square is **GATE-2017**

(a) 1/9 (b) 2/9 (c) 1/2 (d) 1

**Q6.** There are 3 red socks, 4 green socks and 3 blue socks. You choose two socks. The probability that they are of the same colour is **GATE-2017**

(a) 1/5 (b) 7/30 (c) 1/3 (d) 4/9

**REFERENCE BOOKS**

**R S AGGARWAL QUANTITATIVE APTITUDE**

**TATA Mc GRAW HILL QUANTITATIVE APTITUDE, NEW DELHI**

**GULATI OBJECTIVE ARITHMETICS**

**KIRAN PRAKASH QUANTITATIVE APTITUDE**

**FAST TRACK OBJECTIVE ARITHMETICS**

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**PROFIT AND LOSS**

**TYPE–I : Questions based on the basic concept of C.P. & S.P. and profit & loss ..........**

**Q1.** A man buys a cycle for Rs.1400 and sells it at a loss of 15%. What is the selling price of the cycle?

(1) 1202 (2) 1190 (3) 1160 (4) 1000

**Q2.** On selling an article for 651, there is a loss of 7%. The cost price of that article is

(1) 744 (2) 751 (3) 793 (4) 700

**Q3.** A milkman bought 70 litres of milk for 630 and added 5 litres of water. If he sells it at 9.00 per litre, his profit percentage is

(1) 8 % (2) 7% (3) 8 % (4) 7 %

**Q4.** A man bought an old typewriter for 1200 and spent 200 on its repair. He sold it for 1680. His profit per cent is :

(1) 20% (2) 10% (3) 8% (4) 16%

**Q5.** If the cost price is 95% of the selling price, what is the profit percent ?

(1) 4% (2) 4.75% (3) 5% (4) 5.26%

**Q6.** If the cost price of an article is 80% of its selling price, the profit per cent is :

(1) 20 % (2) 22 % (3) 24% (4) 25%

**Q7.** A merchant buys an article for 27 and sells it at a profit of 10% of the selling price. The selling price of the article is :

(1) 29.70 (2) 30 (3) 37 (4) 32

**Q8.** Krishnan bought a camera and paid 20% less than its original price. He sold it at 40% profit on the price he had paid. The percentage of profit earned by Krishnan on the original price was

(1) 22% (2) 32% (3) 12% (4) 15%

**Q9.** If there is a profit of 20% on the cost price of an article, the percentage of profit calculated on its selling price will be

(1) 24% (2) 16 (3) 8 % (4) 20%

**Q10.** By selling an article for 960 a man incurs a loss of 4%; what was the cost price ?

(1) 1,000 (2) 784 (3) 498.4 (4) 300

**Q11.** By selling a car for 64,000, Mr. Rao lost 20%. Then the cost price of the car is :

(1) 72,000 (2) 76,800 (3) 80,000 (4) 84,000

**Q12.** An item when sold for 1,690 earned 30% profit on the cost price. Then the cost price is

(1) 507 (2) 630 (3) 1,300 (4) 130

**Q13.** While selling to the retailer, a company allows 30% discount on the marked price of their products. If the retailer sells those products at marked price, his profit % will be :

(1) 30% (2) 42% (3) 40% (4) 42%

**Q14.** The cost price of a radio is 600. The 5% of the cost price is charged towards transportation. After adding that, if the net profit to be made is 15%, then the selling price of the radio must be

(1) 704.50 (2) 724.50 (3) 664.50 (4) 684.50

**Q15.** The total cost of 8 buckets and 5 mugs is 92 and the total cost of 5 buckets and 8 mugs is 77. Find the cost of 2 mugs and 3 buckets.

(1) 35 (2) 70 (3) 30 (4) 38

**Q16.** Pooja wants to sell a watch at a profit of 20%. She bought it at 10% less and sold it at 30 less, but still she gained 20%. The cost price of watch is

(1) 240 (2) 220 (3) 250 (4) 225

**Q17.** A fruit merchant makes a profit of 25% by selling mangoes at a certain price. If he charges Re. 1 more on each mango, he would gain 50%. At first the price of one mango was

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

**Q18.** By selling an article for Rs. 450, I lose 20%. For what price should I sell it to gain 20% ?

(1) Rs. 490 (2) Rs. 675

(3) Rs. 470 (4) Rs. 562.50

Q19. If the profit on selling an article for Rs. 425 is the same as the loss on selling it for Rs. 355, then the cost price of the article is

(1) Rs. 410 (2) Rs. 380 (3) Rs. 400 (4) Rs. 390

**Q20.** The C.P of 10 artices is equal to the S.P. of 15 articles. What is the profit or loss percentage?

(1) 25.5% (2) 35% (3) 10% (4) 33.3%

**Q21.** A man gains 20% by selling an article for a certain price. If he sells it at double the price, the percentage of profi will be

(1) 40% (2) 100% (3) 120% (4) 140%

**Q22.** A trader sold a cycle at a loss of 10%. If the selling price had been increased by Rs. 200, there would have been a gain of 6%. The cost price of the cycle is

(1) Rs. 1200 (2) Rs. 1205

(3) Rs. 1250 (4) Rs. 1275

**Q23.** If the selling price of 40 articles is equal to the cost price of 50 articles, the loss or gain per cent is

(1) 25% gain (2) 20% gain

(3) 25% loss (4) 20% loss

**Q24.** By selling a tape-recorder for Rs. 1040 a man gains 4%. If he sells it for Rs. 950, his loss will be

(1) 5% (2) 4% (3) 4.5% (4) 9%

**Q25.** The per cent profit made when an article is sold for Rs. 78 is twice as much as when it is sold for Rs. 69. The cost price of the article is

(1) Rs. 60 (2) Rs. 51 (3) Rs. 55.50 (4) Rs. 70

**Q26**. The profit (in Rs.) after selling an article for Rs. 524 is the same as the loss (in Rs.) after selling it for Rs. 452. The cost price of the article is:

(1) Rs. 480 (2) Rs. 485

(3) Rs. 488 (4) Rs. 500

**TYPE–II : Questions based on sold & bought .....**

**Q27.** A man buys 12 articles for 12 and sells them at the rate of 1.25 per article. His gain percentage is :

(1) 20% (2) 25% (3) 15% (4) 18%

**Q28.** If I would have purchased 11 articles for 10 and sold all the articles at the rate of 10 for 11, the profit per cent would have been :

(1) 10% (2) 11% (3) 21% (4) 100%

**Q29.** A person buys some pencils at 5 for a rupee and sells them at 3 for a rupee. His gain per cent wll be :

(1) 66% (2) 76% (3) 56% (4) 46%

**Q30.** 100 oranges are bought for 350 and sold at the rate of 48 per dozen. The percentage of profit or loss is :

(1) 15% loss (2) 15% gain

(3) 14 % loss (4) 14% profit

**Q31.** The cost price of two dozen bananas is 32. After selling 18 bananas at the rate of 12 per dozen, the shopkeeper reduced the rate to 4 per dozen. The per cent loss is

(1) 25.2% (2) 32.4% (3) 36.5% (4) 37.5%

**Q32.** Some articles were bought at 6 for 5, and sold at 5 for 6. Gain per cent is :

(1) 5% (2) 6% (3) 30% (4) 44%

**Q33.** A man bought pencils at the rate of 6 for 4 and sold them at the rate of 4 for 6. His gain% in the transaction is :

(1) 75% (2) 80% (3) 125% (4) 100%

**Q34.** A man buys a certain number of oranges at 20 for 60 and an equal number at 30 for 60. He mixes them and sells them at 25 for 60. What is gain or loss per cent ?

(1) Gain of 4% (2) Loss of 4%

(3) Neither gain nor loss (4) Loss of 5%

**Q35.** A man purchased some eggs at 3 for 5 and sold them at 5 for 12. Thus he gained 143 in all. The number of eggs he bought is

(1) 210 (2) 200 (3) 195 (4) 190

**Q36**. A man bought oranges at the rate of 8 for 34 and sold them at the rate of 12 for 57. How many oranges should be sold to earn a net profit of 45 ?

(1) 90 (2) 100 (3) 135 (4) 150

**Q37.** A person bought some articles at the rate of 5 per rupee and the same number at the rate of 4 per rupee. He mixed both the types and sold at the rate of 9 for 2 rupees. In this business he suffered a loss of 3. The total number of articles bought by him was

(1) 1090 (2) 1080 (3) 540 (4) 545

**Q38.** A shopman bought pens at the rate of 7 for 10 and sold them at a profit of 40%. How many pens would a customer get for 10 ?

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

**Q39.** A person bought 50 pens for 50 each. He sold 40 of them at a loss of 5%. He wants to gain 10% on the whole. Then his gain percent on the remaining pens should be

(1) 15% (2) 40% (3) 50% (4) 70%

**Q40.** A vendor sells lemons at the rate of 5 for 14, gaining thereby 40%. For how much did he buy a dozen lemons ?

(1) 20 (2) 21 (3) 24 (4) 28

**Q41.** A table is sold at a profit of 13%. If it is sold for 25 more, profit is 18 %. Cost price of table is (1) 100 (2) 500 (3) 200 (4) 1, 000

**Q42.** A man sold his watch at a loss of 5%. Had he sold it for 56.25 more, he would have gained 10%. What is the cost price of the watch (in ) ? (1) 370 (2) 365 (3) 375 (4) 390

**Q43.** A radio is sold at a profit of 20%. Had it been sold for Rs. 60 more the profit would have been 30%. The cost price of the radio is

(1) Rs. 500 (2) Rs. 600

(3) Rs. 550 (4) Rs. 620

Q44. If 3 articles are sold for the cost of 5 articles, then the profit percentage is :

(1) 50 (2) 60 (3) 66 (4) 65

**Q45**. A dealer sold a bicycle at a profit of 10%. Had he bought the bicycle at 10% less price and sold it at a price Rs. 60 more, he would have gained 25%. The cost price of the bicycle was

(1) Rs. 2400 (2) Rs. 2600

(3) Rs. 2000 (4) Rs. 2200

**Q46.** Arun buys one kilogram of apples for Rs. 120 and sells it to Swati gaining 25%. Swati sells it to Divya who again sells it for Rs. 198, making a profit of 10%. What is the profit percentage made by Swati?

(1) 25% (2) 20% (3) 16.67% (4) 15%

**Q47.** A sold a watch at a gain of 5% to B and B sold it to C at a gain of 4%. If C paid Rs. 91 for it, the price paid by A is :

(1) Rs. 83.33 (2) Rs. 84.33

(3) Rs. 83 (4) Rs. 82.81

**TYPE–IV : Questions based on ratio & partnership ............**

**Q48.** The ratio of cost price and selling price is 5 : 4, the loss per cent is :

(1) 20% (2) 25% (3) 40% (4) 50%

**Q49.** The ratio of the C.P. and S.P. of an article is 20 : 21. What is the gain per cent ?

(1) 5% (2) 5.5% (3) 6% (4) 6.25%

**Q50.** The cash difference between selling prices of an article at a profit of 4% and 6% is 3. The ratio of the two selling prices is

(1) 51 : 52 (2) 52 : 53

(3) 51 : 53 (4) 52 : 55

**Q51**. Nita blends two varieties of tea— one costing 180 per kg and another costing 200 per kg in the ratio 5 : 3. If she sells the blended variety at 210 per kg, then her gain percent is (1) 10% (2) 11% (3) 12% (4) 13%

**Q52**. Partha earns 15 per cent on an investment but loses 10 per cent on another investment. If the ratio of two investments is 3 : 5, then the combined loss percent is

(1) 5/4 % (2) 4/5 % (3) 8/5 % (4) – 5/8 %

**Q53.** If an article is sold at 200% profit, then the ratio of its cost price to its selling price will be (1) 1 : 2 (2) 2 : 1 (3) 1 : 3 (4) 3 : 1

**Q54.** An article is sold at 5% profit. The ratio of selling price and cost price will be

(1) 1 : 5 (2) 20 : 21 (3) 21 : 20 (4) 5 : 1

**Q55.** In what ratio Darjeeling Tea costing 320 per kg be mixed with Assam Tea costing 250 per kg so that there is a gain of 20% by selling the mixture at 324 per kg ?

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

**Q56.** The ratio in which the Darjeeling tea at 32 per kg is mixed with the Assam tea at 25 per kg so as to gain 20% by selling the mixture at 32.40 per kg is

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

**Q57**. The ratio of the quantities of sugar, in which sugar costing 20 per kg. and 15 per kg. should be mixed so that there will be neither loss nor gain on selling the mixed sugar at the rate of 16 per kg, is

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

**Q58.** Two types of tea costing 180 per kg and 280 per kg should be mixed in the ratio so that the mixture obtained, sold at 320 per kg to earn a profit of 20% is

(1) 3:13 (2) 1:13 (3) 4:13 (4) 2:13

**TYPE–V : Questions based on tricks**

**Q59.** Find the selling price of an article if a shopkeeper allows two successive discounts of 5% each on the marked price of 80.

(1) 70.20 (2) 70.10 (3) 72.00 (4) 72.20

**Q60.** Salary of a person is increased by 20%, then it is decreased by 20%. Change in his salary is :

(1) 4% decreased

(2) 4% increased

(3) 8% decreased

(4) neither decrease nor increase

Q61.

**TYPE–VI : Questions based On selling an article and interchanging its values ...**

**Q62.** By selling an article for 240, a man incurs a loss of 10%. At what price should he sell it, so that he makes a profit of 20% ?

(1) 264 (2) 288 (3) 300 (4) 320

**Q63.** By selling an article for 480 a person lost 20%. For what should he sell it to make a profit of 20%?

(1) 800 (2) 760 (3) 720 (4) 680

**Q64.** On selling an article for 170, a shopkeeper loses 15%. In order to gain 20%, he must sell that article at :

(1) 215.50 (2) 212.50 (3) 240 (4) 210

**Q65.** By selling a basket for 19.50, a shopkeeper gains 30%. For how much should he sell it to gain 40% ?

(1) 21 (2) 21.50 (3) 24 (4) 23

**Q66.** The selling price of an article is 8/5 th of its cost price. Then the gain percentage is

(1) 20% (2) 28% (3) 60% (4) 68%

**TYPE–VII : Questions based on marked price .......**

**Q67**. If the sales tax be reduced from 3% to 3 % , what difference does it make to a person who purchases an article whose marked price is 8,400 ?

(1) 20 (2) 15 (3) 14 (4) . 10

**Q68.** The marked price of an article is 10% higher than cost price. A discount of 10% is given on marked price. In this kind of sale, the seller bears :

(1) no loss, no gain (2) a loss of 5%

(3) a gain of 1% (4) a loss of 1%

**Q69.** Richa purchased an article at 4/5 of its list price and sold it at 20% more than the list price. Richa’s profit percent was

(1) 50% (2) 40% (3) 30% (4) 25%

**Q70.** How much percent above the cost price should a shopkeeper mark his goods so as to earn a profit of 32% after allowing a discount of 12% on the marked price ?

(1) 50% (2) 40% (3) 60% (4) 45%

**Q71.** To gain 8% after allowing a discount of 10%, by what per cent cost price should be hiked in the list price ?

(1) 9% (2) 11% (3) 18% (4) 20%

**TYPE–VIII : Loss/gain percent is equals to the C.P./S.P. ..**

Q72. Profit after selling a commodity for 524 is the same as loss after selling it for 452. The cost price of the commodity is

(1) 480 (2) 500 (3) 488 (4) 485

**Q73.** A clock was sold for 144. If the percentage of profit was numerically equal to the cost price, the cost of the clock was

(1) 72 (2) 80 (3) 90 (4) 100

**Q74.** A merchant sold an article for 75 at a profit percent equal to its cost price. The cost price of the article was :

(1) 45 (2) 50 (3) 54 (4) 60

**Q75.** If the profit per cent got on selling an article is numerically equal to its cost price in rupees and the selling price is 39, then cost price (in ) will be

(1) 20 (2) 22 (3) 28 (4) 30

**TYPE–IX : Finding the cost of article where a man sold an article at a loss of x%. If he had sold it for 'y' more than he would have gained/loss m%..**

**Q76.** A man sold an article at a loss of 20%. If he has sold that article for 12 more he would have gained 10%. Find the cost price of that article : (1) 60 (2) 40 (3) 30 (4) 22

**Q77.** A businessman bought an article and sold it at a loss of 5%. If he had bought it for 10% less and sold it for 33 more, he would have had a profit of 30%. The cost price of the article is (1) 330 (2) 155 (3) 150 (4) 300

Q78. A merchant has 1000 kg sugar, part of which sells at 8% profit and the rest at 18% profit. He gain 14% on the whole. The quantity sold at 8% profit is :

(1) 560 kg. (2) 600 kg. (3) 640 kg. (4) 400 kg

**Q79.** Sandeep sells an article at a loss of 10%. Had he bought it at 20% less and sold it for Rs. 55 more, he could have gained 40%. What is the cost price of the article ?

(1) Rs. 200 (2) Rs. 225 (3) Rs. 250 (4) Rs. 275

**Q80**. 5% more is gained by selling a watch for Rs. 350 than by selling it for Rs. 340. The cost price of the watch is

(1) Rs. 110 (2) Rs. 140 (3) Rs. 200 (4) Rs. 250

**TYPE–X : Questions where articles are sold in a circular chain ....**

**Q81**. A sells a bicycle to B at a profit of 20%. B sells it to C at a profit of 25%. If C pays 225/- for it, the cost price of the bicycle for A is :

(1) 110 (2) 125 (3) 120 (4) 150

**Q82.** A saleable article passes successively in the hands of three traders. Each trader sold it further at a gain of 25% of the cost price. If the last trader sold it for Rs. 250 then what was the cost price for the first trader ?

(1) 128 (2) 150 (3) 192 (4) 200

**Q83.** A sells a cycle to B at a profit of 10%, B sells to C at a profit of 20%. If C pays 264 for it, how much did A pay for it?

(1) 200 (2) 220 (3) 225 (4) 234

**Q84.** A sells a suitcase to B at 10% profit. B sells it to C at 30% profit. If C pays 2,860 for it, then the price at which A bought it is

(1) 1,000 (2) 1,600 (3) 2,000 (4) 2,500

**Q85.** A sells an article to B at a gain of 20% and B sells it to C at a gain of 10% and C sells it to D at a gain of 12%. If D pays 29.70, A purchased the article for

(1) 40 (2) 10 (3) 20 (4) 30

**TYPE–XI : A person bought two articles for x. He sold A at m% profit/loss and B at n% loss/profit. Then gain/ loss p% on his outlay. Find the c.p. of A/B/A+B etc.........**

**Q86**. A man sells two articles at 99 each. On one he gains 10% and on the other he loses 10%. What is his gain or loss per cent on the whole transaction ?

(1) Loss, 1% (2) Loss, 1.5%

(3) Profit, 1% (4) Profit, 1.5%

**Q87**. A man sells two pipes at 12 each. He gains 20% on one and loses 20% on the other. In the whole transaction, there is

(1) neither loss nor gain (2) profit of 1

(3) loss of 1 (4) Profit of 2

**Q88.** Kewal sells two tape recorders at the same price. On one, he gains 10% and on the other he loses 10%. The total gain or loss in the transaction is

(1) 1% gain (2) 1% loss

(3) No loss or gain (4) 2% loss

**Q89.** A man had 100 kgs of sugar, part of which he sold at 7% profit and rest at 17% profit. He gained 10% on the whole. How much did he sell at 7% profit ?

(1) 65 kg (2) 35 kg (3) 30 kg (4) 70 kg

**Q90.** When the price of cloth was reduced by 25%, the quantity of cloth sold increased by 20%. What was the effect on gross receipt of the shop?

(1) 5% increase (2) 5% decrease

(3) 10% increase (4) 10% decrease

**Q91.** A cloth merchant sold half of his cloth at 20% profit, half of the remaining cloth at 20% loss and the rest was sold at his cost price. In the total transaction, his gain or loss will be

(1) 5% profit (2) Neither loss nor gain

(3) 5% loss (4) 10% profit

**Q92**. Two-third of a consignment was sold at a profit of 5% and the remainder at a loss of 2%. If the total profit was 400, then the value of the consignment was

(1) 15,000 (2) 15,500 (3) 16,000 (4) 16,500

**Q93.** A trader bought two horses for 19,500. He sold one at a loss of 20% and the other at a profit of 15%. If the selling price of each horse is the same, then their cost price are respectively.

(1) 10,000 and 9,500 (2) 11,500 and 8,000

(3) 12,000 and 7,500 (4) 10,500 and 9,000

**Q94.** A person bought two articles A and B for 5,000. He sold A at 20% profit and B at 10% loss. He thus gained 2% on his outlay. The cost price of A was

(1) 3,000 (2) 2,500 (3) 2,000 (4) 3,500

**Q95.** A man bought a horse anda carriage for 40,000. He sold the horse at a gain of 10 % and the carriage at a loss of 5%. He gained 1% on his whole transaction. The cost price of the horse was :

(1) 15000 (2) 16000 (3) 18000 (4) 20000

**Q96.** Two items A and B are sold at a profit of 10% and 15% respectively. If the amount of profit received is the same, then the cost price of A and B may be

(1) 1,000, 1,500 (2) 5,000 2,000

(3) 3,000, 2,000 (4) 3,000, 5,000

**Q97**. A cloth merchant sold half of his cloth at 40% profit, half of remaining at 40% loss and the rest was sold at the cost price. In the total transaction his gain or loss will be

(1) 20% gain (2) 25% loss

(3) 10% gain (4) 15% loss

**Q98.** A shopkeeper purchased a TV for 2,000 and a radio for 750. He sells the TV at a profit of 20% and the radio at a loss of 5%. The total loss or gain is

(1) Gain 352.50 (2) Gain 362.50

(3) Loss 332 (4) Loss 300

**Q99.** The difference between the selling prices of an article at a profit of 15% and at a profit of 10% is 10. The cost price of the article is

(1) 100 (2) 120 (3) 150 (4) 200

**Q100.** The difference between the selling price and cost price of an article is 210. If the profit percent is 25, then the selling price of the article is

(1) 950 (2) 1,050 (3) 1,150 (4) 1,250

**REFERENCE BOOKS**

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**Ratio and proportion**

**TYPE–I : Questions based on the basic concept of Ratio & Proportion..**

**Q1.** If a : b = 7 : 9 and b : c =15 : 7, then what is a : c?

(1) 5 : 3 (2) 3 : 5 (3) 7 : 21 (4) 7 : 15

**Q2.** If p : q = r : s = t : u = 2 : 3, then (mp + nr + ot) : (mq + ns + ou) is equal to :

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

**Q3**. If a : b = c : d = e : f = 1 : 2, then (pa + qc + re) : (pb + qd + rf) is equal to :

(1) p : (q + r) (2) (p + q) : r

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

**Q4**. If x : y = 3 : 1, then x3 – y3 : x3 + y3 = ?

(1) 13 : 14 (2) 14 : 13

(3) 10 : 11 (4) 11 : 10

**Q5.** The ratio is the same as :

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

**Q5.** The fourth proportional to 0.12, 0.21, 8 is :

(1) 8.9 (2) 56 (3) 14 (4) 17

**Q6**. The third proportional of 12 and 18 is

(1) 3 (2) 6 (3) 27 (4) 144

**Q7.** The third proportional to 0.8 and 0.2 is :

(1) 0.05 (2) 0.8 (3) 0.4 (4) 0.032

**Q8.** If A : B = 3 : 4, B : C = 5 : 7 and C : D = 8 : 9 then A : D is equal to

(1) 3 : 7 (2) 7 : 3 (3) 21 : 10 (4) 10 : 21

**Q9.** . 6200 divided into three parts proportional to 1 2 : 1 3 : 1 5 are respectively

(1) 3000, 2000, 1200 (2) 3500, 1500, 1200

(3) 2500, 2000, 1700 (4) 2200, 3000, 1000

**Q10.** 94 is divided into two parts in such a way that the fifth part of the first and the eighth part of the second are in the ratio 3 : 4. The first part is :

(1) 30 (2) 36 (3) 40 (4) 28

**Q11.** The ratio of A to B is 4 : 5 and that of B to C is 2 : 3. If A equals 800, C equals

(1) 1000 (2) 1200 (3) 1500 (4) 2000

**Q12.** If two times of A is equal to three times of B and also equal to four times of C, then A : B : C is

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

(3) 4 : 6 : 3 (4) 6 : 4 : 3

**Q13.** If A : B = 2 : 3, B : C = 2 : 4 and C : D = 2 : 5, then A : D is equal to :

(1) 2 : 15 (2) 2 : 5 (3) 1 : 5 (4) 3 : 5

**Q14.** If two-third of A is four-fifth of B, then A : B = ?

(1) 5 : 6 (2) 6 : 5 (3) 10 : 9 (4) 9 :10

**Q15.** If 2/3 of A = 75% of B = 0.6 of C, then A : B : C is

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

(3) 4 : 5 : 6 (4) 9 : 8 : 10

**Q16.** If x : y = 3 : 4, then the value of = ?

(1) 7/25 (2) 7/23 (3) 7/29 (4) 7/17

**Q17.** There are three numbers A, B, C such that twice A is equal to thrice B and four times B is equal to five times C. Then the ratio between A and C is

(1) 3 : 4 (2) 8 : 15 (3) 15 : 8 (4) 4 : 3

**Q18.** A fruit seller sold big, medium and small sized apples for 15, 10 and 5 respectively. The total number of apples sold were in the ratio 3 : 2 : 5. Find the average cost of an apple.

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

**Q19.** . If (a + b) : (b + c) : (c + a) = 6 : 7 : 8 and (a + b + c) = 14, then the value of c is

(1) 6 (2) 7 (3) 8 (4) 14

**Q20.** The ratio of boys and girls in a college is 5 : 3. If 50 boys leave the college and 50 girls join the college, the ratio becomes 9 : 7. The number of boys in the college is

(1) 300 (2) 400 (3) 500 (4) 600

**TYPE–II : Questions based on Fractions ...**

**Q21.** If 177 is divided into 3 parts in the ratio 1/2 : 2/3 : 4/5 , then the second part is

(1) 75 (2) 45 (3) 72 (4) 60

**Q22.** A and B together have Rs. 6300. If 5/19 th of A’s amount is equal to 2/5 th of B’s amount. The amount of ‘B’ is

(1) Rs. 2500 (2) Rs. 3800

(3) Rs. 2300 (4) Rs. 4000

**Q23.** Rs. 782 is divided into three parts in the ratio 1/2 : 2/3 : 3/4 , the first part is

(1) Rs. 182 (2) Rs. 204 (3) Rs. 190 (4) Rs. 196

**TYPE–III : Questions based on Percentage ....**

**Q24.** There is a ratio of 5 : 4 between two numbers. If 40 per cent of the first is 12, then 50% of the second number is

(1) 12 (2) 24 (3) 18 (4) 20

**Q25.** There is a ratio of 5 : 4 between two numbers. If 40 per cent of the first is 12, then 50% of the second number is

(1) 12 (2) 24 (3) 18 (4) 20

**Q26.** The ratio of the number of boys and girls in a school is 8 : 12. If 50% of boys and 25% of girls are getting scholarships for their studies, what is the percentage of school students who are not getting any scholarships?

(1) 65 (2) 66 (3) 67 (4) 68

**Q27.** In an ornament the ratio of gold and copper is 3 : 2. The percentage of gold in the ornament is :

(1) 60 (2) 40 (3) 30 (4) 20

**TYPE–IV : Questions based on Age ..........**

**Q28.** The ratio of ages of two students is 3 : 2. One is older to the other by 5 years. What is the age of the younger student ?

(1) 2 years (2) 10 years

(3) 2 years (4) 15 years

**Q29.** The ratio of present age of two brothers is 1 : 2 and 5 years back. the ratio was 1 : 3. What will be the ratio of their age after 5 years ?

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

**Q30.** The sum of the age of a father and his son is 100 years now. 5 years ago their age were in the ratio of 2 : 1. The ratio of the age of father and son after 10 years will be

(1) 5 : 3 (2) 4 : 3 (3) 10 : 7 (4) 3 : 5

**Q31.** Four years ago, the ratio of A’s age to B’s age was 11 : 14 and four years later their age will be in the ratio 13 : 16. The present age of A is

(1) 48 years (2) 26 years

(3) 44 years (4) 28 years

**Q32.** At present, the ratio of the age of Maya and Chhaya is 6 : 5 and fifteen years from now, the ratio will get changed to 9 : 8. Maya’s present age is

(1) 21 years (2) 24 years

(3) 30 years (4) 40 years

**Q33.** The ratio of the age of Ram and Rahim 10 years ago was 1 : 3. The ratio of their age five years hence will be 2 : 3. Then the ratio of their present age is

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

**Q34.** The ratio of the age of a father to that of his son is 5: 2. If the product of their ages in years is 1000, then the father's age (in years) after 10 years will be :

(1) 50 (2) 60 (3) 80 (4) 100

**Q35.** The ratio between Sumit’s and Prakash’s age at present is 2 : 3. Sumit is 6 years younger than Prakash. The ratio of Sumit’s age to Prakash’s age after 6 years will be

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

**Q36.** Harsha is 40 years old and Ritu is 60 years old. How many years ago was the ratio of their ages 3:5?

(1) 10 years (2) 20 years

(3) 37 years (4) 5 years

**Q37.** The ratio of present age of two brothers is 1 : 2 and 5 years back the ratio was 1 : 3. What will be the ratio of their age after 5 years ?

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

**TYPE–V : Questions based on addition, difference and product ...**

**Q38**. The ratio of two numbers is 3 : 8 and their difference is 115. The smaller of the two numbers is :

(1) 184 (2) 194 (3) 69 (4) 59

**Q39.** Four numbers are in the ratio 1 : 2 : 3 : 4. Their sum is 16. The sum of the first and fourth number is equal to :

(1) 5 (2) 8 (3) 10 (4) 80

**Q40.** The sum of two numbers is 40 and their difference is 4. The ratio of the numbers is :

(1) 21 : 19 (2) 22 : 9 (3) 11 : 9 (4) 11 : 18

**Q41.** The product of two positive integers is 1575 and their ratio is 9 : 7. The smaller integer is

(1) 25 (2) 35 (3) 45 (4)70

**Q42.** Three numbers are in the ratio of 3 : 2 : 5 and the sum of their squares is 1862. The smallest of these numbers is

(1) 24 (2) 21 (3) 14 (3) 35

**Q43.** When a particular number is subtracted from each of 7, 9, 11 and 15, the resulting numbers are in proportion. The number to be subtracted is :

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

**Q44.** The number to be added to each of the numbers 7, 16, 43, 79 to make the numbers in proportion is

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

**Q45.** What number should be added to each of 6, 14, 18 and 38 so that the resulting numbers make a proportion?

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

**Q46.** What number should be subtracted from both terms of the ratio 15 : 19 in order to make it 3 : 4 ?

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

**Q47.** The ratio of number of balls in bags x,y is 2 : 3. Five balls are taken from bag y and are dropped in bag x. Number of balls are equal in each bag now. Number of balls in each bag now is

(1) 45 (2) 20 (3) 30 (4) 25

**Q48.**  If the square of the sum of two numbers is equal to 4 times of their product, then the ratio of these numbers is :

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

**Q49.** Three numbers are in the ratio 2 : 3 : 4. If the sum of their squares is 1856, then the numbers are

(1) 8, 12 and 16 (2) 16, 24 and 32

(3) 12, 18 and 24 (4) None of the above

**Q50.** Two numbers whose sum is 84 cannot be in the ratio

(1) 5 : 7 (2) 13 : 8 (3) 1 : 3 (4) 3 : 2

**TYPE–VI : Questions based on L.C.M. & H.C.F. ..**.

**Q51.** Two numbers are in the ratio 4 : 5 and their L.C.M. is 180. The smaller number is

(1) 9 (2) 15 (3) 36 (4) 45

**Q52.** Two numbers are in the ratio 3 : 5 and their LCM is 225. The smaller number is

(1) 45 (2) 60 (3) 75 (4) 90

**Q53.** The ratio of two numbers is 3 : 4 and their LCM is 48. The sum of the two numbers is :

(1) 32 (2) 28 (3) 26 (4) 24

**Q54.** The ratio of two numbers is 3 : 4 and their HCF is 15. Then the sum of the two numbers is :

(1) 105 (2) 115 (3) 120 (4) 110

**Q55.** The ratio of two numbers is 3 : 4 and their HCF is 9. Then the two numbers is :

(1) 3, 4 (2) 27, 36

(3) 36, 27 (4) None of these

**TYPE–VII : Finding the sum/difference/ product of numbers where some change has been done in given ratio...**

**Q56.** A and B have money in the ratio 2 : 1. If A gives 2 to B, the money will be in the ratio 1 : 1. What were the initial amounts they had?

(1) 12 and 6 (2) 16 and 8

(3) 8 and 4 (4) 6 and 3

**Q57.** The ratio of the number of boys and girls of a school with 504 students is 13 : 11. What will be the new ratio if 12 more girls are admitted?

(1) 91 : 81 (2) 81 : 91 (3) 9 : 10 (4) 10 : 9

**Q58.** The students in three classes are in the ratio 2 : 3 : 5. If 40 students are increased in each class, the ratio changes to 4 : 5 : 7. Originally, the total number of students was : (1) 100 (2) 180 (3) 200 (4) 400

**Q59.** Two numbers are in the ratio 5 : 7. If 9 is subtracted from each of them, their ratio becomes 7 : 11. The difference of the numbers is

(1) 6 (2) 12 (3) 15 (4) 18

**Q60.** The students in three classes are in the ratio 2 : 3 : 5. If 20 students are increased in each class, the ratio changes to 4 : 5 : 7. Originally the total number of students was :

(1) 50 (2) 90 (3) 100 (4) 150

**Q61.** The total number of students in a school was 660. The ratio between boys and girls was 13 : 9. After some days, 30 girls joined the school and some boys left the school and new ratio between boys and girls became 6 : 5. The number of boys who left the school is :

(1) 50 (2) 40 (3) 30 (4) 60

**Q62.** Two numbers are in the ratio of 3 : 5. If 9 be subtracted from each, then they are in the ratio of 12 : 23. Find the numbers.

(1) 15, 28 (2) 36, 115 (3) 33, 55 (4) 60, 69

**TYPE–VIII : Questions based on Allegation or Mixtures....**

**Q63.** Zinc and copper are in the ratio of 5 : 3 in 200 gm of an alloy. How much grams of copper be added to make the ratio as 3 : 5?

(1) 133 (2) 1/200 (3) 72 (4) 66

**Q64.** The ratio of copper and zinc in brass is 13 : 7. How much zinc will be there in 100 kg of brass ?

(1) 20 kg. (2) 55 kg. (3) 35 kg. (4) 40 kg

**Q65.** In 30 litres mixture of acid, the ratio of acid and water is 2 : 3 . What amount of water should be added to the mixture so that the ratio of acid and water becomes 2 : 5 ?

(1) 10 litres (2) 15 litres

(3) 18 litres (4) 12 litres

**Q66.** The ratio in which a man must mix rice at 10.20 per kg and 14.40 per kg so as to make a mixture worth 12.60 per kg, is

(1) 4 : 3 (2) 2 : 5 (2) 18 : 24 (4) 3 : 4

**Q67.** A mixture contains spirit and water in the ratio 3 : 2. If it contains 3 litres more spirit than water, the quantity of spirit in the mixture is

(1) 10 litres (2) 12 litres (3) 8 litres (4) 9 litres

**Q68**. A vessel is filled with liquid, 3 parts of which are water and 5 parts syrup. How much of the mixture must be drawn off and replaced with water so that the mixture may be half water and half syrup ?

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

**Q69.** Two vessels A and B contain milk and water mixed in the ratio 4 : 3 and 2 : 3. The ratio in which these mixtures be mixed to form a new mixture containing half milk and half water is

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

**Q70.** A container contains 60 kg of milk. From this container 6 kg of milk was taken out and replaced by water. This process was repeated further two times. The amount of milk left in the container is

(1) 34.24 kg (2) 39.64 kg

(3) 43.74 kg (4) 47.6 kg

**Q71.** The proportion of acid and water in three samples is 2 : 1, 3 : 2 and 5 : 3. A mixture containing equal quantities of all three samples is made. The ratio of water and acid in the mixture is :

(1) 120 : 133 (2) 227 : 133

(3) 227 : 120 (4) 133 : 227

**Q72.** Two alloys are both made up of copper and tin. The ratio of copper and tin in the first alloy is 1 : 3 and in the second alloy is 2 : 5. In what ratio should the two alloys be mixed to obtain a new alloy in which the ratio of tin and copper be 8 : 3 ?

(1) 3 : 5 (2) 4 : 7 (3) 3 : 8 (4) 5 : 11

**Q73.** A vessel contains 20 litres of acid. 4 litres of acid is taken out of the vessel and replaced by the same quantity of water. Next 4 litres of the mixture are withdrawn, and again the vessel is filled with the same quantity of acid left in the vessel with the quantity of acid initially in the vessel is

(1) 4 : 5 (2) 4 : 25 (3) 16 : 25 (4) 1 : 5

**Q74.** Three utensils contain equal quantity of mixtures of milk and water in the ratio 6 : 1, 5 : 2 and 3 : 1 respectively. If all the solutions are mixed together, the ratio of milk and water in the final mixture is

(1) 65 : 28 (2) 65 : 19 (3) 19 : 65 (4) 19 : 28

**Q75.** 60 kg of an alloy A is mixed with 100 kg of alloy B. If alloy A has lead and tin in the ratio 3 : 2 and alloy B has tin and copper in the ratio 1 : 4, the amount of tin in the new alloy is

(1) 53 kg (2) 44 kg (3) 80 kg (4) 24 kg

**TYPE–IX : Questions based on Income or Expenditure ....**

**Q76.** A and B have monthly incomes in the ratio 5 : 6 and monthly expenditures in the ratio 3 : 4. If they save 1800 and 1600 respectively, find the monthly income of B :

(1) 3400 (2) 2700 (3) 1720 (4) 7200

**Q78.** The ratio of income of two persons is 5 : 3 and that of their expenditures is 9 : 5. Find the income of each person, if they save 1,300 and 900 respectively.

(1) 4,000, 2,400 (2) 3,000, 1,800

(3) 5,000, 3,000 (4) 4,500 2,700

**Q79.** The annual income of A and B are in the ratio 4 : 3 and the ratio of their expenditures is 3 : 2. If each of them saves 600 in the year, the annual income of A is

(1) 4800 (2) 1800 (3) 1200 (4) 2400

**Q80.** The ratio of incomes of A and B is 5 : 6. If A gets 1,100 less than B, their total income (in rupees) is

(1) 9,900 (2) 12,100 (3) 14,400 (4) 10,000

**Q81.** The income of A and B are in the ratio 5 : 3. The expenses of A, B and C are in the ratio 8 : 5 : 2. If C spends 2000 and B saves 700, then A saves

(1) 1500 (2) 1000 (3) 500 (4) 250

**Q82.** The ratio of the income to the expenditure of a family is 10 : 7. If the family’s expenses are 10,500, then savings of the family is

(1) 4, 500 (2) 10, 000 (3) 4, 000 (4) 5, 000

**Q83.** If the annual income of A, B and C are in the ratio 1 : 3 : 7 and the total annual income of A and C is 8,00,000, then the monthly salary of B (in ) is

(1) 20,000 (2) 25,000 (3) 30,000 (4) 15,000

**TYPE–X : Questions based on Coins and Rupees ....**

**Q84.** Rs.180 contained in a box consists of one rupee, 50 paise and 25 paise coins in the ratio 2 : 3 : 4. What is the number of 50 paise coins?

(1) 60 (2) 120 (3) 150 (4) 180

**Q85.** A bag contains 90 in coins of denominations of 50 paise, 25 paise and 10 paise. If coins of 50 paise, 25 paise and 10 paise are in the ratio 2 : 3 : 5, then the number of 25 paise coins in the bag is

(1) 80 (2) 120 (3) 100 (4) 135

**Q86.** If 378 coins consist of rupees, 50 paise and 25 paise coins, whose values are in the ratio of 13 : 11 : 7, the number of 50 paise coins will be : (1) 132 (2) 128 (3) 136 (4) 133

**Q87.** A box has 210 coins of denominations one-rupee and fifty paise only. The ratio of their respective values is 13 : 11. The number of one-rupee coins is

(1) 65 (2)66 (3) 77 (4)78

**Q89.** A bag contains three types of coins-rupee-coins. 50p-coins and 25 p-coins totalling 175 coins. If the total value of the coins of each kind be the same, the total amount in the bag is

(1) 75 (2) 175 (3) 300 (4) 126

**Q90.** There are 480 coins in half rupees, quarter rupees and 10 paise coins and their values are proportional to 5 : 3 : 1. The number of coins in each case are

(1) 100, 200, 180 (2) 50, 30, 400

(3) 150, 180, 150 (4) 300, 90, 90

**TYPE–XI : Questions based on Shares and Partners..**

**Q91.** By mistake, instead of dividing 117 among A, B and C in the ratio ½ : 1/3 : 1/4 it was divided in the ratio of 2 : 3 : 4. Who gains the most and by how much?

(1) A, 28 (2) B, 3 (3) C, 20 (4) C, 25

**Q92.** If a sum of money is to be divided among A, B, C such that A’s share is equal to twice B’s share and B’s share is 4 times C’s share, then their shares are in the ratio:

(1) 1 : 2 : 4 (2) 1 : 4 : 1

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

**Q93.** A sum of 53 is divided among A, B and C in such a way that A gets 7 more than what B gets and B gets 8 more than what C gets. The ratio of their share is

(1) 16 : 9 : 18 (2) 25 : 18 : 10

(3) 18 : 25 : 10 (4) 15 : 8 : 30

**Q94.** A sum of 300 is divided among P, Q and R in such a way that Q gets 30 more than P and R gets 60 more than Q. The ratio of their share is (1) 5 : 3 : 2 (2) 2 : 3 : 5

(3) 3 : 2 : 5 (4) 2 : 5 : 3

**Q95.** A sum of 300 is divided among P, Q and R in such a way that Q gets 30 more than P and R gets 60 more than Q. The ratio of their share is (1) 5 : 3 : 2 (2) 2 : 3 : 5

(3) 3 : 2 : 5 (4) 2 : 5 : 3

**Q96.** Two alloys A and B contain gold and copper in the ratio of 2 : 3 and 3 : 7 by mass, respectively. equal masses of alloys A and B are melted to make an alloy C. the ratio of gold and copper in alloy C is……… **GATE-2018**

a) 5 : 10 b) 7 : 13 c) 6 : 11 d) 9 : 13

Q97. The ratio of boys to girls in a class is 7 to 3. Among the positions below, an acceptable value for the total number of students in the class is: **GATE-2021**

a) 21 b) 37 c) 50 d) 73

Q97. The number of students in three classes is in the ratio 3 : 13 : 6. If 18 students are added to each class, the ratio changes to 15 : 35 : 21. The total number of students in all the three classes in the beginning was: **GATE-2021**

a) 22 b) 66 c) 88 d) 110

Q98. The number of hens, ducks and goats in farm P are 65, 91 and 169 respectively. The total number of hens, ducks and goats in a nearby farm Q is 416. The ratio of hens: ducks : goats in farm Q is 5 : 14 : 13. All the hens, ducks and goats are sent from farm Q to farm P. the new ratio of hens : ducks : goats in farm P is?

**GATE-2021**

a) 5 : 7 : 13 b) 5 : 14 : 13

c) 10 : 21 : 26 d) 21 : 10 : 26

**Q99.** The ratio of ‘ the sum of the odd positive integers from 1 to 100’ to ‘ the sum of the even positive integers from 150 to 200’ is……

**GATE-2020**

a) 50:91 b) 1 : 1 c) 1 : 2 d) 45 : 95

**Q100**. In a party, 60% of the invited guests are male and 40% are female. If 80% of the invited guests attended the party and if all the invited female guests attended, what would be the ratio of males to females among the attendees in the party? **GATE-2018**

(A) 2:3 (B) 1:1 (C)3:2 (D) 2:1

**Q101.** Two alloys A and B contain gold and copper in the ratios of 2:3 and 3:7 by mass, respectively. Equal masses of alloys A and B are melted to make an alloy C. The ratio of gold to copper in alloy C is\_\_\_\_\_\_**(2mark) GATE-2018**

(A) 5:10 (B) 7:13 (C) 6:11 (D) 9:13

**REFERENCE BOOKS**

**R S AGGARWAL QUANTITATIVE APTITUDE**

**TATA Mc GRAW HILL QUANTITATIVE APTITUDE, NEW DELHI**

**GULATI OBJECTIVE ARITHMETICS**

**KIRAN PRAKASH QUANTITATIVE APTITUDE**

**FAST TRACK OBJECTIVE ARITHMETICS**

**Prepared By…..**

**G SURESH**

**SIMPLE INTEREST**

**TYPE–I : Questions based on the basic formula of Simple Interest**

Q1. What sum of money must be given as simple interest for six months at 4% per annum in order to earn 150 interest?

(1) 5000 (2) 7500 (3) 10000 (4) 15000

Q2. A sum of 1600 gives a simple interest of 252 in 2 years and 3 months. The rate of interest per annum is:

(1) 5% (2) 8% (3) 7% (4) 6%

Q3. How much simple interest will Rs. 4000 earn in 18 months at 12% per annum?

(1) Rs. 216 (2) Rs. 360 (3) Rs. 720 (4) Rs. 960

**TYPE–II : The sum of money becomes 'n' times of itself in 't' years at a certain rate of Simple Interest .**

Q4. A sum of money becomes 7/6 of itself in 3 years at a certain rate of simple interest. The rate per annum is :

(1) 5 % (2) 6% (3) 18% (4) 25%

Q5. A sum of money becomes 41/40 of itself in 1 4 years at a certain rate of simple interest. The rate of interest per annum is

(1) 10% (2) 1% (3) 2.5% (4) 5%

Q6. A certain sum of money becomes three times of itself in 20 years at simple interest. In how many years does it become double of itself at the same rate of simple interest ?

(1) 8 years (2) 10 years

(3) 12 years (4) 14 years

Q7. At what rate per cent per annum will the simple interest on a sum of money be 2/5 of the amount in 10 years ?

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

Q8. A sum of money at simple interest trebles itself in 15 years. It will become 5 times of itself in

(1) 40 years (2) 36 years

(3) 30 years (4) 25 years

Q9. In how many years will a sum of money double itself at 6% simple interest per annum ?

(1) 24 years (2) 20 years

(3) 16 years (4) 12 years

Q10. The simple interest on a sum of money is 8/25 of the sum. If the number of years is numerically half the rate percent per annum, then the rate percent per annum is

(1) 5 (2) 8 (3) 6 (4) 4

**TYPE–III :**  **Questions based on the difference and equality of Simple Interest rate and years ....**

Q11. The simple interest on a certain sum at 5% per annum for 3 years and 4 years differ by 42. The sum is :

(1) 210 (2) 280 (3) 750 (4) 840

Q12. Mohan lent some amount of money at 9% simple interest and an equal amount of money at 10% simple interest each for two years. If his total interest was Rs. 760, what amount was lent in each case ?

(1) 1700 (2) 1800 (3) 1900 (4) 2000

Q13. A sum of 1500 is lent out in two parts in such a way that the simple interest on one part at 10% per annum for 5 years is equal to that on another part at 12.5% per annum for 4 years. The sum lent out at 12.5% is :

(1) 500 (2) 1000 (3) 750 (4) 1250

Q14. Simple interest on 500 for 4 years at 6.25% per annum is equal to the simple interest on 400 at 5% per annum for a certain period of time. The period of time is

(1) 4 years (2) 5 years

(3) 6years (4) 8years

Q15. If 12,000 is divided into two parts such that the simple interest on the first part for 3 years at 12% per annum is equal to the simple interest on the second part for 4 1 2 years at 16% per annum, the greater part is

(1) 8,000 (2) 6,000 (3) 7,000 (4) 7,500

Q16. Ram deposited a certain sum of money in a company at 12% per annum simple interest for 4 years and deposited equal amount in fixed deposit in a bank for 5 years at 15% per annum simple interest. If the difference in the interest from two sources is 1350, then the sum deposited in each case is :

(1) 3000 (2) 4000 (3) 5000 (4) 6500

**TYPE–V : Questions based on ratios ........**

Q17. Ratio of the principal and the amount after 1 year is 10:12. Then the rate of interest per annum is :

(1) 12% (2) 16% (3) 18% (4) 20%

Q18. In a certain time, the ratio of a certain principal and the simple interest obtained from it are in the ratio 10 : 3 at 10% interest per annum. The number of years the money was invested is

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

Q19. If the ratio of principal and the simple interest for 5 years is 10 : 3, then the rate of interest is :

(1) 5% (2) 6% (3) 8% (4) 3%

Q20. A sum of Rs. 4000 is lent out in two parts, one at 8% simple interest and the other at 10% simple interest. If the annual interest is Rs. 352, the sum lent at 8% is

(1) Rs. 2900 (2) Rs. 2200

(3) Rs. 2400 (4) Rs. 3100

**TYPE–VI : Questions based on Increase/ decrease in rate of Interest**

Q21. A sum of 400 amounts to 480 in 4 years. What will it amount to if the rate of interest is increased by 2%?

(1) 484 (2) 560 (3) 512 (4) None of these

Q22. A man loses 55.50 yearly when the annual rate of interest falls from 11.5% to 10%. His capital (in rupees) is

(1) 3700 (2) 7400 (3) 8325 (4) 11100

Q23. A sum of 2,400 amounts to 3,264 in 4 years at a certain rate of simple interest. If the rate of interest is increased by 1%, the same sum in the same time would amount to

(1) 3,288 (2) 3,312 (3) 3,340 (4) 3,360

Q24. . 800 amounts to 920 in 3 years at simple interest. If the interest rate is increased by 3%, it would amount to

(1) 1,056 (2) 1,112 (3) 1,182 (4) 992

Q25. A sum was lent at simple interest at a certain rate for 2 years. Had it been lent at 3% higher rate, it would have fetched 300 more. The original sum of money was :

(1) 5000 (2) 6000 (3) 7000 (4) 4000

Q26. A person who pays income tax at the rate of 4 paise per rupee, find that a fall of interest rate from 4% to 3.75% diminishes his net yearly income by 48. What is his capital ?

(1) 24,000 (2) 25,000 (3) 20,000 (4) 18,000

**TYPE–VII : Miscellaneous Questions ....................**

Q27. A sum of 10,000 is lent partly at 8% and remaining at 10% per annum. If the yearly interest on the average is 9.2%, the two parts are :

(1) 4000, 6000 (2) 4500, 5500

(3) 5000, 5000 (4) 5500, 4500

Q28. A sum of 1000 is lent out partly at 8% and the remaining at 10% per annum. If the yearly income on the average is 9.2%, the two parts respectively are

(1) 400, 600 (2) 450, 550

(3) 500, 500 (4) 550, 450

Q30. A person lends 40% of his sum of money at 15% per annum, 50% of rest at 10% per annum and the rest at 18% per annum rate of interest. What would be the annual rate of interest, if the interest is calculated on the whole sum ?

(1) 13.4% (2) 14.33% (3) 14.4% (4) 13.33%

Q31. What equal installment of annual payment will discharge a debt which is due as 848 at the end of 4 years at 4% per annum simple interest?

(1) 212 (2) 200 (3) 250 (4) 225

Q32. What equal installment of annual payment will discharge a debt which is due as 1092 at the end of 3 years at 12% per annum simple interest?

(1) 325 (2) 425 (3) 350 (4) 450

Q33. The effective annual rate of interest, corresponding to a nominal rate of 6% per annum payable half yearly, is :

(1) 6.06% (2) 6.07% (3) 6.08% (4) 6.09%

Q34. Two equal sums were lent out at 7% and 5% S.I. respectively. The interest earned on the two loans add up to 960 for 4 years. The total sum lent out in

(1) 3500 (2) 2500 (3) 2000 (4) 3000

Q35. What should be the least number of years in which the simple interest on Rs. 2600 at 6% will be an exact number of rupees?

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

Q36. Ram bought a bike for Rs. 60,000. He paid Rs. 10000 cash down and the rest at the end of 2 years at 15% simple interest. How much more did he pay as simple interest?

(1) Rs. 15,000 (2) Rs. 25,000

(3) Rs. 35,000 (4) Rs. 50,000

Q37. A man buys a TV priced at Rs. 16000. He pays Rs. 4000 at once and the rest after 15 months on which he is charged a simple interest at the rate of 12% per year. The total amount he pays for the TV is

(1) Rs. 18,200 (2) Rs. 17,800

(3) Rs. 16,800 (4) Rs. 17,200

Q38. Arun lends 20,000 to two of his friends. He gives 12,000 to the first at 8% p.a. simple interest. Arun wants to make a profit of 10% on the whole. The simple interest rate at which he should lend the remaining sum of money to the second friend is

(1) 8% (2) 16% (3) 12% (4) 13%

Q39. A sum of 1750 is divided into two parts such that the interests on the first part at 8% simple interest per annum and that on the other part at 6% simple interest per annum are equal. The interest on each part (In rupees) is

(1) 60 (2) 65 (3) 70 (4) 40

Q40. The simple interest on a certain sum of money at the rate of 5% per annum for 8 years is Rs. 840. Rate of interest for which the same amount of interest can be received on the same sum after 5 years is :

(1) 7% per annum (2) 8% per annum

(3) 9% per annum (4) 10% per annum

**REFERENCE BOOKS**

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**GULATI OBJECTIVE ARITHMETICS**

**KIRAN PRAKASH QUANTITATIVE APTITUDE**

**FAST TRACK OBJECTIVE ARITHMETICS**

**Prepared By…..**

**G SURESH**

**TIME AND DISTANCE**

**TYPE–I : Questions based on the basic concept of time and distance .**

**Q1.** A train is travelling at the rate of 45km/hr. How many seconds it will take to cover a distance of 4 5 km ?

(1) 36 sec. (2) 64 sec.

(3) 90 sec. (4) 120 sec

**Q2.** A man walking at the rate of 5 km/hr. crosses a bridge in 15 minutes. The length of the bridge (in metres) is :

(1) 600 (2) 750 (3) 1000 (4) 1250

**Q3.** A man crosses a road 250 metres wide in 75 seconds. His speed in km/hr is :

(1) 10 (2) 12 (3) 12.5 (4) 15

**Q4.** A train is moving with the speed of 180 km/hr. Its speed (in metres per second) is :

(1) 5 (2) 40 (3) 30 (4) 50

**Q5.** car travelling at a speed of 40 km/hour can complete a journey in 9 hours. How long will it take to travel the same distance at 60 km/hour ?

(1) 6 hours (2) 3 hours

(3) 4 hours (4) 4 hours

**Q6.** The speed of a bus is 72 km/hr. The distance covered by the bus in 5 seconds is

(1) 100 m (2) 60 m

(3) 50 m (4) 74.5 m

**Q7.** Walking at the rate of 4 km an hour, a man covers a certain distance in 3 hours 45 minutes. If he covers the same distance on cycle, cycling at the rate of 16·5 km/hour, the time taken by him is

(1) 55.45 minutes (2) 54.55 minutes

(3) 55.44 minutes (4) 45.55 minutes

**Q8.** A train covers a distance of 10 km in 12 minutes. If its speed is decreased by 5 km/hr, the time taken by it to cover the same distance will be :

(1) 10 minutes (2) 13 minutes 20 sec

(3) 13 minutes (4) 11 minutes 20 sec

**Q9.** A bus moving at 40 km per hour covers a distance in 6 hours 15 minutes. If it travels the same distance at 50 km per hour how long will it take to cover the distance ?

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

**Q10.** A man travels 3/4 th of the distance of his journey by bus, 1/6 th by rickshaw and 2 km on foot. The total distance travelled by the man is :

(1) 12 km (2) 18 km (3) 20 km (4) 24 km

**Q11.** A is twice as fast as B and B is thrice as fast as C is. The journey covered by C in 1 1 2 hours will be covered by A in

(1) 15 minutes (2) 20 minutes

(3) 30 minutes (4) 1 hour

**Q12.** Sriya with her family travelled from Bolpur to Suri by car at a speed of 40 km/hr and returned to Bolpur at a speed of 50 km/ hr. The average speed for the whole journey is

(1) 44 km/hr (2) 45 km/hr

(3) 45 km/hr (4) 44.78 km/hr

**Q13.** A car can finish a certain journey in 10 hours at the speed of 42 kmph. In order to cover the same distance in 7 hours, the speed of the car (km/h) must be increased by :

(1) 12 (2) 15 (3) 18 (4) 24

**TYPE–II : Questions based on Rail and a man/pole/signal .....**

**Q14.** A train 100m long is running at the speed of 30 km/hr. The time (in second) in which it will pass a man standing near the railway line is :

(1) 10 (2) 11 (3) 12 (4) 15

**Q15.** A train is 125 m long. If the train takes 30 seconds to cross a tree by the railway line, then the speed of the train is :

(1) 14 km/hr (2) 15 km/hr

(3) 16 km/hr (4) 12 km/hr

**Q16.** If a train, with a speed of 60 km/ hr, crosses a pole in 30 seconds, the length of the train (in metres) is :

(1) 1000 (2) 900 (3) 750 (4) 500

**Q17.** A train 180 m long moving at the speed of 20 m/sec. over-takes a man moving at a speed of 10m/ sec in the same direction. The train passes the man in :

(1) 6 sec (2) 9 sec (3) 18 sec (4) 27 sec

**Q18.** How many seconds will a 500 metre long train take to cross a man walking with a speed of 3 km/hr. in the direction of the moving train if the speed of the train is 63 km/hr ?

(1) 25 sec (2) 30 sec (3) 40 sec (4) 45 sec

**Q19.** A train, 240 m long crosses a man walking along the line in opposite direction at the rate of 3 kmph in 10 seconds. The speed of the train is

(1) 63 kmph (2)75 kmph

(3) 83.4 kmph (4) 86.4 kmph

**Q20.** A train passes two persons walking in the same direction at a speed of 3 km/hour and 5km/ hour respectively in 10 seconds and 11 seconds respectively. The speed of the train is (1) 28 km/hour (2) 27 km/hour

(3) 25 km/hour (4) 24 km/hour

**TYPE–III : Questions based on Rail and Platform/Bridge.......**

**Q21.** A train is moving at a speed of 132 km/hour. If the length of the train is 110 metres, how long will it take to cross a railway platform 165 metres long?

(1) 5 seconds (2) 7.5 seconds

(3) 10 seconds (4) 15 seconds

**Q22.** A train travelling at a speed of 30 m/sec crosses a platform, 600 metres long, in 30 seconds. The length (in metres) of train is

(1) 120 (2) 150 (3) 200 (4) 300

**Q23.** A train of length 500 feet crosses a platform of length 700 feet in 10 seconds. The speed of the train is

(1) 70 ft/second (2) 85 ft/second

(3) 100 ft/second (4) 120 ft/second

**Q24.** If a man running at 15 kmph crosses a bridge in 5 minutes, the length of the bridge is

(1) 1000 metres (2) 500 metres

(3) 750 metres (4) 1250 metres

**Q25.** A train passes two bridges of lengths 800 m and 400 m in 100 seconds and 60 seconds respectively. The length of the train is :

(1) 80 m (2) 90 m (3) 200 m (4) 150 m

**Q26.** A train travelling with uniform speed crosses two bridges of lengths 300 m and 240 m in 21 seconds and 18 seconds respectively. The speed of the train is :

(1) 72 km/hr (2)68 km/hr

(3) 65 km/hr (4)60 km/hr

**Q27.** A train 800 metres long is running at the speed of 78 km/hr. If it crosses a tunnel in 1 minute, then the length of the tunnel (in metres) is :

(1) 77200 (2) 500 (3) 1300 (4) 13

**TYPE–IV : Questions based on two Rails cross each other in opposite direction .......**

**Q28.** Two trains of length 137 metre and 163 metre are running with speed of 42 km/hr and 48 km/hr respectively towards each other on papallel tracks. In how many seconds will they cross each other?

(1) 30 sec (2) 24 sec (3) 12 sec (4) 10 sec

**Q29.** Two trains of length 70 m and 80 m are running at speed of 68 km/hr and 40 km/hr respectively on parallel tracks in opposite directions. In how many seconds will they pass each other ?

(1) 10 sec (2) 8 sec (3) 5 sec (4) 3 sec

**Q30.** Two trains of length 70 m and 80 m are running at speed of 60 km/hr and 40 km/hr respectively on parallel tracks in same directions. In how many seconds will they pass each other ?

(1) 20 sec (2) 25 sec (3) 27 sec (4) 30 sec

**Q31.** The distance between two cities A and B is 330 km. A train starts from A at 8 a.m. and travels towards B at 60 km/hr. Another train starts from B at 9 a.m. and travels towards A at 75 km/hr. At what time do they meet?

(1) 10 a.m. (2) 10 : 30 a.m.

(3) 11 a.m. (4) 11 : 30 a.m.

**Q32.** Two towns A and B are 500 km. apart. A train starts at 8 AM from A towards B at a speed of 70 km/ hr. At 10 AM, another train starts from B towards A at a speed of 110 km/hr. When will the two trains meet ?

(1) 1 PM (2) 12 Noon

(3) 12.30 PM (4) 1.30 PM

**Q33.** Two trains start at the same time from A and B and proceed toward each other at the speed of 75 km/hr and 50 km/hr respectively. When both meet at a point in between, one train was found to have travelled 175 km more than the other. Find the distance between A and B.

(1) 875 km. (2) 785 km.

(3) 758 km. (4) 857 km

**Q34.** Two trains start at the same time from Aligarh and Delhi and proceed towards each other at the rate of 14 km and 21 km per hour respectively. When they meet, it is found that one train has travelled 70 km more than the other. The distance between two stations is

(1) 350 km (2) 210 km

(3) 300 km (4) 140 km

**Q35.** Two trains are running in opposite direction with the same speed. If the length of each train is 120 metres and they cross each other in 12 seconds, the speed of each train (in km/hour) is

(1) 72 (2) 10 (3) 36 (4) 18

**Q36.** Two trains of equal length, running in opposite directions, pass a pole in 18 and 12 seconds. The trains will cross each other in

(1) 14.4 seconds (2) 15.5 seconds

(3) 18.8 seconds (4) 20.2 seconds

**Q37.** A train running at the speed of 84 km/hr passes a man walking in opposite direction at the speed of 6 km/hr in 4 seconds. What is the length of train (in metre) ?

(1) 150 (2) 120 (3) 100 (4) 90

**TYPE–V : Questions based on two train travel in same direction at different speed or thief/ constable overtake.** .

**Q38.** Two trains, 80 metres and 120 metres long, are running at the speed of 25 km/hr and 35 km/hr respectively in the same direction on parallel tracks. How many seconds will they take to pass each other ?

(1) 48 (2) 64 (3) 70 (4) 72

**Q39.** Two trains travel in the same direction at the speed of 56 km/h and 29 km/h respectively. The faster train passes a man in the slower train in 10 seconds. The length of the faster train (in metres) is

(1) 100 (2) 80 (3) 75 (4) 120

**Q40.** A bus moving at a speed of 45 km/hr overtakes a truck 150 metres ahead going in the same direction in 30 seconds. The speed of the truck is

(1) 27 km/hr (2) 24 km/hr

(3) 25 km/hr (4) 28 km/hr

**Q41.** Two trains start from a certain place on two parallel tracks in the same direction. The speed of the trains are 45 km/hr and 40 km/ hr respectively. The distance between the two trains after 45 minutes will be

(1) 2 km 500 m (2) 2 km 750 m

(3) 3 km 750 m (4) 3 km 250 m

**Q42.** A thief is noticed by a policeman from a distance of 200m. The thief starts running and the policeman chases him. The thief and the policeman run at the rate of 10 km./ hr and 11 km./hr respectively. What is the distance between them after 6 minutes ?

(1) 100 m (2) 190 m (3) 200 m (4) 150 m

**Q43.** A constable is 114 metres behind a thief. The constable runs 21 metres and the thief runs 15 metres in a minute. In what time will the constable catch the thief ?

(1) 19 minutes (2) 18 minutes

(3) 17 minutes (4) 16 minutes

**Q44.** How much time does a train, 50 m long, moving at 68 km/ hour take to pass another train, 75 m long, moving at 50 km/ hour in the same direction ?

(1) 5 seconds (2) 10 seconds

(3) 20 seconds (4) 25 seconds

**Q45.** Two trains are running 40 km/hr and 20 km/hr respectively in the same direction. The fast train completely passes a man sitting in the slow train in 5 seconds. The length of the fast train is

(1) 23 m (2) 27 m

(3) 27 m (3) 23 m

**TYPE–VI : Questions based on a car travels with n/y of its usual speed ..**

**Q46.** A train running at of its own speed reached a place in 22 hours. How much time could be saved if the train would run at its own speed?

(1) 14 hours (2) 7 hours

(3) 8 hours (4) 16 hours

**Q47.** By walking at of his usual speed, a man reaches his office 20 minutes later than his usual time. The usual time taken by him to reach his office is

(1) 75 minutes (2) 60 minutes

(3) 40 minutes (4) 30 minutes

**Q48.** Walking at 6 7 th of his usual speed a man is 25 minutes late. His usual time to cover this distance is

(1) 2 hours 30 minutes

(2) 2 hours 15 minutes

(3) 2 hours 25 minutes

(4) 2 hours 10 minutes

**TYPE–VII : Questions based on average speed .....**

**Q49.** A boy rides his bicycle 10km at an average speed of 12 km/hr and again travels 12 km at an average speed of 10 km/hr. His average speed for the entire trip is approximately :

(1) 10.4 km/hr (2) 10.8 km/hr

(3) 11.0 km/hr (4) 12.2 km/hr

**Q50.** A train moves with a speed of 30 kmph for 12 minutes and for next 8 minutes at a speed of 45 kmph. Find the average speed of the train: (1) 37.5 kmph (2) 36 kmph

(3) 48 kmph (4) 30 kmph

**Q51.** A man covers half of his journey at 6km/hr and the remaining half at 3km/hr. His average speed is

(1) 9 km/hr (2) 4.5 km/hr

(3) 4 km/hr (4) 3 km/hr

**Q52.** A man goes from A to B at a uniform speed of 12 kmph and returns with a uniform speed of 4 kmph His average speed (in kmph) for the whole journey is :

(1) 8 (2) 7.5 (3) 6 (4) 4.5

**Q53.** A constant distance from Chennai to Bangalore is covered by Express train at 100 km/hr. If it returns to the same distance at 80 km/hr, then the average speed during the whole journey is

(1) 90.20 km/hr (2) 88.78 km/hr

(3) 88.98 km/hr (4) 88.89 km/hr

**Q54.** One third of a certain journey is covered at the rate of 25 km/ hour, one-fourth at the rate of 30 km/hour and the rest at 50 km/ hour. The average speed for the whole journey is

(1) 35 km/hour (2) 33 km/hour

(3) 30 km/hour (4) 37 km/hour

**Q55.** With an average speed of 40 km/ hr, a train reaches its destination in time. If it goes with an average speed of 35 km/hr, it is late by 15 minutes. The total journey is

(1) 30 km (2) 40 km (3) 70 km (4) 80 km

**Q56.** A man walks from his house at an average speed of 5 km per hour and reaches his office 6 minutes late. If he walks at an average speed of 6 km/h he reaches 2 minutes early. The distance of the office from his house is

(1) 6 km (2) 9 km (3) 12 km (4) 4 km

**Q57**. A car travels from A to B at the rate of 40 km/h and in the same time car travel from B to C at the rate of 60 km/ h. Its average speed during the whole journey is

(1) 48 km/h (2) 50 km/h

(3) 45 km/h (4) 60 km/h

**Q58.** A car travels from A to B at the rate of 50 km/h and in the same time car travel from B to C at the rate of 40 km/ h. Its average speed during the whole journey is

(1) 48 km/h (2) 50 km/h

(3) 45 km/h (4) 60 km/h

**TYPE–VIII : Questions based on Ratios**

**Q59.** The ratio of length of two trains is 5 : 3 and the ratio of their speed is 6 : 5. The ratio of time taken by them to cross a pole is

(1) 5 : 6 (2) 11 : 8 (3) 25 : 18 (4) 27 : 16

**Q60.** The speed of two trains are in the ratio 6 : 7. If the second train runs 364 km in 4 hours, then the speed of first train is

(1) 60 km/hr (2) 72 km/hr

(3) 78 km/hr (4) 84 km/hr

**Q61**. A truck covers a distance of 550 metres in 1 minute whereas a bus covers a distance of 33 kms in 45 minutes. The ratio of their speed is : (1) 4 : 3 (2) 3 : 5 (3) 3 : 4 (4) 50 : 3

**Q62.** Three cars travelled distance in the ratio 1 : 2 : 3. If the ratio of the time of travel is 3 : 2 : 1, then the ratio of their speed is

(1) 3 : 9 : 1 (2) 1 : 3 : 9 (3) 1 : 2 : 4 (4) 4 : 3 : 2

**Q63.** The speeds of three cars are in the ratio of 1 : 3 : 5. The ratio among the time taken by these cars to travel the same distance is

(1) 3 : 5 : 15 (2) 15 : 3 : 5

(3) 15 : 5 : 3 (4) 5 : 3 : 1

**Q64.** The speed of A and B are in the ratio 3 : 4. A takes 20 minutes more than B to reach a destination. In what time does A reach the destination ?

(1) 1 hours (2) 2 hours

(3) 2 hours (4) 1 hours

**TYPE–IX : Questions based on a train (transport system)/a man changes his speed, then he arrives at its destination before/later ..**

**Q65.** If a train runs at 40 km/hour, it reaches its destination late by 11 minutes. But if it runs at 50 km/ hour, it is late by 5 minutes only. The correct time (in minutes) for the train to complete the journey is

(1) 13 2) 15 (3) 19 (4) 21

**Q66.** A boy is late by 9 minutes if he walks to school at a speed of 4 km/hour. If he walks at the rate of 5 km/hour, he arrives 9 minutes early. The distance to his school is

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

**Q67.** When a person cycled at 10 km per hour he arrived at his office 6 minutes late. He arrived 6 minutes early, when he increased his speed by 2 km per hour. The distance of his office from the starting place is

(1) 6 km (2) 7 km (3) 12 km (4) 16 km

**Q68.** A train covers a distance of 10 km in 12 minutes. If its speed is decreased by 5 km/hr, the time taken by it to cover the same distance will be :

(1) 10 minutes (2) 13 minutes 20 sec

(3) 13 minutes (4) 11 minutes 20 sec

**Q69.** A train travelling at a speed of 55 km/hr travels from place X to place Y in 4 hours. If its speed is increased by 5 km/hr., then the time of journey is reduced by

(1) 25 minutes (2) 35 minutes

(3) 20 minutes (4) 30 minutes

**Q70.** If a man walks 20 km at 5 km/ hr, he will be late by 40 minutes. If he walks at 8 km/hr, how early from the fixed time will he reach?

(1) 15 minutes (2) 25 minutes

(3) 50 minutes (4) 1 hours

TYPE–X : Questions based on any train crosses **both platform and a man/a pole at same time ...**

**Q71.** A train passes a 50 metres long platform in 14 seconds and a man standing on the platform in 10 seconds.The speed of the train is :

(1) 24 km/hr (2) 36km/hr

(3) 40 km/hr (4) 45 km/hr

**Q72.** A train passes a man standing on a platform in 8 seconds and also crosses the platform which is 264 metres long in 20 seconds. The length of the train (in metres) is : (1) 188 (2) 176 (3) 175 (4) 96

**Q73**. A train moves past a telegraph post and a bridge 264 m long in 8 seconds and 20 seconds respectively. What is the speed of the train ?

(1) 69.5 km/hr (2) 70 km/hr

(3) 79 km/hr (4) 79.2 km/hr

**Q74.** A train crosses a pole in 15 seconds and a platform 100 metres long in 25 seconds. Its length (in metres) is

(1) 50 (2) 100 (3) 150 (4) 200

**Q75.** Two trains 100 metres and 95 metres long respectively pass each other in 27 seconds when they run in the same direction and in 9 seconds when they run in opposite directions. Speed of the two trains are

(1) 44 km/hr, 22 km/hr (2) 52 km/hr, 26 km/hr (3) 36 km/hr. 18 km/hr (4) 40 km/hr, 20 km/hr

**Q76.** A train crosses a platform in 30 seconds travelling with a speed of 60 km/h. If the length of the train be 200 metres, then the length (in metres) of the platform is

(1) 400 (2) 300 (3) 200 (4) 500

**TYPE–XI : Question based on races…**

**Q77.** A runs twice as fast as B and B runs thrice as fast as C. The distance covered by C in 72 minutes, will be covered by A in :

(1) 18 minutes (2) 24 minutes

(3) 16 minutes (4) 12 minutes

**Q78.** In a 100m race, Kamal defeats Bimal by 5 seconds. If the speed of Kamal is 18 Kmph, then the speed of Bimal is

(1) 15.4 kmph (2) 14.5 kmph

(3) 14.4 kmph (4) 14 kmph

**Q79.** In a race of 1000 m, A can beat B by 100m. In a race of 400 m, B beats C by 40m. In a race of 500m. A will beat C by

(1) 95 m (2) 50 m (3) 45 m (4) 60 m

**Q80.** In a race of 800 metres, A can beat B by 40 metres. In a race of 500 metres, B can beat C by 5 metres. In a race of 200 metres, A will beat C by

(1) 11.9 metre (2) 1.19 metre

(3) 12.7 metre (4) 1.27 metre

**Q81.** A man walking at 3 km/hour crosses a square field diagonally in 2 minutes. The area of the field (in square metre) is

(1) 3000 (2) 5000 (3) 6000 (4) 2500

**\*\*\*\*\*END\*\*\*\*\***

**Q1.** It takes 10 s and 15 s, respectively, for two trains travelling at different constant speeds to completely pass a telegraph post. The length of the first train is 120 m and that of the second train is 150 m. The magnitude of the difference in the speeds of the two trains (in m/s) is \_\_\_\_\_\_\_\_\_\_\_\_. **GATE 2016**

(A) 2.0 (B) 10.0 (C) 12.0 (D) 22.0

**Q2.** A tourist covers half of his journey by train at 60 km/h, half of the remainder by bus at 30 km/h and the rest by cycle at 10 km/h. The average speed of the tourist in km/h during his entire journey is **GATE 2013**

(A) 36 (B) 30 (C) 24 (D) 18

**Q3.** A car travels 8 km in the first quarter of an hour, 6 km in the second quarter and 16 km in the third quarter. The average speed of the car in km per hour over the entire journey is **GATE 2013**

(A) 30 (B) 36 (C) 40 (D) 24

**Q4.** A tourist covers half of his journey by train at 60 km/h, half of the remainder by bus at 30 km/h and the rest by cycle at 10 km/h. The average speed of the tourist in km/h during his entire journey is **GATE 2013**

(A) 36 (B) 30 (C) 24 (D) 18

**Q5.** From the time the front of a train enters a platform, it takes 25 seconds for the back of the train to leave the platform, while travelling at a constant speed of 54 km/h. At the same speed, it takes 14 seconds to pass a man running at 9 km/h in the same direction as the train. What is the length of the train and that of the platform in meters, respectively? **GATE 2018**

(A) 210 and 140 (B) 162.5 and 187.5

(C) 245 and 130 (D) 175 and 200

**Q6.**

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**FAST TRACK OBJECTIVE ARITHMETICS**

**Prepared By…..**

**G SURESH**

**TIME AND WORK**

**TYPE-I : Questions Based on the basic concept of time and work .**

**Q1.**A can do a work in 6 days and B in 9 days. How many days will both take together to complete the work?

(1) 7.5 days (2) 5.4 days

(3) 3.6 days (4) 3 days

**Q2.**A alone can complete a work in 12 days. A and B together can complete it in 8 days. How long will B alone take to complete the work ?

(1) 24 days (2) 18 days

(3) 16 days (4) 20 days

**Q3.**A and B together can do a piece of work in 10 days. A alone can do it in 30 days. The time in which B alone can do it is

(1) 10 days (2) 12 days

(3) 15 days (4) 20 days

**Q4.** If A and B together can complete a work in 18 days, A and C together in 12 days and B and C together in 9 days, then B alone can do the work in

(1) 18 days (2) 24 days

(3) 30 days (4) 40 days

**Q5.** A and B together can complete a piece of work in 72 days, B and C together can complete it in 120 days, and A and C together in 90 days. In what time can A alone complete the work ?

(1) 80 days (2) 100 days

(3) 120 days (4) 150 days

**Q6.**A and B can complete a piece of work in 30 days, B and C in 20 days, while C and A in 15 days. If all of them work together, the time taken in completing the work will be (1) 10 days (2) 12 days

(3) 12 days (4) 13 days

**Q7.**A, B and C together can complete a piece of work in 30 minutes. A and B together can complete the same work in 50 minutes. C alone can complete the work in (1) 60 minutes (2) 75 minutes

(3) 80 minutes (4) 150 minutes

**Q8.**While working 7 hours a day, A alone can complete a piece of work in 6 days and B alone in 8 days. In what time would they complete it together, working 8 hours a day?

(1) 3 days (2) 4 days

(3) 2.5 days (4) 3.6 days

**Q9.**A, B and C individually can do a work in 10 days, 12 days and 15 days respectively. If they start working together, then the number of days required to finish the work is

(1) 16 days (2) 8 days

(3) 4 days (4) 2 days

**Q10.** A can do a piece of work in 25 days and B can do the same work in 30 days. They work together for 5 days, how much of work is left ?

(1) 11/30 (2) 15/30 (3) 19/30 (4) 12/30

**TYPE-II : Questions where worker leaves or joins .....**

**Q11.** A and B can do a work in 18 and 24 days respectively. They worked together for 8 days and then A left. The remaining work was finished by B in :

(1) 5 days (2) 5 days

(3) 8 days (4) 10 days

**Q12.** A can do a piece of work in 12 days and B can do it in 18 days. They work together for 2 days and then A leaves. How long will B take to finish the remaining work?

(1) 6 days (2) 8 days

(3) 10 days (4) 13 days

**Q13.** A and B can do a job in 6 and 12 days respectively. They began the work together but A leaves after 3 days. Then the total number of days needed for the completion of the work is :

(1) 4 days (2) 5 days

(3) 6 days (4) 9 days

**Q14.** A can finish a work in 24 days, B in 9 days and C in 12 days. B and C start the work but are forced to leave after 3 days. The remaining work was done by A in :

(1) 5 days (2) 6 days

(3) 10 days (4) 10 days

**Q15.** A certain number of persons can complete a piece of work in 55 days. If there were 6 persons more, the work could be finished in 11 days less. How many persons were originally there?

(1) 17 (2) 24 (3) 30 (4) 22

**Q16.** A and B can do a piece of work in 28 and 35 days respectively. They began to work together but A leaves after sometime and B completed remaining work in 17 days. After how many days did A leave?

(1) 14 days (2) 9 days

(3) 8 days (4) 7 days

**Q17.** A and B can do a piece of work in 20 days and 12 days respectively. A started the work alone and then after 4 days B joined him till the completion of the work. How long did the work last ?

(1) 10 days (2) 20 days

(3) 15 days (4) 6 days

**Q18.** A and B can do a work in 45 days and 40 days respectively. They began the work together but A left after some time and B completed the remaining work in 23 days. After how many days of the start of the work did A leave?

(1) 10 days (2) 9 days

(3) 8 days (4) 5 days

**Q19.** A and B together can complete a work in 8 days. B alone can complete that work in 12 days. B alone worked for four days. After that how long will A alone take to complete the work?

(1) 15 days (2) 18 days

(3) 16 days (4) 20 days

**Q20.** A can do a piece of work in 18 days and B in 12 days. They began the work together, but B left the work 3 days before its completion. In how many days, in all, was the work completed?

(1) 12 days (2) 10 days

(3) 9.6 days (4) 9 days

**Q21.** A and B working separately can do a piece of work in 10 days and 15 days respectively. If they work on alternate days beginning with A, in how many days will the work be completed?

(1) 18 days (2) 13 days

(3) 12 days (4) 6 days

**Q22.** A, B and C can do a piece of work in 30, 20 and 10 days respectively. A is assisted by B on one day and by C on the next day, alternately. How long would the work take to finish?

(1) 9 days (2) 4 days

(3) 8 days (4) 3 days

**Q23.** A, B and C can do a piece of work in 20, 30 and 60 days respectively. In how many days can A do the work if he is assisted by B and C on every third day ?

(1) 10 days (2) 12 days

(3) 15 days (4) 20 days

**Q24.** A can do a piece of work in 20 days and B in 15 days. With the help of C, they finish the work in 5 days. C can alone do the work in

(1) 5 days (2) 6 days

(3) 10 days (4) 12 days

**Q25.** A certain number of men complete a piece of work in 60 days. If there were 8 men more, the work could be finished in 10 days less. The number of men originally was (1) 30 (2) 40 (3) 32 (4) 36

**TYPE-III : Questions based on ‘M’ man, ‘W’ women and ‘B’ boys ...**

**Q26.** Twenty women can do a work in sixteen days. Sixteen men can complete the same work in fifteen days. The ratio between the capacity of a man and a woman is

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

**Q27.** 5 men can do a piece of work in 6 days while 10 women can do it in 5 days. In how many days can 5 women and 3 men do it ? (1) 4 days (2) 5 days

(3) 6 days (4) 8 days

**Q28.** 4 men and 6 women can complete a work in 8 days, while 3 men and 7 women can complete it in 10 days. In how many days will 10 women complete it ?

(1) 50 days (2) 45 days

(3) 40 days (4) 35 days

**Q29.** If 6 men and 8 boys can do a piece of work in 10 days and 26 men and 48 boys can do the same in 2 days, then the time taken by 15 men and 20 boys to do the same type of work will be :

(1) 5 days (2) 4 days

(3) 6 days (4) 7 days

**Q30.** 3 men and 5 women can do a work in 14 days while 5 men can do it in 14 days. 5 men and 5 women can complete the work in

(1) 13 days (2) 11 days

(3) 10 days (4) 12 days

**Q31.** If 5 men or 8 women can do a piece of work in 12 days, how many days will be taken by 2 men and 4 women to do the same work?

(1) 15 days (2) 13 days

(3) 13 days (4) 10 days

**Q32.** 6 men or 12 women can do a piece of work in 20 days. In how many days can 8 men and 16 women do twice as big as this work?

(1) 2 days (2) 5 days

(3) 15 days (4) 10 days

**Q33.** 3 men or 5 women can do a work in 12 days. How long will 6 men and 5 women take to finish the work?

(1) 20 days (2) 10 days

(3) 4 days (4) 15 days

**Q34.** If 10 men or 20 boys can make 260 mats in 20 days, then how many mats will be made by 8 men and 4 boys in 20 days? (1) 260 (2) 240 (3) 280 (4) 520

**Q35.** Three men can complete a piece of work in 6 days. Two days after they started the work, 3 more men joined them. How many days will they take to complete the remaining work ?

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

**Q36.** If 1 man or 2 women or 3 boys can complete a piece of work in 88 days, then 1 man, 1 woman and 1 boy together will complete it in

(1) 36 days (2) 42 days

(3) 48 days (4) 54 days

**Q37.** If 1 man or 2 women or 3 boys can do a piece of work in 44 days, then the same piece of work will be done by 1 man, 1 woman and 1 boy in

(1) 21 days (2) 24 days

(3) 26 days (4) 33 days

**Q38.** 18 men or 36 boys working 6 hours a day can plough a field in 24 days. In how many days will 24 men and 24 boys working 9 hours a day plough the same field ?

(1) 9 (2) 10 (3) 6 (4) 8

**Q39.** Twenty women can do a work in sixteen days. Sixteen men can complete the same work in fifteen days. The ratio between the capacity of a man and a woman is

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

**Q40.** A man is twice as fast as a woman and a woman is twice as fast as a boy in doing a work. If all of them, a man, a woman and a boy can finish the work in 7 days, in how many days a boy will do it alone?

(1) 49 (2) 7 (3) 6 (4) 42

**TYPE-IV : Questions based on fraction of the work ...**

**Q41.** A can do a work in 15 days and B in 20 days.If they together work on it for 4 days, then the fraction of the work that is left is: (1) 8/15 (2) 7/15 (3) 1/4 (4) 1/10

**Q42.** A can cultivate 2 5 th of a land in 6 days and B can cultivate 1 3 rd of the same land in 10 days. Working together A and B can cultivate 4 5 th of the land in:

(1) 4 days (2) 5 days

(3) 8 days (4) 10 days

**Q43.** A can finish a work in 18 days and B can do the same work in half the time taken by A. Then working together what part of the same work they can finish in a day?

(1) 1/6 (2) 2/5 (3) 1/9 (4) 2/7

**Q44.** A can complete a work in 6 days while B can complete the same work in 12 days. If they work together and complete it, the portion of the work done by A is

(1) 1/3 (2) 2/3 (3) 1/4 (4) ½

**Q45.** A can do 1 2 of a piece of work in 5 days, B can do 3 5 of the same work in 9 days and C can do 2 3 of that work in 8 days. In how many days can three of them together do the work ?

(1) 3 days (2) 5 days

(3) 4 days (4) 4 days

**Q46.** A contractor undertook to complete a project in 90 days and employed 60 men on it. After 60 days, he found that 3 4 of the work has already been completed. How many men can he discharge so that the project may be completed exactly on time? (1) 40 (2) 20 (3) 30 (4) 15

**Q47.** A can do a work in 20 days and B in 40 days. If they work on it together for 5 days, then the fraction of the work that is left is: (1) 5/8 (2) 8/15 (3) 7/15 (4) 1/10

**Q48.** A alone can do a piece of work in 20 days and B alone in 30 days. They begin to work together. They will finish half of the work in :

(1) 8 days (2) 9 days

(3) 12 days (4) 6 days

**Q49.** A does half as much work as B in three- fourth of the time. If together they take 18 days to complete a work, how much time shall B take to do it alone?

(1) 30 days (2) 35 days

(3) 40 days (4) 45 days

**Q50.** P can do 1/4 th of work in 10 days, Q can do 40% of work in 40 days and R can do 1/3rd of work in 13 days. Who will complete the work first?

(1) P (2) Q (3) R (4) Both P and R

**TYPE-V : Questions based on efficiency of worker ...**

**Q51.** A doe’s half as much work as B in one sixth of the time. If together they take 10 days to complete a work, how much time shall B take to do it alone?

(1) 70 days (2) 30 days

(3) 40 days (4) 50 days

**Q52.** A doe’s half as much work as B in one-third of the time taken by B. If together they take 10 days to complete a work, then the time taken by B alone to do it would have been

(1) 30 days (2) 25 days

(3) 6 days (4) 12 days

**Q53.** A company employed 200 workers to complete a certain work in 150 days. If only one fourth of the work has been done in 50 days, then in order to complete the whole work in time, the number of additional workers to be employed was

(1) 100 (2) 300 (3) 600 (4) 200

**Q54.** A does half as much work as B in three fourth of the time. If together they take 18 days to complete the work, how much time will B alone take to do it ?

(1) 40 days (2) 45 days

(3) 50 days (4) 30 days

**Q55.** Jyothi can do 3 4 of a job in 12 days. Mala is twice as efficient as Jyothi. In how many days will Mala finish the job ?

(1) 6 days (2) 8 days

(3) 12 days (4) 16 days

**Q56.** A can do a piece of work in 70 days and B is 40% more efficient than A. The number of days taken by B to do the same work is (1) 40 days (2) 60 days

(3) 50 days (4) 45 days

**Q57.** A is twice as good a workman as B and B is twice as good a workman as C. If A and B can together finish a piece of work in 4 days, then C can do it by himself in

(1) 6 days (2) 8 days

(3) 24 days (4) 12 days

**Q58.** A and B together can complete a work in 15 days. A is 50% more efficient worker than B. How long will A take to complete the work alone?

(1) 20 days (2) 21 days

(3) 21.4 days (4) 22.5 days

**Q59.**Tapas works twice as fast as Mihir. If both of them together complete a work in 12 days, Tapas alone can complete it in

(1) 15 days (2) 18 days

(3) 20 days (4) 24 days

**Q60.** P is thrice as good a workman as Q and therefore able to finish a job in 48 days less than Q. Working together, they can do it in (1) 18 days (2) 24 days

(3) 30 days (4) 12 days

**Q61.** If A, B and C can complete a work in 6 days. If A can work twice faster than B and thrice faster than C, then the number of days C alone can complete the work is :

(1) 33 days (2) 44 days

(3) 22 days (4) 11 days

**Q62.** A is twice as good as B and together they finish a piece of work in 16 days. The number of days taken by A alone to finish the work is

(1) 20 days (2) 21 days

(3) 22 days (4) 24 days

**Q63.** Shashi can do a piece of work in 20 days. Tanya is 25% more efficient than Shashi. The number of days taken by Tanya to do the same piece of work is :

(1) 15 (2) 16 (3) 18 (4) 25

**TYPE-VI : Questions based on the formulae M1D1W1 = M2D2W2 and its interchange ...**

**Q64.** 39 persons can repair a road in 12 days working 5 hours a day. In how many days will 30 persons working 6 hours a day complete the work?

(1) 10 days (2) 13 days

(3) 14 days (4) 15 days

**Q65.** If 72 men can build a wall of 280 m length in 21 days, how many men could take 18 days to build a similar type of wall of length 100 m?

(1) 30 (2) 10 (3) 18 (4) 28

**Q66.** 5 persons can prepare an admission list in 8 days working 7 hours a day. If 2 persons join them so as to complete the work in 4 days, they need to work per day for :

(1) 10 hours (2) 9 hours

(3) 12 hours (4) 8 hours

**Q67.** Two persons can complete a piece of work in 9 days. How many more persons are needed to complete double the work in 12 days?

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

**Q68.** If p men working p hours per day for p days produce p units of work, then the units of work produced by n men working n hours a day for n days is

(1) (2)

(3) (4)

**Q69.** 7 men can complete a piece of work in 12 days. How many additional men will be required to complete double the work in 8 days ?

(1) 28 (2) 21 (3) 14 (4) 7

**Q70.** ‘x’ number of men can finish a piece of work in 30 days. If there were 6 men more, the work could be finished in 10 days less. The original number of men is

(1) 6 (2) 10 (3) 12 (4) 15

**Q71.** Some carpenters promised to do a job in 9 days but 5 of them were absent and remaining men did the job in 12 days. The original number of carpenters was

(1) 24 (2) 20 (3) 16 (4) 18

**Q72 .**If the work done by (x –1) men in (x + 1) days is to the work done by (x + 2) men in (x – 1) days are in the ratio 9 : 10, then the value of x is equal to :

(1) 5 (2) 6 (3) 7 (4) 8

**TYPE-VII : Questions based on Work and Wages ...**

**Q73.** Suman can do a work in 3 days. Sumati can do the same work in 2 days. Both of them finish the work together and get 150. What is the share of Suman ?

(1) 30 (2) 60 (3) 70 (4) 75

**Q74.** A and B can complete a piece of work in 15 days and 10 days respectively. They contracted to complete the work for 30,000. The share of A in the contracted money will be :

(1) 18,000 (2) 16,500

(3) 12,500 (4) 12,000

**Q75.** A and B undertook to do a piece of work for 4500. A alone could do it in 8 days and B alone in 12 days. With the assistance of C they finished the work in 4 days. Then C’s share of the money is

(1) 2250 (2) 1500 (3) 750 (4) 375

**Q76.** Two men undertook to do a job for 1400. One of them can do it alone in 7 days, and the other in 8 days. With the assistance of a boy they together completed the work in 3 days. How much money will the boy get?

(1) 300 (2) 325 (3) 275 (4) 250

**Q77.** If 5 men or 7 women can earn 5,250 per day, how much would 7 men and 13 women earn per day ?

(1) 11,600 (2) 11,700

(3) 16,100 (4) 17,100

**Q78.** 2 men and 1 woman together can complete a piece of work in 14 days, while 4 women and 2 men together can do it in 8 days. If a man gets 600 per day, how much should a woman get per day?

(1) 400 (2) 450 (3) 480 (4) 360

**Q79.** If there is a reduction in the number of workers in a factory in the ratio 15 : 11 and an increment in their wages in the ratio 22 : 25, then the ratio by which the total wages of the workers should be decreased is

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

**Q80.**. A, B and C together earn 150 per day while A and C together earn 94 and B and C together earn 76. The daily earning of ‘C’ is (1) 56 (2) 20 (3) 34 (4) 75

**\*\*\*\*\* END\*\*\*\*\***

**Q1.**. Sevenmachinestake7 minutes to make 7 identical toys. At the same rate, how many minutes would it take for 100 machines to make 100 toys? **GATE 2018**

(A) 1 (B) 7 (C) 100 (D) 700

**Q2.**It was estimated that 52 men can complete a strip in a newly constructed highwayconnecting cities P and Q in 10 days. Due to an emergency, 12 men were sent to anotherproject. How many number of days, more than the original estimate, will be required tocomplete the strip?

**GATE 2020**

(A) 3 days (B) 5 days

(C) 10 days (D) 13 days

**Q3.** It takes two hours for a person X to mow the lawn. Y can mow the same lawn in fourhours. How long (in minutes) will it take X and Y, if they work together to mow the lawn? **GATE 2019**

(A) 60 (B) 80 (C) 90 (D) 120

**Q4.** It would take one machine 4 hours to complete a production order and another machine 2hours to complete the same order. If both machines work simultaneously at their respective constant rates, the time taken to complete the same order 1s hours. **GATE 2019**

(A) 2/3 (B) 3/4 (C) 4/3 (D) 7/3

**Q5.**1200 men and 500 women can build a bridge in 2 weeks. 900 men and 250 women will take 3weeks to build the same bridge. How many men will be needed to build the bridge in one week? **GATE 2017**

(A) 3000 (B) 3300 (C) 3600 (D) 3900

**Q6.**X bullocks and Y tractors take 8 days to plough a field. If we halve the number of bullocks anddouble the number of tractors. it takes 5 days to plough the same field. How many days will it take X bullocks alone to plough the field? **GATE 2017**

(A) 30 (B) 35 (C) 40 (D) 45

**Q7.**Two machines M1 and M2 are able to execute any of four jobs P. Q. R and S. The machines canperform one job on one object at a time. Jobs P. Q. R and S take 30 minutes. 20 minutes. 60 minutes and 15 minutes each respectively. There are 10 objects each requiring exactly 1 job. Job Pis to be performed on 2 objects. Job Q on 3 objects. Job R on 1 object and Job S on 4 objects. Whatis the minimum time needed to complete all the jobs? **GATE 2017**

(A) 2 hours (B) 2.5 hours

(C) 3 hours (D) 3.5 hours

**Q8.** A nanth takes 6 hours and Bharath takes 4 hours to read a book. Both started reading copies of the book at the same time. After how many hours is the number of pages to be read by Ananth, twice that to be read by Bharath? Assume Ananth and Bharath read all the pages with constant pace. **GATE 2016**

(A) 1 (B) 2 (C) 3 (D) 4

**Q9.** S, M, E and F are working in shifts in a team to finish a project. M works with twice the efficiency of others but for half as many days as E worked. S and M have 6 hour shifts in a day, whereas E and F have 12 hours shifts. What is the ratio of contribution of M to contribution of E in the project? **GATE 2016**

(A) 1:1 (B) 1:2 (C) 1:4 (D) 2:1

**Q10.** P , Q, R and S are working on a project. Q can finish the task in 25 days, working alone for 12 hours a day. R can finish the task in 50 days, working alone for 12 hours per day. Q worked 12 hours a day but took sick leave in the beginning for two days. R worked 18 hours a day on all days. What is the ratio of work done by Q and R after 7 days from the start of the project?

**GATE 2016**

(A) 10:11 (B) 11:10

(C) 20:21 (D) 21:20

**REFERENCE BOOKS**

**R S AGGARWAL QUANTITATIVE APTITUDE**

**TATA Mc GRAW HILL QUANTITATIVE APTITUDE, NEW DELHI**

**GULATI OBJECTIVE ARITHMETICS**

**KIRAN PRAKASH QUANTITATIVE APTITUDE**

**FAST TRACK OBJECTIVE ARITHMETICS**

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