

Section 2: Analytical and Quantitative Ability

- Q.37 At a certain point, the angle of elevation of a mall is found to be such that its cotangent is $3/5$. If one walks 10 metres towards the mall, its angle of elevation is an angle whose cotangent is $1/5$. Find the height of the mall.
- [A] 15 metres [B] 20 metres [C] 25 metres [D] 30 metres
- Q.38 If n is a natural number, which of the following is the solution to the equation $\tan(5\alpha) = \cot(3\alpha)$?
- [A] $\alpha = 1/8 (n\pi + \pi/2)$ [B] $\alpha = n\pi$ [C] $\alpha = 2n\pi$ [D] $\alpha = 4n\pi$
- Q.39 In a competition, an amount of Rs. 6000 was distributed equally among the participants. Later, in the competition, 5 new participants were introduced. Again the same amount was distributed equally among all the participants. After the distribution, it was observed that in the second round the old participants received Rs. 100 less as compared to the first round. How many participants were originally there in the competition?
- [A] 5 [B] 10 [C] 15 [D] 20
- Q.40 The smallest number, when subtracted from the sum of the squares of 13 and 17 gives a perfect square, is
- [A] 7 [B] 11 [C] 13 [D] 17
- Q.41 The average of 7 numbers is 50. When a new number is taken into consideration, the new average is 45. The new number is
- [A] 20 [B] 15 [C] 10 [D] 5
- Q.42 A family has 3 members (father, mother, and a daughter). Father's age is twice that of daughter's age and mother's present age is twice that of daughter's age two years ago. The sum of the ages of father and mother is 92. What is the present age of the daughter?
- [A] 22 [B] 24 [C] 26 [D] 28
- Q.43 A task can be completed in pairs among three persons P, Q, R as follows: P and Q take 60 days; Q and R take 120 days; P and R take 90 days. In how many days can the task be completed if P, Q, and R work together?
- [A] $420/13$ [B] $520/13$ [C] $620/13$ [D] $720/13$
- Q.44 Jaytee is twice more efficient than Thambi and is therefore able to complete a task 30 days earlier. Find the number of days Jaytee and Thambi will take together to complete a task.
- [A] 20 [B] 30 [C] 40 [D] 50
- Q.45 Yasmin and Natasha can complete a task in 10 and 20 days respectively. Yasmin is given a task and later asked to leave after 4 days of work. How many days will Natasha take to finish the remaining task?
- [A] 6 [B] 8 [C] 10 [D] 12

Q.46 The student ratio in arts, commerce, and science was 6:4:3 respectively. If the students in arts, commerce, and science were increased by 10%, 30%, and 15% respectively, what is the new ratio?

- [A] 69:104:132 [B] 132:104:69
[C] 104: 132: 69 [D] None of the above

Q.47 If 50 is subtracted from the 50% of a number the result is 25. Then the number is

- [A] 160 [B] 150 [C] 140 [D] 130

Q.48 Three electronic devices make a beep sound after every 30, 60, and 105 minutes respectively. It is given that all the devices beeped together at 3:00 PM. When will they beep together again?

- [A] 7:00 PM [B] 8:00 PM [C] 9:00 PM [D] 10:00 PM

For question numbers 49 to 52 please refer to following table:

Bank	Distribution of loans in ₹ (in Crores)				
	2001	2002	2003	2004	2005
Alpha	18	23	45	30	70
Beta	27	33	18	41	37
Gamma	14	19	27	34	42
Delta	31	16	28	35	43

Q.49 If the minimum target in 2002 was to achieve 30% of the total distribution of the loan given in 2001, then how many banks achieved the target?

- [A] 1 [B] 2 [C] 3 [D] 4

Q.50 In which of the following banks did the distribution of loans increase over the years?

- [A] Alpha [B] Beta [C] Gamma [D] Delta

Q.51 What is the approximate percentage increase in distribution of loans of all the banks put together from 2004 to 2005?

- [A] 20 [B] 37 [C] 15 [D] 50

Q.52 During which years is the distribution of loans of all the banks put together lower as compared to the average distribution of loans over the years?

- [A] 2001, 2002, 2003 [B] 2002, 2003, 2004
[C] 2003, 2004, 2005 [D] 2001, 2003, 2005

Q.53 $\frac{343 \times 343 \times 343 - 13 \times 13 \times 13}{343 \times 343 + 343 \times 13 + 13 \times 13} = ?$

- [A] 343 [B] 13 [C] 330 [D] 356

- Q.54 If the manufacturer of an electric kettle gains 15%, the wholesale dealer gains 10%, and the retailer gains 20%, find the cost of production of the electric kettle with the retail price Rs. 1518.
 [A] 1500 [B] 1200 [C] 1000 [D] 800
- Q.55 A man bought a horse and a carriage for Rs. 6000. He sold the horse at a gain of 20% and carriage at the loss of 10%, thereby gaining 2% on a whole. What is the cost of the horse?
 [A] 2400 [B] 3600 [C] 1200 [D] 4000
- Q.56 In a certain coding, the word JOKER is written as LQMGT. What is the coding for the word KING?
 [A] LJOH [B] MKPI [C] NLQJ [D] IPKM
- Q.57 Identify the next element in the sequence 0,2,8,26,80,___
 [A] 242 [B] 240 [C] 238 [D] 236
- Q.58 The unit's place and ten's place of a two digit number are swapped. The new number is divided by 2 and then 3 is added to get the original number. What is the original number?
 [A] 18 [B] 21 [C] 24 [D] 26
- Q.59 There is a committee of 6 members where one member can have one position at the most. In how many ways can a chairman and vice chairman be selected?
 [A] 60 [B] 45 [C] 30 [D] 15
- Q.60 Let the symbol '×' denote addition and '+' denote multiplication. Then $(19+2) \times (3+5) =$
 [A] 53 [B] 168 [C] 315 [D] 304
- Q.61 The solution for the system of linear equations $4x-3y=30$ and $3x+4y=85$ is
 [A] $x=10, y=15$ [B] $x=15, y=10$ [C] $x=5, y=10$ [D] $x=15, y=5$
- Q.62 What is the value of $\sin(\cot^{-1}(\frac{1}{\sqrt{3}}))$?
 [A] $\frac{\sqrt{3}}{2}$ [B] $\sqrt{3}$ [C] $\frac{1}{\sqrt{2}}$ [D] $\frac{1}{2}$
- Q.63 Which one is the smallest fraction?
 [A] $\frac{1}{5}$ [B] $\frac{4}{15}$ [C] $\frac{2}{30}$ [D] $\frac{5}{60}$
- Q.64 It is observed that the sales of a book decreases by 3% whenever its price is hiked by 6%. What is the effect on the sales of the book?
 [A] Profit of 3% [B] Profit of 2.82%
 [C] Loss of 2.51% [D] Loss of 4%

- Q.65 If the difference between simple and compound interest on a sum of money for 2 years at 5% per annum is Rs. 100, then the sum is
[A] 40000 [B] 50000 [C] 80000 [D] 100000
- Q.66 If $5+4+3=201227$
 $3+5+2=151022$
 $2+5+4=102028$, then
 $2+6+2=?$
[A] 121224 [B] 121222 [C] 122422 [D] 122424
- Q.67 Find the average of 8, 14, and x, if the average of 8 and x is 5.
[A] 20 [B] 14 [C] 8 [D] 2
- Q.68 If $x \neq -4$, $\frac{2x^2 - 32}{x + 4} = ?$
[A] $x-4$ [B] $x+4$ [C] x^2+4 [D] $2x-8$
- Q.69 If $a=2b$, $b/2=c$, and $4c=3d$, then $d/a=?$
[A] $1/3$ [B] $2/3$ [C] 1 [D] $3/2$
- Q.70 The average of five consecutive numbers is n. If next two numbers are also included then the average will
[A] Remain the same [B] Increase by 1
[C] Decrease by 1 [D] None of the above
- Q.71 Which of the following is the smallest perfect square divisible by 8 and 15?
[A] 2500 [B] 3600 [C] 1600 [D] 900
- Q.72 The variance of 17 observations is 10. If each observation is multiplied by 3, what will be the new variance of the resultant observations?
[A] 30 [B] 60 [C] 90 [D] 120