Q. 1-25. What value will come in place of the question mark (?) in each of the following questions?

1. $\frac{3 \times 8 + 4}{9 \times 15 - 9} = ?$

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

(4) $\frac{3}{2}$ (5) None of these

2. $51.12 \div 4.26 = ?$

(1) 22 (2) 1.2 (3) 2.2

(4) 12 (5) None of these

3. $\frac{1}{4}$ of $\frac{1}{5}$ of $\frac{1}{3}$ of $5760 = ?$

(1) 9.6 (2) 95.5 (3) 96

(4) 96.5 (5) None of these

4. 16% of 650 + ?% of 850 = 172

(1) 20 (2) 8 (3) 18

(4) 9 (5) None of these

5. 82.79 - 25.87 = 72.79 - ?

(1) 15.17 (2) 16.02 (3) 15.87

(4) 15.98 (5) None of these

6. ?% of 450 = 54

(1) 12 (2) 24.3 (3) 18

(4) 6 (5) None of these

7. $(15^2 - 12^2) \times 4 = ?^2$

(1) 9 (2) 6 (3) 81

(4) 18 (5) None of these

8. $17.6 \times 3.5 + 4.3 = ?$

(1) 71.79 (2) 80.06 (3) 80.87

(4) 137.28 (5) None of these

9. 45762 - 39826 = 7976 - ?

(1) 2030 (2) 2000 (3) 2400

(4) 2210 (5) None of these

10. $\sqrt{1024} + \sqrt{?} = \sqrt{1600}$

(1) 64 (2) 24 (3) 8

(4) 576 (5) None of these

11. $430 + 90 \times 12 = ?$

(1) 538 (2) 1510 (3) 5380

(4) 6240 (5) None of these

12. $\sqrt{2025} \div \sqrt{25} = ?$

(1) 81 (2) 9 (3) 45

(4) 3 (5) None of these

13. $135 \div 9 \div 3 = ? \times 2.5$

(1) 1.5 (2) 0.25 (3) 2

(4) 2.5 (5) None of these

14. $245.576 + 2116.8 + 69.44 = ?$

(1) 2431.816 (2) 2430.624 (3) 2431.028

(4) 2421.096 (5) None of these

15. $11.88 \times \frac{250}{18} = ?$

(1) 16.50 (2) 155 (3) 192.7

(4) 165 (5) None of these

16. $(87324 - 79576) \times 1.5 = ?$

(1) 1162.2 (2) 11622 (3) 1372.2

(4) 1163.7 (5) None of these

17. $7776 \div 18 \times 3 = ?$

(1) 144 (2) 1926 (3) 1296

(4) 1266 (5) None of these

18. $\frac{3}{5}$ of 25% of $740 = ?$

(1) 121 (2) 91 (3) 555

(4) 111 (5) None of these

19. ? of (18% of 250 + 25% of 144) = 54

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

(4) $\frac{1}{3}$ (5) None of these

20. $\sqrt{?} - 63 = 9^2$

(1) 12 (2) 144 (3) 324

(4) 128 (5) None of these

21. 916.28 - 72.4 = 728.2 + ?

(1) 115.86 (2) 125.68 (3) 215.68

(4) 216.04 (5) None of these

22. $\frac{18 + 17 \times 3 - 1}{8 - 15 \div 3 - 1} = ?$

(1) 17 (2) 26 (3) 13

(4) 34 (5) None of these

23. $(331 + 19) \times (15 - 11) \times (37 + 13) = ?$

(1) 70000 (2) 4131 (3) 30250

(4) 20350 (5) None of these

24. $1\frac{1}{2} + 1\frac{2}{3} \div (\frac{6}{7} - \frac{5}{6}) = ?$

(1) 71.5 (2) 133 (3) $\frac{19}{252}$

(4) $\frac{19}{180}$ (5) None of these

25. $\frac{1}{2} \times \frac{3}{4} \div (\frac{9}{2} \times \frac{5}{8}) = ?$

(1) $\frac{5}{96}$ (2) $\frac{15}{8}$ (3) $\frac{5}{108}$
(4) $\frac{12}{5}$ (5) None of these

26. Anil invested an amount for three years at a simple interest rate of 9 p.c.p.a. He got an amount of Rs 19,050 at the end of three years. What principal amount did he invest?
(1) Rs 14,500 (2) Rs 11,050 (3) Rs 15,000
(4) Rs 10,950 (5) None of these

27. 26 men can complete a piece of work in 17 days. How many more men must be hired to complete the work in 13 days?
(1) 9 (2) 8 (3) 6
(4) 18 (5) None of these

28. Shilpa spent 8% on school fees, 25% on rent, and 17% on furniture. 25% of the remaining amount was spent on medical bills and the remaining Rs 6,000 was set aside for investment. How much money does she spend on rent?
(1) Rs 3,750 (2) Rs 6,000 (3) Rs 4,000
(4) Rs 3,250 (5) None of these

29. Mohan bought a cycle for Rs 475 and then sold it at a loss of 8% of the cost price. For how much did he sell the cycle?
(1) Rs 453 (2) Rs 419 (3) Rs 441
(4) Rs 437 (5) None of these

30. If the sum of four consecutive even numbers is 228, which is the smallest of the numbers?
(1) 52 (2) 54 (3) 56
(4) 48 (5) None of these

31. Avinash, Manoj and Arun started a business in partnership investing in the ratio of 3 : 2 : 5 respectively. At the end of the year they earned a profit of Rs 45,000 which is 15% of their total investment. How much did Manoj invest?
(1) Rs 60,000 (2) Rs 1,80,000 (3) Rs 30,000
(4) Rs 90,000 (5) None of these

32. The average age of five officers in a department is 32 years. If the age of their supervisor is added the average increased by 1. What is the supervisor's age?
(1) 32 years (2) 48 years (3) 38 years
(4) 42 years (5) None of these

33. What is the cost of painting a hall whose area is 729 sq metres if the rate of painting per square metre is Rs 28?
(1) Rs 3,042 (2) Rs 3,756 (3) Rs 3,024
(4) Cannot be determined (5) None of these

34. If the difference between the simple and the compound interest earned on a sum of money at the rate of 5 p.c.p.a. for 2 years is Rs 16. Find the principal.
(1) Rs 6,200 (2) Rs 6,400 (3) Rs 6250
(4) Cannot be determined (5) None of these

35. Amar started a business investing Rs 45,000. Six months later Prakash joined him with Rs 30,000. In what ratio should the profit they earn be distributed at the end of the year?
(1) 3 : 1 (2) 3 : 4 (3) 3 : 2
(4) Data inadequate (5) None of these

36. What will be the compound interest on an amount of Rs 5,000 for a period of 2 years at 8 p.c.p.a.?
(1) Rs 840 (2) Rs 400 (3) Rs 823
(4) Rs 416 (5) None of these

37. If the difference between a number and two-fifth of the number is 30. Find the number?
(1) 50 (2) 75 (3) 57
(4) 60 (5) None of these

38. A person subscribing to Sky Cable for a year pays Rs 1,785. If the monthly subscription is Rs 175, how much discount does a yearly subscriber get?
(1) 18% (2) 11% (3) 13%
(4) 15% (5) None of these

39. Mahesh purchased three calculators and four pen stands for Rs 2,140. He then purchased an additional calculator and five pen stands for Rs 1,355. How much did he spend on purchasing only the calculators?
(1) Rs 1,575 (2) Rs 1,920 (3) Rs 1,440
(4) Rs 1,540 (5) None of these

40. A 175 metre long train crosses a 35 metre platform in 12 seconds. What is the speed of the train in km/hr?
(1) 42 (2) 64 (3) 63
(4) 59 (5) None of these

41. Two candidates contested an election. If one got 520 votes which was 65% of votes, what was the total number who voted?
(1) 858 (2) 702 (3) 780
(4) 754 (5) None of these

42. The labelled price of a product is Rs 750. If it is sold at a 20% discount and the dealer earns a 25% profit, what is the cost price?
(1) Rs 550 (2) Rs 450 (3) Rs 435
(4) Rs 480 (5) None of these

43. What is the interest received on a principal of Rs 450 for 2 years if the interest received on Re 1 after four years at the same rate of simple interest is Rs 0.40?
(1) Rs 90 (2) Rs 180 (3) Rs 36
(4) Cannot be determined (5) None of these

44. If the production of a factory grows at a rate of 8% p.a. what will be its production for the year 2006 if its production in 2004 was 70 lakh tonnes?
(1) 63.48 lakh tonnes (2) 81.68 lakh tonnes
(3) 81 lakh tonnes (4) 80.68 lakh tonnes
(5) None of these

45. Computer A takes 3 minutes to process an input while computer B takes 5 minutes. If computers A, B and C can process an average of 14 inputs in one hour, how many minutes does Computer C alone take to process one input?
(1) 10 (2) 4 (3) 6
(4) 8 (5) None of these

46. If a dividend of Rs 57,834 is to be divided among Meena, Urmila and Vaishali in the proportion of 3 : 2 : 1, find Urmila's share.
(1) Rs 19,281 (2) Rs 17,350 (3) Rs 23,133

(4) Rs 19,278 (5) None of these

47. If $\frac{1}{2}$ of Sumit's salary is equal to $\frac{2}{5}$ of Rajan's salary and their total salary is Rs 36,000, find Rajan's salary.

(1) Rs 16,000 (2) Rs 20,000 (3) Rs 22,000
(4) Rs 14,000 (5) None of these

48. If 54 students each contributes Rs 60, the amount to buy new books for the library can be collected. If 9 students drop out how much additional amount does each student have to pay?

(1) Rs 18 (2) Rs 10 (3) Rs 12
(4) Cannot be determined (5) None of these

49. The ratio of managers to management trainees is 3 : 5. When 21 new management trainees are recruited the ratio will become 3 : 8. How many managers will there be in the group?

(1) 27 (2) 24 (3) 21
(4) Cannot be determined (5) None of these

50. If the following fractions $\frac{7}{8}, \frac{4}{5}, \frac{8}{14}, \frac{3}{5}$ and $\frac{5}{6}$ are arranged in descending order which will be the last in the series?

(1) $\frac{8}{14}$ (2) $\frac{7}{8}$ (3) $\frac{4}{5}$
(4) $\frac{3}{5}$ (5) $\frac{5}{6}$

ANSWERS AND EXPLANATIONS

1. (5) Ans $\frac{2}{9}$ 2. (4) 3. (3) 4. (2) 5. (3)
6. (1) 7. (4) 8. (5) 9. (5) Ans 2040
10. (1) 11. (2) 12. (2) 13. (3) 14. (1)
15. (4) 16. (2) 17. (3) 18. (4) 19. (1)
20. (5) 21. (5) 22. (4) 23. (1) 24. (1)

25. (5) Ans $\frac{2}{15}$ use BODMAS

26. (3) $P = \frac{A \times 100}{100 + R \times T} = \frac{19050 \times 100}{100 + 9 \times 3}$
$= \text{Rs } 15{,}000$

27. (2) Men Days
26 17 Questions of inverse variation
x 13 Less days more men
$\therefore 26 : x = 13 : 17 \Rightarrow x = \frac{26 \times 17}{13} = 34$
More men must be hired $= 34 - 26 = 8$

28. (3) Amount spent on school fees + rent and furniture $= (8 + 25 + 17)\%$ of x *i.e.* 50% of x.
$\therefore$ Remaining $= 50\%$ of $x = \frac{x}{2}$
25% of $\frac{x}{2} = (\frac{25}{10} \times \frac{x}{2}) = \frac{x}{8}$ spent on medicine bills (x = total amount)
$\text{Remaining} = \frac{x}{2} - \frac{x}{8} = \frac{3x}{8}$
$= 6000 \Rightarrow x = 16000$
$\text{Amount spent on rent} = \frac{25}{100} \times 16000$
$= \text{Rs } 4000$

29. (4) $\text{S.P.} = \frac{CP \times (100 - L\%)}{100} = \frac{475 \times 92}{100} = \text{Rs } 437$

30. (2) $x + (x + 2) + (x + 4) + (x + 6)$
$= 228 \Rightarrow x = 54$

31. (1) $\text{Total investment} = 45000 \times \frac{100}{15}$
$= \text{Rs } 300{,}000$
$\text{Manoj's investment} = \frac{2}{3 + 2 + 5} \times 300{,}000$
$= \text{Rs } 60{,}000$

32. (3) $\text{Supervisor's age} = 6 \times 33 - 5 \times 32$
$= 38 \text{ years}$

33. (4) Height is not given.
Area of four walls can't be found out.

34. (2) $CI - SI = P[(1 + \frac{R}{100})^2 - 1] - \frac{P \times 5 \times 2}{100}$
$= P[(1 + \frac{5}{100})^2 - 1] - \frac{P}{10} = 16$
$\Rightarrow P = \text{Rs } 6400$

35. (1) Ratio of profits = Ratio of investments
$= 45000 \times 12 : 30000 \times 6$
$= 3 : 1$

36. (5) $C.I. = 5000\,[(1 + \frac{8}{100})^2 - 1] = \text{Rs } 832$

37. (1) $x - \frac{2}{5}x = 30 \Rightarrow x = 30 \times \frac{5}{3} = 50$

38. (4) $175 \times 12 - 1785 = \text{Rs } 315 = \text{Total discount}$
$\therefore \text{Discount\%} = \frac{315}{2100} \times 100 = 15$

39. (2) $3x + 4y = 2140$ x = Cost of calculator
$x + 5y = 1355$ y = Cost of a pen
On solving, we get $x = 480$
$\therefore$ Total cost of 4 calculators
$= 4 \times 480 = \text{Rs } 1920$

40. (3) $\text{Speed of a train} = \frac{175 + 35}{12} \text{ m/sec}$
$= \frac{210}{12} \times \frac{18}{5} \text{ km/hr}$
$= 63 \text{ km/hr}$

41. (5) $65\% \text{ of } x = 520 \Rightarrow x = 800$

42. (4) $\text{S.P.} = \frac{MP \times (100 - d)}{100} = 750 \times \frac{80}{100} = \text{Rs } 600$
$\therefore \text{C.P.} = 600 \times \frac{100}{125} = \text{Rs } 480$

(Contd on page 69)

43. (1) $R = \frac{I \times 100}{P \times T} = \frac{.40 \times 100}{1 \times 4} = \text{Rs } 10$

44. (5) $\text{Reqd. } I = \frac{450 \times 10 \times 2}{100} = \text{Rs } 90$

Production in 2006

$= 70 \text{ lakh tonnes } (1 + \frac{8}{100})^2$

$= 81.648 \text{ lakh tonnes}$

45. (5) Computer A processe $\frac{60}{3}$ *i.e.* 120 inputs in 1 hour

Computer B processs $\frac{60}{5} = 20$ inputs in 1 hour

Inputs processed by A, B, C in 1 hour

$= 14 \times 3 = 42$

$\therefore$ Inputs processed by C in 1 hour

$= 42 - (20 + 12) = 10$

46. (4) Computer C alone takes $\frac{60}{8} = 7\frac{1}{2}$ min utes to process an input

47. (2) Let Rajan's salary be Rs x

$\therefore \frac{1}{2}$ Sunita's salary $= \frac{2x}{5}$

$\therefore$ Sunita's salary $= \frac{4x}{5}$

Ratio of Sunita's and Rajan's salary

$= \frac{4x}{5} : x = 4 : 5$

Rajan's salary $= \frac{5}{9} \times 36000 = \text{Rs } 20{,}000$

48. (3) $\text{Reqd. amount} = \frac{54 \times 60}{54 - 9} = \text{Rs } 72$

$\therefore$ Additional amount $= 72 - 60 = 12$

49. (3) $\frac{3x}{5x + 21} = \frac{3}{8} \Rightarrow x = 7 \therefore$ Managers $= 3x = 21$

Change in decimals

50. (1)