PRACTICE SET-1

DIRECTIONS (Qs. 1-15): *What will come in place of question mark (?) in the following questions ?*

1. 24% of 40% of $\frac{3}{4}$th of 12000 = ?
   (a) 868 (b) 864
   (c) 866 (d) 862
   (e) None of these
2. $(82 + 78) \times (0.5 + 0.8) = ?$
   (a) 209 (b) 205
   (c) 206 (d) 208
   (e) None of these
3. $(15)^2 + (12)^2 - (18)^2 = ?$
   (a) 42 (b) 43
   (c) 48 (d) 49
   (e) None of these
4. $8888 \div 8 + 2332 \div 2 = ?$
   (a) 2727 (b) 2772
   (c) 2722 (d) 2272
   (e) None of these
5. 46813 + 32298 – 13234 – 31112 = ?
   (a) 34764 (b) 34767
   (c) 34766 (d) 34765
   (e) None of these
6. $(5994 \div 18) \times (468 \div 18) = ?$
   (a) 8658 (b) 8656
   (c) 8655 (d) 8654
   (e) None of these
7. $(0.8 \times 8800 \div 16) \times 4 = ?$
   (a) 1750 (b) 1756
   (c) 1766 (d) 1760
   (e) None of these
8. $85 \times 12 \div 5 - (2)^3 = (?)^2$
   (a) 196 (b) 24
   (c) $2\sqrt{14}$ (d) ± 14
   (e) $-\sqrt{14}$
9. $(15)^2 - (5)^3 + \sqrt{625} + 44 = (?)^2$
   (a) $\sqrt{17}$ (b) 17
   (c) $\sqrt{13}$ (d) 13
   (e) $\sqrt{269}$
10. $\frac{5}{12} + \frac{5}{36} + \frac{5}{24} = ?$
    (a) $\frac{55}{72}$ (b) $\frac{11}{72}$
    (c) $\frac{7}{36}$ (d) $\frac{11}{36}$
    (e) None of these
11. ?% of 800 + $(12)^2$ = 504
    (a) 45 (b) 40
    (c) 60 (d) 55
    (e) None of these
12. $(2 \times 8 \div 4)^4 \div (4 \times 4) \div 5 = ?$
    (a) 6.5 (b) 4.2
    (c) 3.2 (d) 4.5
    (e) None of these
13. $3435 \div 3 + 51 = ? \times 13$
    (a) 92 (b) 87
    (c) 96 (d) 89
    (e) None of these
14. $\frac{7}{12}$ of 48% of 750 = ?
    (a) 60 (b) 360
    (c) 120 (d) 240
    (e) None of these
15. $\frac{8}{21}$ of 189 = $(?)^2 \div 2$
    (a) 6 (b) 36
    (c) $\sqrt{6}$ (d) –36
    (e) 12

DIRECTIONS (Qs. 16-20) : *What should come in place of the question mark (?) in the following number series?*

16. 2 12 60 240 720 ?
    (a) 1445 (b) 1440
    (c) 1420 (d) 1444
    (e) 1448
17. 80 48 64 56 60 ?
    (a) 57 (b) 68
    (c) 54 (d) 62
    (e) 58
18. 32 38 50 68 92 ?
    (a) 118 (b) 128
    (c) 124 (d) 122
    (e) 116
19. 55000 11000 2200 440 88 ?
    (a) 16.4 (b) 18.3
    (c) 17.6 (d) 14.5
    (e) None of these
20. 5 30 120 600 ?
    (a) 3600 (b) 1500
    (c) 1800 (d) 2000
    (e) None of these
21. The average age of father and son at present is 27 years. Also, the difference between their ages is 30 years. What is the respective ratio between the present age of father and the present age of son ?
    (a) 8 : 3 (b) 7 : 2
    (c) 2 : 7 (d) 3 : 8
    (e) None of these

22. The ratio of the present ages of Tarun and Varun is 3 : 7. After 4 years Varun's age will be 39 years. What was Tarun's age 4 years ago ?
(a) 12 years (b) 13 years
(c) 19 years (d) 18 years
(e) None of these

23. A truck covers a distance of 420 km in a certain interval of time at a speed of 70 km/hr. What is the average speed of a bike that travels a distance of 36 km less than the truck in the same time ?
(a) 62 km/hr (b) 64 km/hr
(c) 66 km/hr (d) 68 km/hr
(e) None of these

24. Kiran sold an item for ₹ 8,160 and incurred a loss of 15%. At what price should she have sold the item to have a profit of 25%?
(a) ₹ 12,200 (b) ₹ 12,300
(c) ₹ 13,000 (d) Cannot be determined
(e) None of these

25. Sunita scored 56 marks in Hindi, 42 marks in Science, 63 marks in Maths, 94 marks in Social Science and 61 marks in English. The maximum marks of each subject is 110. How much approximate percentage of marks did she get?
(a) 68 (b) 51
(c) 57 (d) 62
(e) 48

26. The average of five numbers is 50.8. The average of the first and the second number is 29. The average of the fourth and the fifth number is 66.5. What is the third number ?
(a) 65 (b) 73
(c) 61 (d) 77
(e) None of these

27. The length of a rectangle is 15 cm which is 6 cm less than the diameter of a circle. What is the area of the circle?
(a) 346.5 sq cm (b) 173.25 sq cm
(c) 156 sq cm (d) 132 sq cm
(e) None of these

28. 12 women can complete a piece of work in 5 days, whereas 3 women and 9 children together can complete the same piece of work in 10 days. In how many days can 36 children complete the same piece of work?
(a) 10 days (b) 2 days
(c) 5 days (d) 8 days
(e) None of these

29. What is the area of the circle whose circumference is 264 cm?
(a) 5544 sq cm (b) 5454 sq cm
(c) 5540 sq cm (d) 5548 sq cm
(e) None of these

30. The average speed of a tractor is two-fifths the average speed of a car. The car covers 450 km in 6 hours. How much distance will the tractor cover in 8 hours?
(a) 210 km (b) 240 km
(c) 420 km (d) 480 km
(e) None of these

31. The simple interest accrued in 3 years on a principal of ₹ 25,000 is three-twentieths the principal. What is the rate of simple interest pcpa?
(a) 5 (b) 4
(c) 6 (d) 3
(e) None of these

32. A train crossed a platform in 43 seconds. The length of the train is 170 metres. What is the speed of the train?
(a) 133 km./hr (b) 243 km./hr
(c) 265 km./hr (d) Cannot be determined
(e) None of these

33. The angles in a triangle are in a ratio of 19 : 10 : 7. What is the sum of twice the smallest angle and the largest angle?
(a) 165° (b) 185°
(c) 155° (d) 175°
(e) None of these

34. Out of certain sum, $\frac{1}{3}$rd is invested at 6%, $\frac{1}{6}$th at 12% and the rest at 16%. If the simple interest for 4 years from all these investments amounts to ₹ 2400, find the original sum.
(a) ₹ 4000 (b) ₹ 5000
(c) ₹ 6000 (d) ₹ 4500
(e) None of these

35. The length of a rectangular field is thrice its width. Inside the field there is a square pond $3\sqrt{3}$ m long. If the area of the pond is $\frac{1}{9}$ of the area of field, what is the length of the field ?
(a) 27 m (b) 25 m
(c) 20 m (d) 22 m
(e) None of these

DIRECTIONS (Qs. 36–40): *Study the table carefully to answer the questions that follow :*

Number of Employees (in Thousands) working is six different companies in six years.

Years	Company					
	K	L	M	N	P	R
2009	3.4	2.4	2.8	3.9	4.2	5.6
2010	1.2	3.4	3.0	4.1	1.9	4.5
2011	5.4	4.9	3.7	3.4	2.7	5.7
2012	6.3	4.7	5.5	5.3	5.6	2.9
2013	11.0	5.9	5.7	6.7	4.8	6.7
2014	7.2	7.4	5.9	9.6	6.4	4.8

36. What was the respective ratio between the employees working in company R is year 2010 and employees working in company L in year 2009 ?
(a) 8 : 15 (b) 15 : 8
(c) 5 : 8 (d) 13 : 9
(e) None of these

37. What was the total number of employees working in company L and R together in year 2010 ?
(a) 7800 (b) 7840
(c) 7000 (d) 7900
(e) None of these

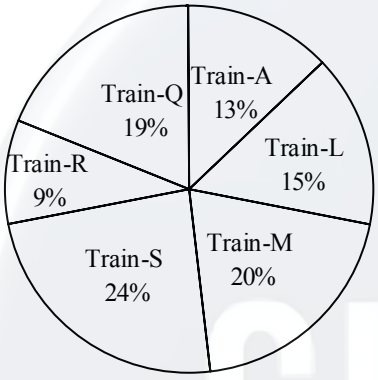
38. In which company were the total number of employees working in year 2012 the second highest?
(a) R (b) N
(c) L (d) K
(e) P

39. Number of employees working in company K in year 2014 was what percentage of all the employees working in company N in all the years together ?
(a) 25 (b) 30
(c) 22 (d) 31
(e) 35

40. What was the average number of employees working in year 2012 in all the companies together ?
(a) 5,05,000 (b) 50,050
(c) 50,500 (d) 5,500
(e) None of these

DIRECTIONS (Qs. 41-45): *Study the following pie-chart carefully to answer these questions.*

Total number of passengers = 8500
Percentage of passengers



41. What was the **approximate** average number of passenger in Train-S, Train-M and Train-L together?
(a) 1521 (b) 1641 (c) 1651 (d) 1671 (e) 1691

42. If in Train-R 34 per cent of the passengers are females and 26 per cent are children, what is the number of males in that train?
(a) 306 (b) 316
(c) 308 (d) 318
(e) None of these

43. The number of passengers in Train-Q is approximately what percentage of the total number of passengers to Train-A and Train-R?
(a) 90 (b) 70 (c) 75 (d) 80 (e) 86

44. Which train has the second highest number of passengers?
(a) A (b) Q (c) S (d) M (e) L

45. How many more per cent (approximately) number of passengers are there in Train-M as compared to the number of passengers in Train-L?
(a) 29 (b) 49 (c) 43 (d) 33 (e) 39

DIRECTIONS (Qs. 46-50): *Each of the questions below consists of a question and three statements denoted A, B and C are given below it. You have to study the questions and all the three statements and decide whether the question can be answered with any one or two of the statements or all the statements are required to answer the question.*

46. What is R's share of profit in a joint venture?
A. Q started business investing ₹ 80,000/-
B. R joined him after 3 months.
C. P joined after 4 months with a capital of ₹ 1,20,000 and got ₹ 6,000 as his share of profit.
(a) Only A and C are required
(b) Only B and C are required
(c) All A, B and C together are required
(d) Even with all A, B and C the answer cannot be arrived
(e) None of these

47. What is the area of a right angled triangle?
A. The perimeter of the triangle is 30 cm.
B. The ratio between the base and the height of the triangle is 5 : 12.
C. The area of the triangle is equal to the area of a rectangle of length 10 cms.
(a) Only B and C together are required
(b) Only A and B together are required
(c) Only either A or B and C together are required
(d) Only A and C together are required
(e) None of these

48. What will be sum of two numbers?
A. Among the two numbers, the bigger number is greater than the smaller number by 6.
B. 40% of the smaller number is equal to 30% of the bigger number.
C. The ratio between half of the bigger number and $\frac{1}{3}$rd of the smaller number is 2 : 1.
(a) Only B and C together are necessary
(b) Only A and B together are necessary
(c) Out of A, B and C any two together are necessary
(d) All three A, B and C together are necessary
(e) None of these

49. How much profit did Mahesh earn on the cost price of an article by selling it?
A. He got 15% discount on the marked price at the time of purchase.
B. He sold it for ₹ 3060.
C. He earned 2% profit on the marked price.
(a) Only A and B both together are necessary.
(b) Only B and C both together are necessary.
(c) Only A or C and B together are necessary.
(d) Even A, B and C all together are not sufficient to answer the question.
(e) All three A, B and C together are necessary.

50. How many marks did Arun secure in English?
A. The average marks obtained by Arun in four subjects including English is 60.
B. The total marks obtained by him in English and Mathematics together is 170.
C. The total marks obtained by him in Mathematics and Science together is 180.
(a) All three A, B and C together are necessary.
(b) Only A and B together are necessary
(c) Only B and C together are necessary.
(d) Only A and C together are necessary.
(e) None of these

SOLUTIONS

1. (b) $? = \frac{24}{100} \times \frac{40}{100} \times \frac{3}{4} \times 12000 = 864$

2. (d) $(82 + 78) \times (0.5 + 0.8)$
$= 160 \times 1.3 = 208$

3. (e) $? = (15)^2 + (12)^2 - (18)^2$
$= 225 + 144 - 324 = 45$

4. (e) $\frac{8888}{8} + \frac{2332}{2} = 1111 + 1166 = 2277$

5. (d) $79111 - 44346 = 34765$

6. (a) $\left(\frac{5994}{18}\right) \times \left(\frac{468}{18}\right) = 333 \times 26 = 8658$

7. (d) $(0.8 \times 550) \times 4 = ?$
$440 \times 4 = ?$
$? = 1760$

8. (d) $85 \times \frac{12}{5} - 8 = (?)^2$
$17 \times 12 - 8 = ?^2$
$196 = ?^2$
$? = \pm 14$

9. (d) $225 - 125 + 25 + 44 = (?)^2$
$\therefore \quad ? = \sqrt{169} = 13$

10. (a) $? = \frac{5}{12} + \frac{5}{36} + \frac{5}{24} = \frac{30 + 10 + 15}{72} = \frac{55}{72}$

11. (a) $\frac{?}{100} \times 800 + 144 = 504$
$? \times 8 = 360$
$? = 45$

12. (c) $\left(\frac{2 \times 8}{4}\right)^4 \div (4 \times 4) \div 5 = ?$
$\frac{256}{16 \times 5} = ?$
$? = 3.2$

13. (a) $\frac{3435}{3} + 51 = ? \times 13$
$? = \frac{1196}{13} = 92$

14. (e) $\frac{7}{12} \times \frac{48}{100} \times 750 = ?$
$\frac{28}{100} \times 750 = 210$

15. (e) $\frac{8}{21} \times 189 = \frac{(?)^2}{2}$
$(?)^2 = 72 \times 2 = 144$
$? = 12$

16. (b) 2 12 60 240 720 1440
×6 ×5 ×4 ×3 ×2

17. (e) 80 48 64 56 60 58
−32 +32 −32 +32 −32
2 4 8 16

18. (d) 32 38 50 68 92 122
+(6×1) +(6×2) +(6×3) +(6×4) +(6×5)

19. (c) 55000 11000 2200 440 88 17.6
÷5 ÷5 ÷5 ÷5 ÷5

20. (a) $5 \times 2 = 10,\ 10 \times 3 = 30,\ 30 \times 4 = 120,\ 120 \times 5 = 600,$
$600 \times 6 = 3600$

21. (b) Let the present ages of father and son be x and y years respectively.
Now, according to the question,
$\frac{x + y}{2} = 27$
$x + y = 54$ ..... (i)
and $x - y = 30$ ..... (ii)
On solving equation (i) and (ii), we have
$x = 42$ and $y = 12$
$\therefore$ Required ratio $= x : y = 42 : 12 = 7 : 2$

22. (e) Varun's present age = 39 – 4 = 35 years
So, Tarun's present age = 15 years
Tarun's age 4 years ago = 11 years

23. (b) Time taken by truck to cover 420 km at 70 km/hr
$= \frac{420}{70} = 6$ hours.
Speed of bike which covers (420 – 36) km in 6 hours
$= \frac{384}{6} = 64$ km/hr

24. (e) Let the cost price of the item be ₹ x.
Kiran sold it for ₹ 8160 at a loss of 15%.
So, $0.85x = 8160$
$x = \frac{8160}{0.85}$
To gain a profit of 25%, it should be sold at $1.25x$,
that is, $1.25 \times \frac{8160}{0.85} = ₹12000$

25. (c) Total of maximum marks in 5 subjects = $110 \times 5 = 550$
Marks scored by Sunita = $56 + 42 + 63 + 94 + 61 = 316$
Percentage of marks scored $= \frac{316}{550} \times 100 = 57.45\%$

26. (e) Sum of all 5 numbers = $50.8 \times 5 = 254$
Sum of 1st and 2nd number = $29 \times 2 = 58$
Sum of 4th and 5th number = $66.5 \times 2 = 133$
∴ 3rd number = 254 – 58 – 133 = 63

27. (a) Diameter of the circle = 15 + 6 = 21 cm
Area of the circle $= \frac{22}{7} \times \frac{21}{2} \times \frac{21}{2} = 346.5$ cm^2

28. (c) 12 women complete the work in 5 days.
So, 1 women in 1 day works $= \frac{1}{5 \times 12} = \frac{1}{60}$
3 women in 10 days works $= \frac{3 \times 10}{60} = \frac{1}{2}$
So, 9 children complete $\frac{1}{2}$ work in 10 days.
1 child in 1 day $= \frac{1}{2 \times 10 \times 9}$
36 children in 1 day $= \frac{36}{2 \times 10 \times 9} = \frac{1}{5}$
So, 36 children will complete the work in 5 days.

29. (a) Circumference = $2\pi r = 264$
$r = \frac{264}{2\pi} = \frac{132}{\pi}$
Area of circle $= \pi r^2 = \pi \times \frac{132}{\pi} \times \frac{132}{\pi}$
$= \frac{132 \times 132}{22} \times 7 = 5544$ sq cm

30. (b) Average speed of the car $= \frac{450}{6} = 75$ km/h
Average speed of the tractor $= 75 \times \frac{2}{5} = 30$ km/h
Distance covered by the tractor = 30 × 8 = 240 km

31. (a) I = $25000 \times \frac{3}{20} = 3750$ $r = \frac{3750 \times 100}{25000 \times 3} = 5\%$

32. (d) Length of the platform is not given

33. (a) The smallest angle $= \frac{7 \times 180}{(19+10+7)} = 35°$
Largest angle $= \frac{19 \times 180}{(19+10+7)} = 95°$
∴ Required sum $= 2 \times 35° + 95° = 165°$

34. (b) Total S.I. $= \frac{\frac{P}{3} \times 6 \times 4 + \frac{P}{6} \times 12 \times 4 + \frac{P}{2} \times 16 \times 4}{100} = \frac{48P}{100}$
$P = \frac{2400 \times 100}{48} = ₹5000$

35. (a) Let l be the length and b be the width.
Area of field = $l \times b = 3b^2$
Area of pond = $\left(3\sqrt{3}\right)^2 = 27$
Area of field = 9 × 27
$3b^2 = 9 \times 27$
$b^2 = 81 \Rightarrow b = 9$ m
$l = 27$ m

36. (b) Required ratio $= \frac{4.5}{2.4} = 15:8$

37. (d) Total number of employees
$= (3.4 + 4.5) \times 1000$
$= 7.9 \times 1000 = 7900$

38. (e) ∵ K = 6.3, L = 4.7, M = 5.5, N = 5.3,
$\boxed{P = 5.6}$, R = 2.9
∴ Required company = P

39. (c) ∴ Required per cent
$= \left(\frac{7.2}{3.9+4.1+3.4+5.3+6.7+9.6}\right) \times 100$
$= \frac{7.2 \times 100}{33}\% = 21.82\% \approx 22\%$ (Approx.)

40. (e) ∴ Required average
$= \frac{6.3+4.7+5.5+5.3+5.6+2.9}{6} \times 1000$
$= \frac{30.3 \times 1000}{6} = \frac{30300}{6} = 5050$

41. (d) Required average number of passengers
$= \frac{1}{3}[(24+20+15)\% \text{ of } 8500]$
$= \frac{1}{3} \times \frac{8500 \times 59}{100} \approx 1671$

42. (a) Number of passengers in Train R $= \frac{8500 \times 9}{100} = 765$
∴ Number of males $= (100-34-26)\%$ of 765
$= \frac{765 \times 40}{100} = 306$

43. (e) Required per cent $= \frac{19}{(13+9)} \times 100 \approx 86$

44. (d) It is clear from the pie - chart

45. (d) Required per cent $= \frac{20-15}{15} \times 100 \approx 33$

46. (d) The question cannot be answered because R's share in investment is not given.

47. (b) Hypotenuse $= \sqrt{5^2+12^2} = \sqrt{25+144} = \sqrt{169} = 13$
Base : Height : Hypotenuse = 5 : 12 : 13
Base + Height + Hypotenuse = 30 cm
∴ Base $= \frac{5}{5+12+13} \times 30 = 5$ cm
Height $= \frac{12}{5+12+13} \times 30 = 12$ cm
Area $= \frac{1}{2} \times \text{base} \times \text{height} = \frac{1}{2} \times 5 \times 12 = 30 \text{ cm}^2$
So only statements A and B are required.

48. (b) A. $x - y = 6$
B. $0.4y = 0.3x$
$\frac{x}{y} = \frac{4}{3}$; C. $\frac{x}{2} : \frac{y}{3} = 2:1$
$\frac{x}{y} \times \frac{3}{2} = \frac{2}{1} \Rightarrow \frac{x}{y} = \frac{4}{3}$
B and C give the same expression / information and hence are equivalent.
$x = \frac{4}{3}y \Rightarrow x - y = 6$
$\frac{4}{3}y - y = 6 \Rightarrow \frac{y}{3} = 6$
$y = 18$ and $x = \frac{4}{3} \times 18 = 24$
So statements A and B together are necessary.

49. (e) Let the marked price be ₹ x
A. cost price $= (1 - 0.15)x =$ ₹ $0.85x$
B. S.P. = ₹3060
C. Profit = 2% of $x = 0.02x$
Profit earned on the cost price $= \frac{0.02x}{0.85x} \times 100 \approx 2.35\%$
$0.02x = 3060 - 0.85x$
$0.87x = 3060$ or $x = \frac{3060}{0.87}$
Actual profit $= 0.02x = 0.02 \times \frac{3060}{0.87} =$ ₹ 70.34
So all 3 statements are required.

50. (e) A. Total marks in 4 subjects including English
$= 4 \times 60 = 240$
B. Total marks in English and Maths = 170
C. Total marks in Maths and Science = 180
The question can't be answered because nothing has been said about the marks in the fourth subject.
Also, there are four unknowns but only three equations can be formed with given data.