

WBCS (Main) Exam Paper – VI Practice Set

Answers with Explanation

1. (c) Required divisor = $3 + 4 - 2 = 5$

2. (b) Let the number be x

$$\therefore \frac{x+12}{6} = 112$$

$$\Rightarrow x + 12 = 672$$

$$\Rightarrow x = 672 - 12 = 660$$

$$\therefore \text{Correct answer} = \frac{660}{6} + 12$$

$$= 110 + 12 = 122$$

3. (d) Here, the first divisor (289) is a multiple of second divisor (17).

\therefore Required remainder = Remainder obtained on dividing 18 by 17 = 1

4. (d) The LCM of 6, 12 and 18

$$= 36 = 6^2$$

5. (a) Let x be the remainder.

Then, $(25 - x)$, $(73 - x)$, and $(97 - x)$ Will be exactly divisible by the required number.

\therefore Required number

$$= \text{HCF of } (73 - x) - (25 - x), (97 - x) - (73 - x) \text{ and } (97 - x) - (25 - x)$$

$$= \text{HCF of } (73 - 25), (97 - 73), \text{ and } (97 - 25)$$

$$= \text{HCF of } 48, 24 \text{ and } 72 = 24$$

6. (b) Required number = HCF of 390, 495 and 300 = 15

Illustration :

$$390) 495 (1$$

$$\frac{390}{105} 390 (3$$

$$\frac{315}{75} 105 (1$$

$$\frac{75}{30} 75 (2$$

$$\frac{60}{15} 30 (2$$

$$\frac{30}{\times}$$

$$\text{HCF of } 15 \text{ and } 300 = 15$$

7. (b) $8\frac{1}{2} - \left[3\frac{1}{4} \div \left\{ 1\frac{1}{4} - \frac{1}{2} \left(1\frac{1}{2} - \frac{1}{3} - \frac{1}{6} \right) \right\} \right]$

$$= \frac{17}{2} - \left[\frac{13}{4} \div \left\{ \frac{5}{4} - \frac{1}{2} \left(\frac{3}{2} - \frac{1}{3} - \frac{1}{6} \right) \right\} \right]$$

$$= \frac{17}{2} - \left[\frac{13}{4} \div \left\{ \frac{5}{4} - \frac{1}{2} \left(\frac{9-2-1}{6} \right) \right\} \right]$$

$$= \frac{17}{2} - \left[\frac{13}{4} \div \left\{ \frac{5}{4} - \frac{1}{2} \times \frac{6}{6} \right\} \right]$$

$$= \frac{17}{2} - \left[\frac{13}{4} \div \left\{ \frac{5}{4} - \frac{1}{2} \times \frac{6}{6} \right\} \right]$$

$$= \frac{17}{2} - \left[\frac{13}{4} \div \left\{ \frac{5}{4} - \frac{1}{2} \right\} \right]$$

$$= \frac{17}{4} - \left[\frac{13}{4} \div \left\{ \frac{5-2}{4} \right\} \right]$$

$$= \frac{17}{2} - \left[\frac{13}{4} \div \frac{3}{4} \right]$$

$$= \frac{17}{2} - \left[\frac{13}{4} \times \frac{4}{3} \right] = \frac{17}{2} - \frac{13}{3}$$

$$= \frac{51-26}{6} = \frac{25}{6} = 4\frac{1}{6}$$

8. (c) $\frac{3}{\frac{2}{1} \div \frac{4}{7} \left(\frac{4+3}{10} \right) \text{ of } \frac{3+2}{\frac{6}{3-2}}}$

$$= 3 \div \frac{4}{7} \left(\frac{7}{10} \right) \text{ of } \left(\frac{5}{6} \times 6 \right)$$

$$= 3 \div \left(\frac{4}{7} \times \frac{7}{10} \times 5 \right) = 3 \div 2 = \frac{3}{2}$$

9. (c) $\sqrt{(6.1)^2 + (61.1)^2 + (611.1)^2}$

$$= \sqrt{\frac{(10 \times 0.61)^2 + (10 \times 6.11)^2 + (10 \times 61.11)^2}{(0.61)^2 + (6.11)^2 + (61.11)^2}}$$

$$= \sqrt{100} = 10$$

10. (b) Average height of whole class

$$= \left(\frac{30 \times 160 + 20 \times 165}{50} \right) \text{cm}$$

$$= \left(\frac{4800 + 3300}{50} \right) \text{cm}$$

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$$= \left(\frac{8100}{50} \right) \text{cm} = 162 \text{ cm}$$

11. (c) Numbers in order

\Rightarrow a, b and c

$$\therefore a + b = 2 \times 2 = 4$$

$$b + c = 2 \times 3 = 6$$

$$c + a = 2 \times 4 = 8$$

On adding,

$$2(a + b + c) = 4 + 6 + 8 = 18$$

$$\Rightarrow a + b + c = \frac{18}{2} = 9$$

$$\text{Required average} = \frac{9}{3} = 3$$

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12. (a) $x + x + 2 + x + 4 + x + 6$

$$= 9 \times 4$$

$$\Rightarrow 4x + 12 = 36$$

$$\Rightarrow 4x = 36 - 12 = 24$$

$$\therefore x = \frac{24}{4} = 6$$

$$\therefore \text{Largest number} = 6 + 6 = 12$$

13. (c) Marks of Q = $\frac{5}{2} \times 120 = 300$

$$14. (a) \frac{a+b}{\sqrt{ab}} = \frac{4}{1} \Rightarrow \frac{a+b}{2\sqrt{ab}} = \frac{2}{1}$$

By componendo and dividendo,

$$\frac{a+b+2\sqrt{ab}}{a+b-2\sqrt{ab}} = \frac{3}{1}$$

$$\Rightarrow \frac{(\sqrt{a}+\sqrt{b})^2}{(\sqrt{a}-\sqrt{b})^2} = \frac{(\sqrt{3})^2}{(1)^2}$$

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$$\Rightarrow \frac{\sqrt{a}+\sqrt{b}}{\sqrt{a}-\sqrt{b}} = \frac{\sqrt{3}}{1}$$

Again using componendo and dividendo,

$$\frac{2\sqrt{a}}{2\sqrt{b}} = \frac{\sqrt{3}+1}{\sqrt{3}-1}$$

$$\Rightarrow \frac{\sqrt{a}}{\sqrt{b}} = \frac{\sqrt{3}+1}{\sqrt{3}-1}$$

On squaring both sides

$$\frac{a}{b} = \left(\frac{\sqrt{3}+1}{\sqrt{3}-1} \right)^2 = \frac{3+1+2\sqrt{3}}{3+1-2\sqrt{3}}$$

$$= \frac{4+2\sqrt{3}}{4-2\sqrt{3}} = \frac{2+\sqrt{3}}{2-\sqrt{3}}$$

$$= 2 + \sqrt{3} : 2 - \sqrt{3}$$

15. (a) Ages of the persons = $4x$ and $7x$ years.

$$\therefore 7x - 4x = 30 \Rightarrow 3x = 30$$

$$\Rightarrow x = 10$$

$$\therefore \text{Sum of their ages} = 4x + 7x = 11x \text{ years}$$

$$= 11 \times 10 = 110 \text{ years}$$

$$16. (b) \frac{P-Q}{2} = (P+Q) \times \frac{30}{100}$$

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$$\Rightarrow 5(P-Q) = (P+Q) \times 3$$

$$\Rightarrow 5P - 3P = 5Q + 3Q$$

$$\Rightarrow 2P = 8Q$$

$$\Rightarrow P = 4Q = 4 \times \frac{P \times x}{100}$$

$$\Rightarrow \frac{4x}{100} = 1 \Rightarrow x = 25$$

17. (c) Required percent

$$= \frac{25}{100} \times 100 = 25\%$$

18. (a) Third number = 100

$$\text{First number} = 70$$

$$\text{Second number} = 63$$

$$\therefore \text{Required percentage}$$

$$= \frac{7}{70} \times 100 = 10$$

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19. (a) Let the CP of 1 orange = 1

$$\therefore \text{SP of 10 oranges} = 13$$

$$\therefore \text{Gain percent}$$

$$= \frac{13-10}{10} \times 100 = 30\%$$

20. (a) S.P. of article

$$= \frac{1500 \times 125}{100} = ₹ 1875$$

$$\text{Net S.P. after paying tax}$$

$$= ₹ (1875 - 75) = ₹ 1800$$

$$\therefore \text{Profit} = 1800 - 1500 = ₹ 300$$

$$\therefore \text{Profit percent} = \frac{300}{1500} \times 100 = 20\%$$

21. (d) Let number of articles bought

$$= 6 \times 5 = 30$$

$$\text{C.P. of 30 articles}$$

$$= ₹ \left(\frac{5}{6} \times 30 \right) = ₹ 25$$

$$\text{S.P. of 30 articles}$$

$$= ₹ \left(\frac{6}{5} \times 30 \right) = ₹ 36$$

$$\therefore \text{Gain \%}$$

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$$= \frac{36-25}{25} \times 100 = 44\%$$

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22. (b) Equivalent discount for two successive discounts of 8% and 8%

$$= \left(8 + 8 - \frac{8 \times 8}{100} \right) \%$$

$$= (16 - 0.64)\% = 15.36\%$$

$$\therefore \text{SP} = (100 - 15.36)\% \text{ of } 900$$

$$= ₹ \left(\frac{84.64 \times 900}{100} \right) = ₹ 761.76$$

For a single discount of 16%,
SP = 84% of 900

$$= ₹ \left(\frac{84 \times 900}{100} \right) = ₹ 756$$

Certainly seller will lose in this case.

$$\therefore \text{Loss} = (761.76 - 756) = ₹ 5.76$$

23. (b) Single equivalent discount

$$= \left(10 + 5 - \frac{10 \times 5}{100} \right) = 14.5\%$$

i.e. ₹ 14.50

24. (b) Let the CP of each shirt be ₹ 100, then SP = ₹ 140.

$$\therefore \text{New SP} = \frac{140 \times 90}{100} = ₹ 126$$

$$\therefore \text{When S.P. is ₹ 126, CP.} = ₹ 100$$

$$\therefore \text{When S.P. is ₹ } \frac{13608}{72},$$

$$\text{then C.P.} = \frac{100}{126} \times \frac{13608}{72} = ₹ 150$$

25. (a) Let the principal be ₹ 1

$$\therefore \text{S.I.} = \frac{41}{40} - 1 = \frac{1}{40}$$

$$\text{Now, Rate} = \frac{\text{Interest} \times 100}{\text{Principal} \times \text{Time}}$$

$$= \frac{1}{40} \times 100 = \frac{100 \times 4}{40} = 10\%$$

$$1 \times \frac{1}{4}$$

26. (a) Principal = ₹ x

$$\text{Interest} = ₹ x$$

$$\text{Rate} = \frac{\text{S.I.} \times 100}{\text{Principal} \times \text{Time}}$$

$$= \frac{x \times 100}{x \times 16} = \frac{25}{4} \% \text{ per annum}$$

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Case II,

$$\text{Interest} = \text{Rs. } 2x$$

$$\therefore \text{Time} = \frac{\text{S.I.} \times 100}{\text{Principal} \times \text{Rate}}$$

$$= \frac{2x \times 100 \times 4}{x \times 25} = 32 \text{ years}$$

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27. (a) Let the larger part of the sum be x

$$\therefore \text{Smaller part} = ₹ (12000 - x)$$

According to the question

$$\frac{x \times 3 \times 12}{100} = \frac{(12000 - x) \times 9 \times 16}{2 \times 100}$$

$$\Rightarrow 36x = (12000 - x) \times 72$$

$$\Rightarrow x = (12000 - x) \times 2$$

$$\Rightarrow x + 2x = 24000$$

$$\Rightarrow 3x = 24000$$

$$\Rightarrow x = \frac{24000}{3} = ₹ 8000$$

28. (c) Rate of interest

$$= \frac{20}{4} = 5\% \text{ per quarter}$$

Time = 3 quarters

$$\therefore \text{C.I.} = P \left[\left(1 + \frac{R}{100} \right)^T - 1 \right]$$

$$= 12000 \left[\left(1 + \frac{5}{100} \right)^3 - 1 \right]$$

$$= 12000 \left[\left(1 + \frac{1}{20} \right)^3 - 1 \right]$$

$$= 12000 \left[\left(\frac{21}{20} \right)^3 - 1 \right]$$

$$= 12000 \left(\frac{9261}{8000} - 1 \right)$$

$$= \frac{12000 \times 1261}{8000} = ₹ 1891.5$$

29. (a) Let the principal be ₹ P

$$A = P \left(1 + \frac{R}{100} \right)^T$$

$$\Rightarrow 6655 = P \left(1 + \frac{10}{100} \right)^3$$

$$\Rightarrow 6655 = P \left(1 + \frac{1}{10} \right)^3$$

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$$\Rightarrow 6655 = P \left(\frac{11}{10} \right)^3$$

$$\Rightarrow P = \frac{6655 \times 10 \times 10 \times 10}{11 \times 11 \times 11}$$

$$= ₹ 5000$$

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$$30. (a) \text{ C.I.} = P \left[\left(1 + \frac{R}{100} \right)^T - 1 \right]$$

$$\Rightarrow 2544 = P \left[\left(1 + \frac{12}{100} \right)^2 - 1 \right]$$

$$\Rightarrow 2544 = P \left[\left(\frac{28}{25} \right)^2 - 1 \right]$$

$$\Rightarrow 2544 = P \left(\frac{784}{625} - 1 \right)$$

$$\Rightarrow 2544 = P \left(\frac{784 - 625}{625} \right)$$

$$2544 = \frac{P \times 159}{625}$$

$$\Rightarrow P = \frac{2544 \times 625}{159} = ₹ 10000$$

$$\therefore \text{S.I.} = \frac{P \times R \times T}{100}$$

$$= \frac{10000 \times 2 \times 12}{100} = ₹ 2400$$

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$$31. (d) \text{ A's 1 day's work} = \frac{1}{20}$$

$$\text{B's 1 day's work,} = \frac{1}{30}$$

$$\therefore (\text{A} + \text{B})\text{'s 1 day's work}$$

$$= \frac{1}{20} + \frac{1}{30} = \frac{3+2}{60} = \frac{1}{12}$$

Hence, the work will be completed in 12 days.
When worked together.

$$32. (b) (\text{A} + \text{B})\text{'s 1 day's work} = \frac{1}{8}$$

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$$(\text{B} + \text{C})\text{'s 1 day's work} = \frac{1}{12}$$

$$(\text{A} + \text{B} + \text{C})\text{'s 1 day's work} = \frac{1}{6}$$

$$\therefore \text{C's 1 day's work} = \frac{1}{6} - \frac{1}{8} = \frac{4-3}{24} = \frac{1}{24}$$

A's 1 day's work

$$= \frac{1}{6} - \frac{1}{12} = \frac{2-1}{12} = \frac{1}{12}$$

 $\therefore (\text{A} + \text{C})\text{'s 1 day's work}$

$$= \frac{1}{12} + \frac{1}{24} = \frac{2+1}{24} = \frac{1}{8}$$

 \therefore Required time = 8 days

$$33. (c) \text{ Work done by } 2(\text{A} + \text{B}) \text{ in one day}$$

$$= \frac{1}{10} + \frac{1}{15} = \frac{3+2}{30} = \frac{5}{30} = \frac{1}{6}$$

$$\therefore \text{Work done by } (\text{A} + \text{B}) \text{ in one day} = \frac{1}{12}$$

 $\therefore (\text{A} + \text{B})$ can complete the work in 12 days

$$34. (c) \text{ Part of the tank filled by B and C in half an hour}$$

$$= \frac{1}{2} \left(\frac{1}{9} + \frac{1}{12} \right)$$

$$= \frac{1}{2} \left(\frac{4+3}{36} \right) = \frac{7}{72}$$

Remaining part

$$= 1 - \frac{7}{72} = \frac{72-7}{72} = \frac{65}{72}$$

Part of tank filled by three pipes in an hour

$$= \frac{1}{6} + \frac{1}{9} + \frac{1}{12} = \frac{6+4+3}{36} = \frac{13}{36}$$

 \therefore Time to fill remaining part

$$= \frac{65}{72} \times \frac{36}{13} = \frac{5}{2} = 2\frac{1}{2} \text{ hours}$$

$$35. (d) \text{ Pipe A fills the tank in } \frac{75}{2} \text{ minutes.}$$

 \therefore Part of the tank filled by A in 30 minutes

$$= \frac{2}{75} \times 30 = \frac{4}{5}$$

$$\text{Remaining part} = 1 - \frac{4}{5} = \frac{1}{5}$$

Now, 1 part is filled by pipe B in 45 minutes

$$\therefore \frac{1}{5} \text{ part is filled in}$$

$$= 45 \times \frac{1}{5} = 9 \text{ minutes}$$

Hence, the pipe B should be turned off after 9 minutes.

$$36. (d) \text{ Part of tank filled by pipes A and B in 1 minute}$$

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$$= \frac{1}{30} + \frac{1}{45} = \frac{3+2}{90} = \frac{1}{18} \text{ part}$$

∴ Part of tank filled in 12 minutes

$$= \frac{12}{18} = \frac{2}{3} \text{ part}$$

Remaining part

$$= 1 - \frac{2}{3} = \frac{1}{3} \text{ part}$$

When pipe C is opened, Part of tank filled by all three pipes

$$= \frac{1}{30} + \frac{1}{45} - \frac{1}{36} = \frac{6+4-5}{180} = \frac{5}{180} = \frac{1}{36}$$

∴ Time taken in filling $\frac{1}{3}$ part

$$= \frac{1}{3} \times 36 = 12 \text{ minutes}$$

∴ Total time = 12 + 12 = 24 minutes

37. (a) Speed of bus = 72 kmph

$$= \left(\frac{72 \times 5}{18} \right) \text{ metre/second}$$

= 20 metre/second

∴ Required distance

$$= 20 \times 5 = 100 \text{ metre}$$

38. (b) Distance covered by motor cyclist P in 30 minutes

$$= 30 \times \frac{1}{2} = 15 \text{ km}$$

Relative speed = 40 - 30 = 10 kmph

∴ Required speed = Time taken to cover is km at 10 kmph

$$= \frac{15}{10} = \frac{3}{2} \text{ hours}$$

39. (c) When a train crosses a bridge, distance covered = length of (bridge + train).

∴ Speed of train

$$= \frac{150+500}{30} = \frac{650}{30} = \frac{65}{3} \text{ m/sec.}$$

∴ Time taken to cross the 370m long platform

$$= \frac{370+150}{\frac{65}{3}} = \frac{520 \times 3}{65} = 24 \text{ seconds}$$

40. (c) Speed of man in still water = x kmph.

Speed of current = y kmph

Rate downstream = (x + y) kmph

Rate upstream = (x - y) kmph

According to the question,

$$\frac{5}{x+y} = \frac{4}{x-y}$$

$$\Rightarrow 5x - 5y = 4x + 4y$$

$$\Rightarrow x = 5y + 4y = 9y$$

$$\text{Again, } \frac{35}{x+y} + \frac{35}{x-y} = 10 \frac{1}{2} = \frac{21}{2}$$

$$\Rightarrow \frac{35}{9y+y} + \frac{35}{9y-y} = \frac{21}{2}$$

$$\Rightarrow \frac{5}{10y} + \frac{5}{8y} = \frac{3}{2}$$

$$\Rightarrow \frac{1}{y} + \frac{5}{4y} = 3$$

$$\Rightarrow \frac{4+5}{4y} = 3 \Rightarrow 9 = 12y$$

$$\Rightarrow y = \frac{9}{12} = \frac{3}{4} \text{ kmph or } 0.75 \text{ kmph}$$

41. (b) Let the speed of boat in still water be x kmph and the distance be y km.

∴ Rate downstream = (x + 1.5) kmph

Rate upstream = (x - 1.5) kmph

According to the question,

$$\frac{y}{x+1.5} = 3 \quad \dots(i)$$

$$\frac{y}{x-1.5} = \frac{7}{2} \quad \dots(ii)$$

On dividing equation (i) by (ii),

$$\frac{x-1.5}{x+1.5} = \frac{3 \times 2}{7} = \frac{6}{7}$$

$$\Rightarrow 7x - 10.5 = 6x + 9$$

$$\Rightarrow x = 10.5 + 9 = 19.5 \text{ kmph.}$$

42. (c) Let the speed of boat in still water be x kmph and that of current be y kmph., then

$$x + y = 12$$

$$x - y = 8$$

$$\Rightarrow 2x = 20$$

$$\Rightarrow x = 10 \text{ kmph}$$

$$\therefore \text{Required time} = \frac{24}{10} = 2.4 \text{ hours}$$

43. (c) Area of the tank

$$= 180 \times 120 = 21600 \text{ m}^2.$$

Total area of the circular plot

$$= 40000 + 21600 = 61600 \text{ m}^2.$$

$$\therefore \pi r^2 = 61600$$

$$\Rightarrow r^2 = \frac{61600 \times 7}{22} = 2800 \times 7$$

$$= 2800 \times 7$$

$$\Rightarrow r = \sqrt{2800 \times 7}$$

$$\Rightarrow r = 2 \times 7 \times 10 = 140\text{m}$$

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44. (d) Let the base and altitude be $3x$ and $4x$ respectively.

\therefore According to question,

$$\frac{1}{2} \text{base} \times \text{altitude} = 1176 \text{ cm}^2$$

$$\text{or, } \frac{1}{2} \times 3x \times 4x = 1176$$

$$12x^2 = 1176 \times 2$$

$$x^2 = \frac{1176 \times 2}{12}$$

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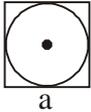
$$x^2 = 196$$

$$\Rightarrow x = \sqrt{196} = 14 \text{ cm}$$

$$\therefore \text{Altitude of a triangle} = 4x$$

$$= 4 \times 14 \text{ cm} = 56 \text{ cm}$$

45. (d)



The diameter of the largest circle inscribed inside a square is equal to its side.

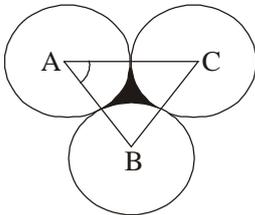
$$\therefore d = a = 28\text{cm}$$

$$\text{Area of the circle} = \frac{\pi d^2}{4}$$

$$= \frac{1}{4} \times \frac{22}{7} \times (28)^2 \text{ cm}^2$$

$$= 22 \times 28 \text{ cm}^2 = 616 \text{ cm}^2$$

46. (d)



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Let $AB = BC = CA = 2a \text{ cm}$.

$$\angle BAC = \angle ACB = \angle ABC = 60^\circ$$

$$\therefore \Delta ABC = \frac{\sqrt{3}}{4} \times (\text{side})^2$$

$$= \frac{\sqrt{3}}{4} \times 4a^2 = \sqrt{3} a^2 \text{ sq.cm}$$

Area of three sectors

$$= 3 \times \frac{60}{360} \times \pi \times a^2$$

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$$= \frac{\pi a^2}{2} \text{ sq.cm}$$

Area of the shaded region

$$= \sqrt{3}a^2 - \frac{\pi}{2}a^2$$

$$= \left(\frac{2\sqrt{3} - \pi}{2} \right) a^2 \text{ sq.cm.}$$

47. (a) $\frac{\sqrt{3}}{4}x^2 = 4\sqrt{3}$

$$\Rightarrow x^2 = 4 \times 4 \Rightarrow x = 4 \text{ cm}$$

\therefore Perimeter of equilateral triangle

$$= 3 \times 4 = 12 \text{ cm}$$

48. (b) Let the radius of the circle be $r \text{ cm}$.

$$\text{Then, } 2\pi r - 2r = 30$$

$$2r(\pi - 1) = 30$$

$$\Rightarrow 2r \times \frac{22-7}{7} = 30$$

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$$\Rightarrow 2r \times 15 = 30 \times 7 \Rightarrow r = \frac{30 \times 7}{30}$$

$$\Rightarrow r = 7 \text{ cm}$$

49. (a) LCM of indices = LCM of 3, 6, 4 and 2 = 12

$$\therefore \sqrt[3]{4} = (4)^{\frac{1}{3}} = (4)^{\frac{1}{12}} = \sqrt[12]{4^4}$$

$$= \sqrt[12]{256}$$

$$\sqrt{2} = (2)^{\frac{1}{2}} = \sqrt[12]{2^6} = \sqrt[12]{64}$$

$$\sqrt[3]{3} = \sqrt[12]{3^4} = \sqrt[12]{9}$$

$$\sqrt[4]{5} = \sqrt[12]{5^3} = \sqrt[12]{125}$$

$$\text{Clearly, } \sqrt[3]{4} > \sqrt[4]{5} > \sqrt{2} > \sqrt[3]{3}$$

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50. (a) $(2000)^{10} = 1.024 \times 10^k$

$$\Rightarrow (2 \times 10^3)^{10} = \frac{1024}{1000} \times 10^k$$

$$\Rightarrow 2^{10} \times 10^{30} = 1024 \times 10^{k-3}$$

$$\Rightarrow 2^{10} \times 10^{30} = 2^{10} \times 10^{k-3}$$

$$\Rightarrow 30 = k - 3 \Rightarrow k = 33$$

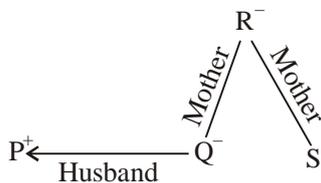
51. (a) Calorie and Joule are units of heat. Similarly, decibel is unit of sound.

52. (c) Brain is the organ of the body inside the head that controls thought, memory and feeling. It is found naturally.

Computer is a device which performs a variety

of functions and it is an example of artificial intelligence.

53. (b) The second term is a type of the first. Red is a colour. Similarly, English is a language.
54. (c) Bread is prepared by baking the dough. Similarly, curd is manufactured by the fermentation of milk.
55. (b) Happy is the antonym of Dismal. Similarly, Proud is the antonym of Humble.
56. (c) Powerful is antonym of weak. Similarly, victory is antonym of defeat.
57. (d) Students go to college to study different courses. Similarly, patients go to hospital for treatment.
58. (d)



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Clearly P is husband (male then Q is wife (female) and R is Q's mother. So R is P's mother-in-law.

59. (b) B is sister of F. Therefore, B is sister-in-law of M.
60. (b) Husband of Suresh's mother means father of Suresh. Mother of Suresh's father means grandmother of Suresh. The son of grandmother means either father or uncle. Therefore, Suresh is the son of that man. [Note : Nephew is not mentioned in the options]

61. (b)

| | |
|------------------------|----------------------|
| $\times \Rightarrow +$ | $+ \Rightarrow \div$ |
| $- \Rightarrow \times$ | $\div \Rightarrow -$ |

$$6 \times 4 - 5 + 2 \div 1 = ?$$

$$\Rightarrow ? = 6 + 4 \times 5 \div 2 - 1$$

$$\Rightarrow ? = 6 + 10 - 1 = 15$$

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62. (c)

| | |
|----------------------|------------------------|
| $a \Rightarrow +$ | $b \Rightarrow \times$ |
| $c \Rightarrow \div$ | $d \Rightarrow -$ |

$$20 a 10 b 45 c 5 d 12 = ?$$

$$\Rightarrow ? = 20 + 10 \times 45 \div 5 - 12$$

$$\Rightarrow ? = 20 + 10 \times 9 - 12$$

$$\Rightarrow ? = 20 + 90 - 12 = 98$$

63. (a)

| | |
|------------------------|------------------------|
| $\times \Rightarrow -$ | $+ \Rightarrow \times$ |
| $\div \Rightarrow +$ | $- \Rightarrow \div$ |

$$175 - 25 \div 5 + 2 \times 3 + 10 = ?$$

$$\Rightarrow ? = 175 \div 25 + 5 \times 2 - 3 \times 10$$

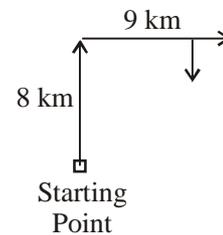
$$\Rightarrow ? = 7 + 10 - 30$$

$$\Rightarrow ? = 17 - 30 = -13$$

64. (a) Cringe is different from the other three words. Cringe means to show excessive respect to somebody who is more powerful than oneself in an attempt to gain favour from them.
65. (c) Except Optimism, all other words signify negative attitude.
66. (b) The second number is three times the first number except in the case of option (2).
 $81 \times 3 = 243$
 $64 \times 3 = 192$
 $25 \times 3 = 75$
 But, $16 \times 4 = 64$
67. (c) Except in number pair 55 - 62, in all other number pairs there is a difference of 9 between the two numbers.
 $43 - 34 = 9$
 $71 - 62 = 9$
 $92 - 83 = 9$
 But, $62 - 55 = 7$

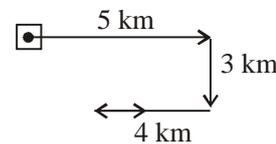
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68. (a) Travelling from south means movement from south to north.



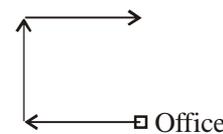
It is clear from the diagram that it was facing south.

69. (a)



After turning back he was facing east.

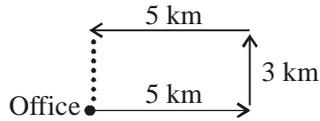
70. (c)



Now he is facing towards east.

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71. (a)



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The man is 3 km away from his office.

72. (d) Today is Wednesday + 2 = Friday

Therefore, Day after tomorrow will be Sunday.

73. (b) Mondays ⇒ 1st, 8th, 15th, 22nd and 29th
23rd → Tuesday

24th → Wednesday

25th → Thursday

74. (b) Time after 6 hours after midnight = 6 am

Clock will go slow in 6 hours

$$= 6 \times 5 = 30 \text{ minutes}$$

∴ Time shown by the clock

প্র্যাচিভর্ষ

$$= 6 : 00 - 0 : 30 \text{ minutes}$$

$$= 5 : 30 \text{ am.}$$

75. (a) The given number series is based on the following pattern :

$$15 \times 2 + 1 = 31$$

$$31 \times 2 + 2 = 64$$

$$64 \times 2 + 3 = 131$$

$$131 \times 2 + 4 = \boxed{266}$$

76. (a) Here on adding 1 to the double of the first term, we get the next term.

As required-

$$3 \times 2 + 1 = 7$$

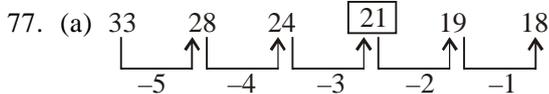
$$7 \times 2 + 1 = 15$$

$$15 \times 2 + 1 = 31$$

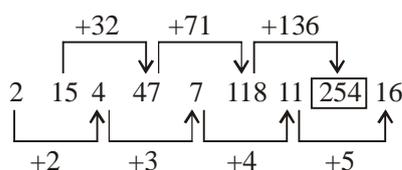
$$31 \times 2 + 1 = 63$$

$$63 \times 2 + 1 = 127$$

$$127 \times 2 + 1 = 255$$

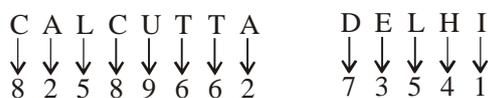


78. (d)

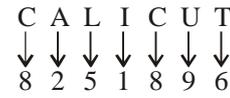


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79. (c)



Therefore,



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80. (d) R U S H

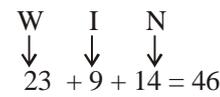
$$18 + 21 + 19 + 8 = 66$$

Therefore,

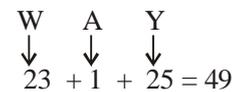
G I R L

$$7 + 9 + 18 + 12 = 46$$

81. (c) W = 23 → Position Number in English alphabet



Therefore,



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82. (b) There is no 'N' letter in the given word. Therefore, the word ARAMANA cannot be formed.

D H A R A M S A L A ⇒ M A S A L A

D H A R A M S A L A ⇒ R A M A

D H A R A M S A L A ⇒ S A H A R A

83. (c) There is no 'U' letter in the given word. Therefore, the word, SITUATION cannot be formed.

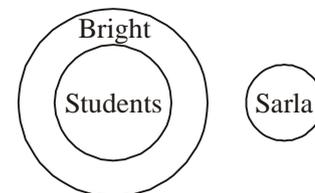
ADMINISTRATION ⇒ STRAIN

AD MINISTRATION ⇒ TRADITION

ADMINISTRATION ⇒ RATION

84. (d) BECU ⇒ CUBE

85. (b)



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All student of a particular class (without any exception) are bright. And, Sarla is not bright. Therefore, Sarla cannot be the student of that particular class.

86. (c) Both the Premises are Universal Affirmative (A-type).

Both the Premises are already aligned.

All girls are proud

All proud will be humiliated one day

We know that,

A + A ⇒ A – type Conclusion

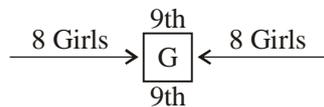
Therefore, our derived Conclusion would be :
“All girls will be humiliated one day”.

Conclusion II is the converse of the derived Conclusion. Thus, both the Conclusions follow.

87. (d) If A is a beggar, then A is not rich.

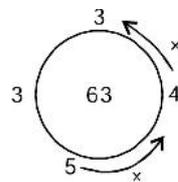
88. (b) Total number of competitors
= 8 + 84 – 1 = 91

89. (b) The position of the girl at the middle from either end would be the same.

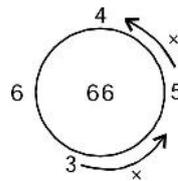


90. (b) Original position of Prakash from the left = 9th Position from the right end
= 16 – 9 + 1 = 8th

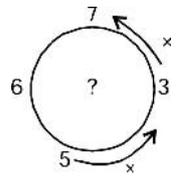
91. (d)



$5 \times 4 \times 3 = 60; 60 + 3 = 63$



$3 \times 5 \times 4 = 60; 60 + 6 = 66$



$5 \times 3 \times 7 = 105;$
 $105 + 6 = 111$

92. (d) $\sqrt{1} + \sqrt{16} + \sqrt{9} + \sqrt{4}$
= 1 + 4 + 3 + 2 = 10
 $\sqrt{25} + \sqrt{64} + \sqrt{100} + \sqrt{16}$
= 5 + 8 + 10 + 4 = 27

Therefore,

$\sqrt{36} + \sqrt{256} + \sqrt{144} + \sqrt{64}$
= 6 + 16 + 12 + 8 = 42

93. (c) First figure : $6 \times 6 = 4 \times 9$
Second figure : $9 \times 8 = 24 \times 3$
Third figure
 $15 \times 6 = 9 \times ?$

$\therefore ? = \frac{90}{9} = 10$

94. (c) $27 = 9 \times (2 + 1)$
 $35 = 7 \times (3 + 2)$
 $36 = 4 \times (4 + 5)$

95. (d) First Figure
 $4 \times 3 \times 2 = 24$

Second Figure
 $(-2) \times 2 (-1) = 4$
Third Figure
 $0 \times 6 \times 5 = 0$

96. (a) Suppose the present age of son = x years
The present age of father = 2x years
20 years ago

$(2x - 20) = 12 (x - 20)$
or, $2x - 20 = 12x - 240$
or, $12x - 2x = 240 - 20$
or, $10x = 220$
 $\therefore x = 22$ years

Age of father = $2x = 44$ years

97. (b) Many members constitute a family. Families constitute a community. Different communities constitute a village. City is bigger and most developed than that of village. Thus, Meaningful order of words :

- a. Members
- ↓
- d. Family
- ↓
- e. Community
- ↓
- c. Village
- ↓
- b. City

98. (a) Meaningful order of the continents in ascending order of area :

- (iv) Australia
- ↓
- (iii) Europe
- ↓
- (i) South America
- ↓

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(v) North America

↓

(ii) Africa

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99. (d) The numbers 1, 3, 4 and 5 are on adjacent faces of the number 6. Therefore, 6 lies opposite 2.

100. (b) The central cube of each face will have only one face painted. Thus, there are six such cubes.

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