

Solution

1. Ans. C.

Total number of girls = $14 + 6 = 20$

Total weight of all the girls = $(14 \times 41.5) + (6 \times 37.25)$

= $581 + 223.5$

= 804.5

Required average = $804.5 / 20 = 40.225$

Hence, option C is correct.

2. Ans. D.

Runs in 21st inning = Runs total after 21 innings - Runs total after 20 innings

→ $21 \times 43 - 20 \times 42$ (in 21st inning, average increased by 1 Run)

→ $903 - 840$

→ 63

3. Ans. C.

Correct sum of 40 numbers = $40 \times 45 - 31 + 71$

= $1800 + 71 - 31$

= $1871 - 31$

= 1840

$$\therefore \text{Required average} = \frac{1840}{40} = 46$$

Option C is correct.

4. Ans. A.



Let the average monthly income of man be Rs. x

Man's annual income = Rs. $12x$

Man's annual expenses = Rs. $\left(\frac{3x \times 12}{6}\right)$ = Rs. $6x$.

Savings = Rs. $(12x - 6x)$ = Rs. $6x$ Now, $6x = 7500$ $x =$ Rs. 1250 Option

A is correct.

5. Ans. A.

The total height of 50 students = $152 \times 50 = 7600$ cm

Total decrease in the height when 10 students left the class = $148 \times 10 = 1480$ cm

Total increase in the height when 10 students included in the class = $150 \times 10 = 1500$ cm

Now, total height of 50 students = $7600 - 1480 + 1500 = 7620$ cm

New average = Sum of height of 50 students / total number of students
 $= \frac{7620}{50} = 152.4$ cm

6. Ans. C.

First 25 multiples of 5 are 5,10,15,20,25.....125

Sum of first 25 multiples of 5 = $5(1+2+3+.....+25)$

Sum of first n natural number = $\frac{(n)(n+1)}{2}$

Sum of first 25 natural number = $\frac{(25)(25+1)}{2} = 25 \times 13 = 325$

So Sum of first 25 multiples of 5 = $5(1+2+3+.....+25) = 5 \times 325 = 1625$

Average = $\frac{1625}{25} = 65$

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7. Ans. D.

Total age of 5 members, 7 years ago = $(19 \times 5) = 95$ years

Total age of 5 members, now = $(95 + 7 \times 5) = 130$ years

Total age of 7 members, now = $(19 \times 7) = 133$ years.

Sum of the ages of two children = $(133 - 130) = 3$ years.

Let the age of elder child = $(x + 2)$ years

The age of younger child = x years

So, $x + x + 2 = 3$

$2x = 1$

$x = 1/2$

8. Ans. D.

Let the height of Q, R and P be x cm, x cm and $(x - 4)$ cm respectively. Then,

$$x + x + (x - 4) = (165 \times 50 - 164 \times 47)$$

$$\Rightarrow 3x - 4 = 8250 - 7708$$

$$\Rightarrow 3x = 542 + 4$$

$$\Rightarrow 3x = 546$$

$$\Rightarrow x = 182 \text{ cm}$$

Option D is correct response.

9. Ans. C.

Let the number of papers be x

Then, $53x + 10 + 2 = 55x$



$$2x = 12$$

$$x = 6.$$

10. Ans. D.

Let the daily wage of man be x

Daily wage of women = Rs. $(x + 6)$

$$700x + 300(x + 6) = 26.50 \times (700 + 300)$$

$$1000x = 26500 - 1800$$

$$1000x = 24700$$

$$x = 24.70$$

Man's daily wages = Rs. 24.70 Woman's daily wages = Rs.

30.70

11. Ans. B.

$$\text{Total distance in laps} = 286 \times 4 + 197 \times 1 + 291 \times 3$$

$$= 1144 + 197 + 873$$

$$= 2214$$

$$\text{Total laps} = 4 + 1 + 3 = 8$$

$$\therefore \text{Average speed per lap} = 2214/8 = 276.75 = 277 \text{ km per lap (approx)}$$

12. Ans. B.

Let the number of girls be x .

$$\text{Total consumption of boys} = 16 \times 18 = 288 \text{ kg}$$

$$\text{Total consumption of girls} = 12x \text{ kg}$$



Total consumption of group = $15(16 + x) = 15x + 240\text{kg}$

$$288 + 12x = 240 + 15x$$

$$48 = 3x \quad x = 16$$

13. Ans. A.

Let speed of boat $S_1=11\text{km/h}$ and speed of stream be S_2
In upstream $11-S_2=12/t_1$ And in downstream, $11+S_2=12/t_2$
 $t_2=12/11+S_2$ $t_1+t_2=2+45/60$
 $12/(11-S_2)+12/(11+S_2)=2.75$ $S_2=5\text{km/hr}$

14. Ans. C.

Let the speed of boat = x km/h and the speed of current = y km/h

In downstream, Relative speed = $x+y$

In upstream, Relative speed = $x-y$ Using speed = Distance/Time

$$x + y = \frac{32}{6} \dots\dots (1)$$

$$x - y = \frac{14}{6} \dots\dots (2)$$

From equation (1) and (2), we get $y=1.5$

Speed of current = 1.5 km/hr

15. Ans. D.

Let the speed of the man in still water be x km/hr and let the speed of the stream be y km/hr

Speed of the man downstream = $x + y$ km/hr

Speed of the man upstream = $x - y$ km/hr

Therefore $x + y = \frac{18}{4} \dots\dots (i)$

$x - y = \frac{18}{10} = 1.8\text{km/h} \dots\dots (ii)$

Solving these equations by elimination method, we get



$$2x = \frac{18}{4} + 1.8 = 4.5 + 1.8 = 6.3 \Rightarrow x = 3.15 \text{ km/h}$$

$$3.15 - y = 1.8 \Rightarrow y = 1.35 \text{ km/h} \dots\dots\dots(\text{iv}) \quad \dots\dots\dots(\text{iii})$$

Therefore, equations (ii), (iii) and (iv) implies that all the given statements are correct Hence option (d)

16. Ans. B.

Let the speed of the stream be v km/hr

Total time taken to travel upstream and downstream = $30/(15-v) + 30/(15+v) = 4.5$

$$900/4.5 = 15^2 - v^2 \Rightarrow v=5$$

17. Ans. A.

Rate in still water = $[(1/2)(u+v)]$ km/h

Rate of current = $[(1/2)(u-v)]$ km/h

Where, u = speed of boat in downstream

And v = speed of boat in upstream

Putting the given values in the question

So, speed of boat in still water = $[(1/2)(7+13)]$

$$\Rightarrow 10 \text{ km/h}$$

And, speed of the stream = $[(1/2)(13-7)]$

$$\Rightarrow 3 \text{ km/h}$$

18. Ans. B.

rate of water flow = $3.6 \text{ km/hr} = 3600/60 \text{ m/min} = 60 \text{ m/min}$

Depth of river = 2.5 m

Width of river = 45 m

Volume of water flowed in 1 min = rate of water flow \times depth of river

\times width of river = $60 \times 2.5 \times 45 = 6750 \text{ m}^3$ In 1 minute 6750 m^3 water will fall in river

19. Ans. C.



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Let the speed of man be = b ,

And speed of current be = c

Downstream speed = $b + c$

Upstream speed = $b - c$

$$\text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

$$6 = \frac{32}{b + c}$$

$$b + c = \frac{52}{6} = \frac{16}{3} \dots\dots (i)$$

$$b - c = \frac{14}{6} = \frac{7}{3} \dots\dots (ii)$$

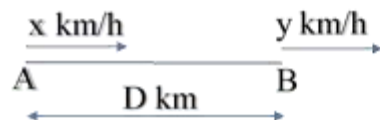
From eqn. (i) & (ii).

$$2c = \frac{16}{3} - \frac{7}{3}$$

$$c = \frac{3}{2}$$

$$= 1.5 \text{ kmph.}$$

20. Ans. D.



Their relative speed = $(x-y)$ km/h

Time taken to meet each other = $D/(x-y)$ hr



Required distance travelled at x km/h = $Dx/(x-y)$ km

21. Ans. B.

Let speed of first boat = $5x$, speed of stream = $2x$ speed of second boat = $4y$, speed of stream = $3y$

But speed of stream should be same in both cases

$$\Rightarrow 2x = 3y$$

$$\Rightarrow x = 3y/2$$

$$\text{So required Ratio} = 5x : 4y = 5\left(\frac{3y}{2}\right) : 4y = 15 : 8$$

22. Ans. B.

Let speed of boat in still water = v_1

Speed of current = v_2

Net speed of boat during downstream = $v_1 + v_2$

Speed of boat during upstream = $v_1 - v_2$

$$\text{So } v_1 - v_2 = 13 \dots\dots\dots(1)$$

$$\text{Speed of current} = v_2 = 7 \text{ km/hr} \dots\dots\dots(2)$$

From equation (1) and (2)

$$v_1 = 20 \text{ km/hr}$$

Net speed of boat during downstream = $v_1 + v_2 = 20 + 7 = 27 \text{ km/hr}$.

23. Ans. A.

Total weights of fruit bought by Anu = $6 \text{ kg } 400 \text{ g} + 5 \text{ kg} + 300 \text{ g} = 11 \text{ kg } 700 \text{ g}$

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Total weights of fruit bought by Tanu = 8 kg 350 g + 3 kg + 175 g = 11 kg 525 g

On comparing both, 11 kg 700 g > 11 kg 525 g

Therefore, Tanu bought less fruits.

24. Ans. A.

Clearly, $\frac{10}{13} = 0.769$, $\frac{15}{18} = 0.833$, $\frac{18}{20} = 0.9$

So, $0.769 < 0.833 < 0.9$.

So, $\frac{10}{13} < \frac{15}{18} < \frac{18}{20}$

25. Ans. D.

$$\left(0.00625 \text{ of } \frac{22}{5}\right) = \left(\frac{625}{100000} \times \frac{22}{5}\right) = \frac{11}{400}$$

26. Ans. C.

Given expression

$$\begin{aligned} &= \sqrt{\frac{6084}{100}} + \sqrt{\frac{6084}{10000}} + \sqrt{\frac{6084}{1000000}} + \sqrt{\frac{6084}{100000000}} \\ &= \frac{\sqrt{6084}}{10} + \frac{\sqrt{6084}}{100} + \frac{\sqrt{6084}}{1000} + \frac{\sqrt{6084}}{10000} \\ &= \frac{78}{10} + \frac{78}{100} + \frac{78}{1000} + \frac{78}{10000} \\ &= 7.8 + .78 + .078 + .0078 = 8.6658 \end{aligned}$$

Option C is correct.

27. Ans. A.



$$\frac{x}{y} = \frac{0.06}{2.5} = \frac{6}{250} = \frac{3}{125}$$

∴ Given exp.

$$\frac{y-x}{y+x} = \frac{1-\frac{x}{y}}{1+\frac{x}{y}} = \frac{1-\frac{3}{125}}{1+\frac{3}{125}} = \frac{\frac{122}{125}}{\frac{128}{125}} = \frac{122}{125} \times \frac{125}{128} = \frac{61}{64}$$

Option A is correct response.

28. Ans. C.

$$(1 / 0.00045291)$$

$$\Rightarrow (10000 / 4.5291)$$

$$\Rightarrow 10000 * (1 / 4.5291)$$

$$\Rightarrow 10000 * 0.2207$$

$$\Rightarrow 2207$$

Option C is correct response.

29. Ans. B.

$$\frac{x}{y} = \frac{0.03}{1.5} = \frac{3}{150} = \frac{1}{50}$$

$$\left(\frac{2y-x}{2y+x}\right) = \frac{2-\frac{x}{y}}{2+\frac{x}{y}}$$

$$\frac{2-\frac{1}{50}}{2+\frac{1}{50}}$$

$$= \frac{99}{101}$$



30. Ans. C.

Let $x = 0.0372372372\dots \rightarrow$ (i)

Multiplying (i) by 10000 on both sides to get decimal to the right of 372.

$$10000x = 372.372372\dots \rightarrow$$
 (ii)

Multiplying (i) by 10 on both sides to get decimal to the left of 372.

$$10x = 0.372372372\dots \rightarrow$$
 (iii)

Subtracting (iii) from (ii)

$$10000x - 10x = 372.372372\dots - 0.372372372\dots$$

$$\Rightarrow 9990x = 372$$

$$\Rightarrow x = 372 / 9990$$
 Option C is correct response.

31. Ans. A.

Given expression

$$(.56)^3 - (.32)^3 - 3 \times .56 \times .32 \times (.56 - .34)$$

$$\Rightarrow a^3 - b^3 - 3ab(a - b) = (a - b)^3$$

$$\text{Here, } a = .56 \text{ \& } b = .34 \text{ } (.56 - .34)^3 = (.24)^3 = 0.013824$$

Option A is the correct response.

32. Ans. A.

$$\begin{aligned} \text{Given, } & \left[35.7 - \left(3 + \frac{1}{3 + \frac{1}{3}} \right) - \left(2 + \frac{1}{2 + \frac{1}{2}} \right) \right] \\ & = 35.7 - \left(3 + \frac{1}{\frac{10}{3}} \right) - \left(2 + \frac{1}{\frac{5}{2}} \right) \end{aligned}$$



$$\begin{aligned} &= 35.7 - \left(3 + \frac{3}{10}\right) - \left(2 + \frac{2}{5}\right) \\ &= 35.7 - \left(\frac{33}{10}\right) - \left(\frac{12}{5}\right) \\ &= 35.7 - \left(\frac{33}{10} + \frac{12}{5}\right) \\ &= 35.7 - \frac{57}{10} \\ &= 35.7 - 5.7 \\ &= 30 \end{aligned}$$

33. Ans. B.

$$\text{Given, } \frac{54208}{352} = 154 \Leftrightarrow \frac{54208}{154} = 352$$

$$\text{Now, } \frac{54.208}{0.0154} = \frac{542080}{154} = \left(\frac{54208}{154} \times 10\right)$$

$$= 352 \times 10$$

$$= 3520$$

34. Ans. B.

In Group, A 20 students passed in first class out of 35 students ∴ fraction of students getting first class = $\frac{20}{35} = \frac{4}{7}$

In Group, B 30 students passed in first class out of 42 students

$$\therefore \text{ fraction of students getting first class} = \frac{30}{42} = \frac{5}{7}$$

Comparing the two fractions, we get $\frac{4}{7} > \frac{5}{7}$

Group B has greater fraction.



35. Ans. A.

Population of illiterate in the village = (100 - 35) % of 8500

$$= (8500 \times 65) / 100$$

$$= 5525$$

Option A is correct.

36. Ans. B.

Let the total votes be x.

$$\text{winner's votes} = 0.45x \text{ and winning margin} = 0.05x$$

$$\text{Loser's votes} = 0.45x - 0.05x = 0.4x$$

When 10000 votes are added to the loser, there is a tie.

$$0.45x = 0.4x + 10000 \quad 0.05x = 10000 \quad x = 200000$$

37. Ans. A.

Since, 14% of votes were rejected, 86% of the votes were valid. total valid votes = 86% of 10000 = 8600

Let the losing candidate get x votes.

$$\text{Hence, the winning candidate got } (x + 600) \text{ votes. } x + (x + 600) = 8600$$

$$x = 4000$$

$$\text{Required percentage} = \left(\frac{4000}{8600} \right) \times 100$$

$$= 46.5\%$$

38. Ans. B.

Let the required time be n years.



$$\therefore 1968300 \times \left(1 - \frac{20}{100}\right)^n$$

$$= 51200 \times \left(1 + \frac{20}{100}\right)^n$$

$$\therefore 1968300 \times \left(\frac{4}{5}\right)^n = 51200 \times \left(\frac{6}{5}\right)^n$$

$$\left(\frac{6}{5}\right)^n \times \left(\frac{5}{4}\right)^n = \frac{1968300}{51200}$$

$$\left(\frac{3}{2}\right)^n = \frac{19683}{512}$$

$$\left(\frac{3}{2}\right)^n = \left(\frac{3}{2}\right)^9$$

$$N = 9$$

Thus, the value of the land and house will be same after 9 years.

39. Ans. B.

Akash income be Rs. 100.

Hence, he spends Rs. 40 on food.

Amount left = Rs. 60 and amount spent on education = 30% of 60 = Rs.

18

Amount now left = 60 - 18 = Rs. 42

Amount spent on the other expenditure = 25% of 42 = Rs. 10.5 ∴ savings = 42 - 10.5 = Rs. 31.5

Since, actual savings = Rs. 5670, actual income = $100/31.5 \times 5670$ = Rs. 18000.

40. Ans. C.

Rohit = 75 = Mohit + 10



∴ Mohit = 65

Raj = Mohit + 55 = 65 + 55 = 120

Ashish = Raj – 35 = 120 – 35 = 85

∴ Rajan = Ashish + 44 = 85 + 44 = 129

∴ Maximum marks = Rajan + 71 = 129 + 71 = 200

∴ Required percentage = $\left(\frac{129}{200}\right) \times 100 = 64.5\%$

41. Ans. D.

The pen's initial price be Rs. 100 and assume that Ramesh was planning to buy only 1 pen.

∴ originally planned expenditure = $100 \times 1 = \text{Rs. } 100$

New price of pen = $100 \times (1 - 0.04) = \text{Rs. } 60$

Also, Ramesh now plans to buy 2 pens.

∴ New expenditure = $60 \times 2 = \text{Rs. } 120$

∴ Increase in expenditure = $120 - 100 = \text{Rs. } 20$

∴ Required % change = $\left(\frac{20}{100}\right) \times 100 = 20\%$

42. Ans. C.

Females = $45000 \times \frac{4}{5} = 36000$

Males = 9000

Educated females = $36000 \times \frac{90}{100} = 32400$

Educated males = $9000 \times \frac{65}{100} = 5850$



Total educated persons = 38250

Required percent = $(38250 / 45000) \times 100 = 85\%$

Option C is correct.

43. Ans. B.

$$(A + B) \times 30/100 = (A - B) \times 50/100$$

$$\Rightarrow 3(A+B) = 5(A-B)$$

$$\Rightarrow 3A + 3B = 5A - 5B$$

$$\Rightarrow 2A = 8B$$

$$\Rightarrow A = 4B$$

Therefore,

$$(2A - 3B) / A + B$$

$$= 8B - 3B / 4B + B$$

$$= 5B / 5B$$

$$= 1$$

Option B is correct.

44. Ans. C.

Let greater number be x

So, smaller number = 210 - x

ATQ-

$$(25 * x) / 100 = 45 (210 - x) / 100$$

$$\Rightarrow 5x = 9 \times 210 - 9x$$

$$\Rightarrow 14x = 1890$$

$$\Rightarrow x = 135$$



So, the correct option is C.

45. Ans. D.

Let B's salary = Rs. 100

∴ C's salary = Rs. 400

And A's salary = Rs. 30

$$\text{required percentage} = \frac{30}{400} \times 100 = \frac{30}{4} = 7.5\%$$

Option D is correct.

46. Ans. C.

It means that 0.08% of $x = 2$

$$\Rightarrow \frac{8}{100 \times 100} \times x = 2$$

$$\Rightarrow x = \frac{2 \times 100 \times 100}{8} = 2500$$

So required number = 2500

47. Ans. D.

Let the C.P for the farmer = Rs. 1

Rate through intermediaries for customer =

$$1 \times 1.2 \times 1.5 \times 1.25 \times 1.25 = \text{Rs. } 2.156$$

Farmer sales at the same price his profit = $2.156 - 1 = 1.156$

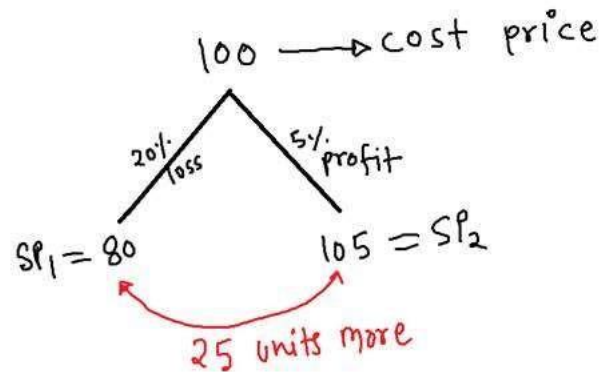
$$\text{Profit percentage of customer} = \frac{1.156}{1} \times 100 = 115.6\%$$

48. Ans. D.

Let CP of article = 100 Rs.



According to question



⇒ 25 units = 100Rs.

⇒ 1 unit = 4 Rs.

⇒ 100 unit = 400 Rs.

So CP of article = 400 Rs.

49. Ans. C.

$$CP \text{ of } 1 \text{ articles} = \frac{1}{5} \times \frac{100}{94} = Rs. \frac{10}{47}$$

$$CP \text{ of } 4 \text{ articles} = Rs. \frac{40}{47}$$

$$Gain = 1 - \frac{40}{47} = \frac{7}{47}$$

$$Gain\% = \frac{\left(\frac{7}{47}\right)}{\left(\frac{40}{47}\right)} \times 100 = \frac{700}{40} = 17.5\%$$

Option C is correct.

50. Ans. A.



$$\text{C.P of 75 ball pens} = \frac{135 \times 100}{75} = \text{Rs. 180}$$

For a gain of 25%

$$SP = \frac{180 \times 125}{100} = \text{Rs. 225}$$

Rs. 225 = 75 ball pens

$$\text{Rs. 102} = \frac{75}{225} \times 102 = \frac{102}{3} = 34$$

Option A is the correct response.

51. Ans. C.

Let CP of the article = Rs x

According to question

Loss% = profit%

$$\Rightarrow \frac{x-50}{x} \times 100 = \frac{70-x}{x} \times 100$$

$$\Rightarrow 2x = 120$$

$$\Rightarrow x = 60$$

Cost price of article = Rs. 60

Selling price of article = Rs 50

Loss= CP-SP=60-50 = 10

$$\text{Loss\%} = (\text{loss/CP}) \times 100 = \frac{10}{60} \times 100 = 16\frac{2}{3}\%$$

52. Ans. C.

M.P. of the shirt = Rs. 600



After getting two successive discounts, C.P. = $600 \times \frac{85}{100} \times \frac{80}{100} = 408 \text{ Rs}$

He also spent Rs 28 on fitting of shirt.

So new C.P. = $408 + 28 = 436 \text{ Rs}$.

SP of the shirt = Rs 545

Profit = $545 - 436 = 109 \text{ Rs}$

Profit % = $(\text{profit}/\text{C.P.}) \times 100 = \frac{109}{436} \times 100 = 25\%$

53. Ans. B.

CP of 164 items = Rs. $(164 \times 80) = \text{Rs. } 131.20$ 20 items are broken out of 164 items.

Total SP = Rs. $(1.20 \times 144) = \text{Rs. } 172.80$

Gain = Rs. $(172.80 - 131.20) = \text{Rs. } 41.60$

$$\text{Gain}\% = \frac{41.60}{131.20} \times 100 = 31.70\%$$

Option B is correct.

54. Ans. D.

If a person sells two article, each at same price and on one article he gets x% profit and on the other article he loses x% then there is a loss of $(x^2/100)\%$

$$\text{Loss \%} = \frac{30^2}{100} \% = 9\%$$

This implies that if the total cost = Rs. 100

Then total loss is 9% and total selling price will be Rs. 91

Since, total cost 120Rs. Total selling price of two articles



$$= \frac{91 \times 216}{9} = \text{Rs. } 2184$$

Selling price for each article = $2184/2 = \text{Rs. } 1092$

55. Ans. D.

Since Ashok wants an overall profit of 50%

$$\text{Total S.P for Ashok} = 720 \times 1.5 = \text{Rs. } 1080$$

Assume Ashok bought 40 goods for Rs. 720

$$\text{C. P per good} = 720/40 = \text{Rs. } 18$$

Ashok sold $1/4^{\text{th}}$ at 40% profit

$$\text{Total S.P of these goods} = 10 \times 1.4 \times 18 = \text{Rs. } 252$$

$$\text{Total S.P of remaining 30 goods} = 1080 - 252 = \text{Rs. } 828$$

$$\text{C.P of 30 goods} = 30 \times 18 = \text{Rs. } 540$$

$$\text{Profit on this} = 828 - 540 = \text{Rs. } 288$$

$$\text{Profit \%} = \frac{288}{540} \times 100 = 53.33\%$$

56. Ans. A.

Lets C.P for the shopkeeper = Rs. 100

Since, The shopkeeper marks up his price by 100%

$$\text{M.P} = 2 \text{ C.P} = 2 \times 100 = \text{Rs. } 200$$

Since, he gives the discount

$$\text{S.P} = 0.5 \times 200 = \text{Rs. } 100$$

Since, S.P = C.P, there is no profit no loss.



57. Ans. D.

Let the printer price of the book is Rs. X

So, after the first discount it becomes Rs. $0.8x$

Now, in additional 10% discount on $0.8x$ makes the

$$\text{price } \frac{90}{100} \times 0.8x = 0.72x$$

But this amount gives 8% profit to the shopkeeper

So, if the cost price is Rs. Y, selling price = Rs. $1.08y$

And, $1.08y = 0.72x$

$$\frac{x}{y} = 1.5$$

Hence, the printed amount is 1.5 times the cost price i.e. 50% more than the cost price.

58. Ans. B.

The original price of jewel be Rs. P and let the profit earned by third seller be Y%

$(100 + Y)\%$ of 125% of 120% of P = 165% of P

$$\left(\frac{100 + Y}{100} \times \frac{125}{100} \times \frac{120}{100} \times P \right) = \frac{165}{100} P$$

$$100 + Y = \frac{165 \times 100 \times 100}{125 \times 120}$$

Y = 10%

59. Ans. B.

Let the total stock be 300 units and each one is cost Rs. 100

Total C.P = $300 \times 100 = 30000Rs.$

S.P of $\frac{1}{4}$ th stock = $\frac{300}{4} \times 1.22 \times 100 = Rs. 9150$



$$\text{S.P of } 1/3^{\text{rd}} \text{ stock} = \frac{300}{3} \times 1.25 \times 100 = \text{Rs. } 12500$$

$$\text{Stock remaining} = 300 - (75 + 100) = 125 \text{ unit}$$

$$\text{S.P of remaining stock} = 125 \times 1.4 \times 100 = \text{Rs. } 17500$$

$$\text{Total S.P} = 9150 + 12500 + 17500 = 39150$$

$$\text{Profit} = 39500 - 30000 = 9150$$

Since, actual profit = 18300

$$\text{Actual C.P} = 30000 \times \frac{18300}{9150} = \text{Rs. } 60000$$

60. Ans. B.

Let $x = 3k$ and $y = 5k$

$$3x + y = 3 \times 3k + 5k = 14k$$

$$5x - y = 5 \times 3k - 5k = 10k$$

$$(3x + y) : (5x - y) = 14k : 10k$$

$$= 7 : 5$$

61. Ans. D.

$$B + C = 85 - 25 = 60$$

Also, let $B = 2x$ and $C = 3x$

$$B + C = 5x = 60 \quad x = 12 \text{ then}$$

$$\text{Coins with C} = (3) \times 12 = 36$$

62. Ans. C.

Let P's and Q's weekly income be Rs. $7x$ & Rs. $5x$ and their expenses be Rs. $3y$ & Rs. $2y$ respectively.



Then,

$$7x - 3y = 225 \text{ - (i)}$$

$$5x - 2y = 225 \text{ - (ii)}$$

$$7x - 3y = 5x - 2y$$

$$2x = y \text{ - (iii)}$$

From eq. (i)

$$7x - 3y = 225 \quad 7x - 6x = 225 \quad x = 225$$

$$\therefore \text{Sum of their weekly income} = 12x = 12 \times 225 = \text{Rs. } 2700$$

Option C is correct.

63. Ans. A.

Let the initial number of members with Mr. Shah be $6k$ and the number of members with Mr. Raheja be $5k$.

24 members went over from Mr. Shah's side to Mr. Raheja's side.

Hence, the number of members now supporting

Mr. Shah is $6k - 24$ while the number of members with Mr. Raheja is $5k + 24$.

This ratio is now $2 : 3$

$$\therefore (6k - 24) : (5k + 24) = 2 : 3$$

$$\therefore 18k - 72 = 10k + 48$$

$$\therefore 8k = 120$$

$$k = 15$$

64. Ans. A.

Annual profit of the company = $33.15 \text{ lacs} \times 12 = 397.8 \text{ lacs} = 3.978 \text{ crores}$



Let the earnings in the four quarters be $2x$, $3x$, $7x$, and $5x$ respectively

$$\text{Total profit} = 2x + 3x + 7x + 5x = 17x$$

$$\text{Profit in 3rd quarter} = \frac{7}{17} \times 3.978 = 1.638 \text{ crores.}$$

65. Ans. B.

Let the total capital be $14x$ ∴ total amount invested by P, Q and R is $7x$, $2x$ and x respectively.

Also, P, Q and R invest capital for 12, 2 and 4 months respectively.

Profits are divided in the ratio of investment

$$\begin{aligned} \text{Ratio of profits} &= 7x \times 12 : 2x \times 2 : x \times 4 = 84 : 4 : 4 \\ &= 21 : 1 : 1 \end{aligned}$$

66. Ans. D.

Let the third proportional to 0.38 and 0.76 be x

Then,

$$0.38 : 0.76 :: 0.76 : x \quad x = (0.76 \times 0.76) / 0.38 \quad x = 1.52$$

Option d is correct response.

67. Ans. A.

Let the Income of P and Q be $6x$ and $5x$ respectively and their expenditure's be Rs. $4y$ and Rs. $3y$ respectively.

$$6x - 4y = 1800 \text{ --- (i)}$$

$$5x - 3y = 1800 \text{ --- (ii)}$$

On multiplying eq. (i) by 3 and (ii) by 4 and subtracting we get,



$$\begin{array}{r} 18x - 12y = 5400 \\ 20x - 12y = 7200 \\ (-) \quad (+) \quad (-) \\ \hline -2x \quad \quad = -1800 \\ \quad \quad x \quad \quad = 900 \end{array}$$

So, P's income = $6 \times 900 = \text{Rs. } 5400$

Option A is correct.

68. Ans. D.

Total age of three girls = $36 \times 3 = 108$ years.

Ratio of their ages = $4 : 6 : 8$

Age of the youngest = $108 \times 4/18 = 6 \times 4 = 24$ years.

Hence, the correct response is option d.

69. Ans. A.

Let the CP be Rs. $5x$.

It's SP = Rs. $6x$

Profit = Rs. $(6x - 5x) = \text{Rs. } x$

$$\text{Profit percent} = \frac{x}{5x} \times 100 = 20\%$$

Option A is correct.

70. Ans. B.

ratio before mixing of $8 : 6 : 1$ total weight = 150 kg weight of Aluminium

= $150 \times (1/15) = 10$ kg Let x kg of aluminum be mixed.

After mixing then ratio $6 : 4 : 3$

$$\frac{(10 + x)}{150 + x} = \frac{3}{13}$$



$$\Rightarrow 130 + 13x = 450 + 3x$$

$$\Rightarrow 10x = 450 - 130$$

$$\Rightarrow 10x = 320$$

$$\Rightarrow x = 32 \text{ kg}$$

Option B is correct response.

71. Ans. D.

Let the first part be x then the second part be $(1050 - X)$.

$$(X \times 5 \times 3) / 100 = [(1050 - X) \times 10 \times 6] / 100$$

$$X = (1050 - X) * 4$$

$$X = 4200 - 4X$$

$$5X = 4200$$

$$X = 840$$

$$\text{Second part} = 1050 - 840 = \text{Rs.}210$$

Option d is correct.

72. Ans. A.

$$\text{Gain in 2 years} = \left[\frac{2500 \times 15 \times 2^2}{100} \right] - \left[\frac{2500 \times 3 \times 2}{100} \right]$$

$$= 375 - 150$$

$$= 225$$

$$\text{Gain in 1 year} = 225/2 = \text{Rs.}112.5$$

Option A is correct.

73. Ans. C.

ATQ-



$$P*(r+4)^*4/100 - P*r*4/100 = 380$$

$$4P(r+4 -r) = 380 \times 100$$

$$4P * 4 = 380 \times 100$$

$$P = (380 \times 100) / 16$$

$$P = \text{Rs.}2375$$

Option C is the right answer.

74. Ans. D.

$$\text{SI after 2 years} = \frac{16500 \times 8 \times 2}{100} = \text{Rs.} 2640$$

Principal for next two years = Rs. (16500 + 2640) = Rs. 19140

SI at the end of fourth year = $\frac{(19140*8*2)}{100} = 3062.4$

Option D is correct.

75. Ans. D.

If the principal be x , then simple interest = $(840 - x)$

$$\text{principal} = \frac{SI \times 100}{R \times T}$$

$$\Rightarrow x = \frac{(840 - x) \times 100}{15 \times 5}$$

$$\Rightarrow 3x = (840 - x) \times 4$$

$$\Rightarrow 3x = 3360 - 4x$$

$$\Rightarrow 7x = 3360$$

$$\Rightarrow x = \text{Rs.} 480$$

Option D is correct.



76. Ans. A.

Let each installment be x .

Then,

$$\left(x + \frac{x \times 5 \times 1}{100}\right) + \left(x + \frac{x \times 5 \times 2}{100}\right) + \left(x + \frac{x \times 5 \times 3}{100}\right) + x = 946$$

$$\left(x + \frac{x}{20}\right) + \left(x + \frac{x}{10}\right) + \left(x + \frac{3x}{20}\right) + x = 946$$

$$\frac{21x}{20} + \frac{11x}{10} + \frac{23x}{20} + x = 946$$

$$\frac{21x + 22x + 23x + 20x}{20} = 946$$

$$86x = 946 \times 20$$

$$x = 11 \times 20 = \text{rs. } 220$$

Option A is correct.

77. Ans. C.

If each amount lent be x , then

$$\frac{x \times 9 \times 3}{100} + \frac{x \times 7 \times 3}{100} = 840 \Rightarrow \frac{48x}{100} = 840$$

$$\Rightarrow x = \frac{840 \times 100}{48} = \text{Rs. } 1750$$

Option C is correct.

78. Ans. D.

Let the principle be Rs. 100, rate be 10% and the time period be 1 year

$$\text{Simple interest} = \frac{100 \times 10 \times 1}{100} = 10$$



New principle = Rs. 130, new rate = 8% and new period = 4 years

$$\text{Simple interest} = \frac{130 \times 8 \times 4}{100} = 41.6$$

Increase in interest = 41.6 - 10 = 31.6

$$\text{Percentage increase in interest} = \frac{31.6}{10} \times 100 = 316\%$$

79. Ans. D.

Here the principle is placed for 3 years that means $n = 3$

$$\text{Amount} = P \left[1 + \left(\frac{R}{100}\right)\right]^n$$

$$= 5000 \left[1 + \frac{10}{100}\right]^3$$

$$= 5000 \times 1.1^3 = \text{Rs. } 6655 \quad \text{Interest} = 6655 - 5000 = \text{Rs. } 1655$$

80. Ans. A.

Let the rate of interest be R

Simple interest = 4126 - 3468 = Rs. 658

$$658 = \frac{3468 \times 2 \times R}{100}$$

$$R = 9.48\% = 9.5\% \text{ (approx)}$$

81. Ans. C.

4.5% p.A. implies $\left(\frac{9}{2}\right)\%$ p.A. and 8 months implies $\left(\frac{2}{3}\right)$ of a year.

$$\therefore \text{S.I} = \frac{[30000 \times \left(\frac{9}{2}\right) \times \left(\frac{2}{3}\right)]}{100} = \text{Rs. } 900$$

\therefore amount obtained = 30000 + 900 = Rs. 30,900



82. Ans. D.

Simple interest in first case = A – P

$$= 2280 - 2000 = \text{Rs. } 280$$

$$\therefore 280 = (2000 \times R \times 2)/100$$

$$\therefore R = 7\%$$

In the second case:

$$SI = (9000 \times 7 \times 4)/100 = \text{Rs. } 2520$$

$$\therefore \text{Amount} = 9000 + 2520 = \text{Rs. } 11520$$

83. Ans. C.

Average Speed = (total distance) / (total time)

If we assume distance from A and B be d

Then,

$$\text{Average speed} = 2d / [(d/60) + (d/100)] = (2 \times 60 \times 100) / (60 + 100) = (2 \times 60 \times 100) / 160 = 75$$

Hence, (c) is the correct option.

84. Ans. C.

In this case, it is evident that the situation is one of train crossing a stationary object without length.

Applying the formula, $S_T \times t = L_T$; where S_T = Speed of the train & L_T = Length of train;

$$S_T = 200/8 = 25 \text{ m/s}$$

$$\rightarrow 25 \times (18/5) = 90 \text{ kmph}$$

Hence, (C) is the correct answer.

85. Ans. D.



$$\text{Relative speed} = 35 - 25 = 10 \text{ kmph} = 10 \times \frac{5}{18} \text{ m/sec}$$

Total length = 100 + 150 = 250 m

$$\therefore \text{Required time} = \frac{\text{sum of the length of trains}}{\text{relative speed}} = \frac{250 \times 18}{50} = 90 \text{ seconds}$$

Option D is correct.

86. Ans. A.

Let length of train be x m.

$$\therefore \text{speed of train} = \frac{(x + 276)}{25}$$

$$\text{Also, speed of train} = \frac{x}{10}$$

obviously,

$$\frac{x}{10} = \frac{x + 276}{25}$$

$$\Rightarrow 5x = 2x + 552$$

$$\Rightarrow 3x = 552$$

$$\Rightarrow x = 184 \text{ m}$$

Option A is correct.

87. Ans. B.

Let the length of the train be x .

According to the question,

$$\text{speed of train} = \frac{x + 120}{40}$$



$$\Rightarrow \frac{x}{20} = \frac{x + 120}{40}$$

$$\Rightarrow 2x = x + 120$$

$$\Rightarrow x = 120 \text{ m}$$

$$\text{Speed of train} = \frac{120}{20} = 6 \text{ m/s} = 6 \times \frac{18}{5} = 21.6 \text{ kmph}$$

Option B is the correct response.

88. Ans. D.

$$\text{Average speed of whole journey} = \left(\frac{2xy}{x + y} \right) \text{ kmph}$$

$$\frac{2 \times 45 \times 75}{120} = \frac{6750}{120} = 56.25 \text{ kmph}$$

Option D is correct.

89. Ans. B.

Let length of train is L meter and speed of train is s m/sec.

Case - 1: Train crosses a pole on a platform in 10 seconds. If train crosses the pole on platform i.e. it covers the distance equal to the length of train.

We know that time= distance/speed

$$\Rightarrow \frac{L}{s} = 10 \dots\dots\dots(1)$$

$$\Rightarrow L = 10s \dots\dots\dots(2)$$

Case - 2: train crosses the 300m long platform in 25 seconds If train crosses the platform i.e. it covers the distance equal to the length of train and length of platform.

$$\text{Again } \frac{L+300}{s} = 25 \dots\dots\dots(3)$$

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Put Value of L from equation (2) in equation (3)

$$\Rightarrow 10s + 300 = 25s$$

$$\Rightarrow 15s = 300$$

$$\Rightarrow s = 20 \text{ m/sec.}$$

Put value of s in equation (2)

$$L = 10 \times 20 = 200 \text{ m}$$

the time taken by the train to cross a platform 100m long =

Distance/speed = (length of platform +length of train)/speed of train

$$= \frac{200+100}{20} = \frac{300}{20} = 15s$$

90. Ans. A.

| | SHEKHAR | BHAVYA |
|-------------------|---------|--------|
| Ratio of Distance | 2 | 1 |
| Ratio of time | 1 | 2 |
| Ratio of speed | 2/1 | 1/2 |

$$\text{Speed of Bhavya:Speed of Shekhar} = \frac{1}{2} : \frac{2}{1} = 1 : 4$$

91. Ans. B.

let the total distance be x km.

$$\text{Total time} = \frac{x}{\frac{3}{20}} + \frac{x}{\frac{4}{30}} + \frac{5x}{\frac{12}{50}} = \frac{x}{60} + \frac{x}{120} + \frac{x}{120} = \frac{x}{30} \text{ hours}$$

$$\therefore \text{Average speed} = \frac{\text{total distance}}{\text{total time}} = \frac{x}{\frac{x}{30}} = 30 \text{ kmph}$$

Option B is correct.

92. Ans. D.

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Let required distance of office from house = x km.

$$\text{Time} = \frac{\text{Distance}}{\text{speed}}$$

According to the question –

$$\frac{x}{6} - \frac{x}{7} = \frac{(5 + 1)}{60} = \frac{6}{60}$$

$$\Rightarrow \frac{7x - 6x}{42} = \frac{1}{10}$$

$$\Rightarrow x = 4.2 \text{ km}$$

Option D is correct.

93. Ans. C.

$$\text{Time} = 18 \text{ minutes} = \frac{18}{60} \text{ hour} = \frac{3}{10} \text{ hour}$$

$$\text{Speed of train} = \frac{30}{\frac{3}{10}} = 100 \text{ kmph}$$

$$\text{New speed} = 100 - 10 = 90 \text{ kmph}$$

$$\therefore \text{Required time} = \frac{\text{Distance}}{\text{speed}} = \frac{30}{90} = \frac{1}{3} \text{ hour}$$

$$= \left(\frac{1}{3} \times 60\right) \text{ minutes} = 20 \text{ minutes}$$

Option C is correct.

94. Ans. B.

Let the required distance be x km.

$$x/9 + x/5 = 5$$



$$5x + 9x = 5 \times 45$$

$$14x = 5 \times 45 \Rightarrow x = (5 \times 45) / 14 \Rightarrow x = 16.07 \text{ km}$$

So, the correct response is Option B.

95. Ans. B.

Let the total journey be x km, then

$$3x/20 + 6x/15 + 9 = x$$

$$\Rightarrow 9x + 24x + 540 = 60x$$

$$\Rightarrow 33x - 60x = -540$$

$$\Rightarrow 27x = 540$$

$$\Rightarrow x = 20 \text{ km}$$

Option B is correct.

96. Ans. C.

$$\text{Relative speed} = (45.5 / 25) \times 60 = 109.2 \text{ kmph}$$

$$\text{Speed of car P} = 109.2 - 55 = 54.2 \text{ kmph}$$

Option C is correct.

97. Ans. D.

Originally, let there be x men.

Now, more men: less days

$$(x + 7) : x :: 45 : 36$$

So,

$$\frac{x + 7}{x} : \frac{45}{36} = \frac{5}{4}$$



$$4x + 28 = 5x$$

$$x = 28$$

Option D is correct.

98. Ans. B.

Time taken by Tasha in doing 1 work = 25 days
Neha is 25% more efficient than Tasha.

$$\text{Time taken by Neha} = \frac{100}{125} \times 25 = 4 \times 5 = 20 \text{ days.}$$

Option B is correct.

99. Ans. D.

Work done by A in 3 days = $\frac{1}{18} \times 3 = \frac{1}{6}$

Remaining work = $[1 - \frac{1}{6}] = \frac{5}{6}$

(A + B)'s 1 days' work = $[\frac{1}{18} + \frac{1}{12}] = \frac{(2 + 3)}{36} = \frac{5}{36}$

Now, $\frac{5}{36}$ part of work done by both in 1 day. So, $\frac{5}{6}$ will be done by them in $[\frac{36}{5} \times \frac{5}{6}] = 6$

days

Hence, total time taken = $6 + 3 = 9$ days.

Option d is correct.

100. Ans. A.

$$P + Q = 80 \%$$

$$Q + R = 40 \%$$

$$[P + Q + Q + R - (P + Q + R) = Q]$$

$$80 + 40 - 100 = Q$$

$$Q = 20\%$$



$$P = 80 - 20 = 60 \%$$

$$R = 40 - 20 = 20 \%$$

Hence, P is most efficient.

Option A is correct.

101. Ans. D.

Let time taken by son be x hours.

$$\therefore \text{father's and son's 1 day's work} = \frac{1}{25} + \frac{1}{x} \therefore \frac{1}{25} + \frac{1}{x} = \frac{1}{20}$$

$$\Rightarrow \frac{1}{x} = \frac{1}{20} - \frac{1}{25}$$

$$\Rightarrow \frac{1}{x} = \frac{5 - 4}{100}$$

$$\Rightarrow x = 100 \text{ hours}$$

Option D is correct.

102. Ans. C.

Cats Rats Days

$$\begin{array}{ccc} 80 & \uparrow & 80 \\ 5 & & 5 \end{array} \quad \begin{array}{ccc} 80 & \downarrow & 80 \\ 5 & & x \end{array}$$

$$\therefore \left. \begin{array}{l} 5 : 80 \\ 80 : 5 \end{array} \right\} :: 80 : x$$

$$\Rightarrow 5 \times 80 \times x = 80 \times 80 \times 5$$

$$\Rightarrow x = \frac{80 \times 80 \times 5}{80 \times 5}$$

$$\Rightarrow x = 80 \text{ days}$$



Option C is correct.

103. Ans. C.

$$(X + Y)\text{'s 1 day's work} = 1/15$$

$$Z\text{'s 1 day's work} = 1/60$$

$$(X + Y + Z)\text{'s 1 day's work} = [1/15 + 1/60] = 5/60 = 1/12 \text{ ---(i)}$$

$$X\text{'s 1 day's work} = (Y + Z)\text{'s 1 day's work} \text{ ---- (ii)}$$

From (i) and (ii), we get

$$2 \times (X\text{'s 1 day's work}) = 1/12$$

$$X\text{'s 1 day's work} = 1/24$$

$$Y\text{'s 1 day's work} = [1/15 - 1/24] = (8 - 5) / 120 = 3/120 = 1/40$$

So, Y alone could do the work in 40 days.

Option C is correct.

104. Ans. A.

$$1 \text{ man's 1 day's work} = 1/112$$

$$14 \text{ men's 4 day's work} = (14/112) * 4 = 4/8 = 1/2$$

$$\text{Remaining work} = [1 - 1/2] = 1/2 \text{ 16 men's 1 day's work} = 16 / 112 =$$

$$1/7$$

1/7 work is done by them in 1 day.

So, 1/2 work is done by them in $(7 \times 1/2) = 3 1/2$ day

Option A is correct response.

105. Ans. C.

$$B\text{'s daily earning} = \text{Rs. } (720 - 432) = \text{Rs. } 288$$



A's daily earning = Rs. (720 - 388) = Rs. 332

C's daily earning = [720 - (288 + 332)] = 720 - 620 = Rs. 100

Option C is correct.

106. Ans. B.

$$\frac{M_1 D_1 T_1}{W_1} = \frac{M_2 D_2 T_2}{W_2}$$
$$\Rightarrow \frac{90 \times 18 \times 11}{1} = \frac{75 \times 24 \times 9}{W_2}$$
$$\Rightarrow W_2 = \frac{75 \times 24 \times 9}{90 \times 18 \times 11} = \frac{10}{11} \text{ parts}$$

Option B is correct.

107. Ans. A.

$$A's \ 1 \ \text{days}' \ \text{work} = \frac{1}{4}$$

$$B's \ 1 \ \text{days}' \ \text{work} = \frac{1}{12}$$

$$(A + B)'s \ 1 \ \text{days}' \ \text{work} = \frac{1}{4} + \frac{1}{12} = \frac{3 + 1}{12} = \frac{4}{12} = \frac{1}{3}$$

$$(A + B)'s \ 2 \ \text{days}' \ \text{work} = \frac{2}{3}$$

$$\text{Remaining work} = 1 - \frac{2}{3} = \frac{1}{3}$$

$$\therefore \text{total required number of days} = \frac{1}{\frac{1}{3}} \times \frac{12}{1} + 2 = 4 + 2 = 6 \ \text{days}$$

Option A is the correct response.

108. Ans. A.



Speed of train = $(54 \times 5)/18 = 15$ m/s

Length of train = $15 \times 16 = 240$ m Required time = $(240 + 75)/ 15 = 21$ s

Option A is correct.

109. Ans. A.

Speed of truck = 240 m/min.

$$\text{Speed of bus} = \frac{30000}{35} = \frac{6000}{7} \text{ m/min.}$$

$$\text{Required Ratio} = 240 : \frac{6000}{7} = 1 : \frac{25}{7} = 7 : 25$$

Option A is correct.

110. Ans. C.

Since man walks at $\frac{4}{5}$ of actual speed, time taken will be $\frac{5}{4}$ of usual time. $\frac{5}{4}$ of usual time = usual time + 1 hour

$$\frac{5}{4} (\text{usual time}) - 1 = 1$$

Usual time = 4 hours

Option C is correct.

