S1. Ans.(b)
Sol. Let the annual Profit be Rs. x.
Negi's salary = Rs. 0.4x
Negi's share in profit = $\frac{x-0.4x}{2} = Rs.0.3x$
Negi's total share = Rs. 0.7x
Atul's share = 0.3x
0.3x = 5100 $\Rightarrow x = 17000$
0.7x = 11900
If the entire profit is divided in the ratio of their investments,
Negi's share = 11900 – 1400 = Rs. 10500.
Atul's share = 17000 – 10500 = Rs. 6500.
$\therefore$ Negi's investment = $\frac{10500}{6500} \times 52000 = 84000.$

S2. Ans (d)
Sol. ATQ
S.P. $= 2350 \times \frac{85}{100} \times \frac{75}{100} \times \frac{108}{100}$
$= Rs.1617.975$
Required % $= \frac{2350-1617.975}{2350} \times 100 = 31.15\%$

S3. Ans.(c)
Sol. Let sum invested by Shivam in Scheme-A be 10x
And scheme – B = 10x × $\frac{160}{100}$ =16x **Solutions**

S4. Ans.(b)
Sol. Let amount invested by Prashant at SI and at CI be Rs P_1 & $Rs\ P_2$ respectively.
So,
$P_1 - P_2 = 4000$
$P_1 = 4000 + P_2$ ....(i)
Atq,
Equivalent interest of amount invested at CI @ 20% p.a. for 2 yrs
$= 20 + 20 + \frac{20\times20}{100} = 44\%$
Now,
$\frac{P_1\times12\times3}{100} - \frac{P_2\times44}{100} = 1040$
$9P_1 - 11P_2 = 26000$ ...(ii)
Put value of (i) in (ii)
$\Rightarrow 36000 + 9P_2 - 11P_2 = 26000$
$\Rightarrow P_2 = Rs\ 5000$
Hence, P_1 = Rs 9000
Required % $= \frac{9000}{5000} \times 100$
= 180%

S5. Ans. (d)
Sol. Let total work be 120 units (LCM)
So, efficiency of Shivam, Gaurav and manish are 6, 5 and 4 units/day respectively.
ATQ
Work done in 3 days $= (5 + 4) + (4 + 6) + (6 + 5) = 30\ units$
So, require time $= \frac{120}{30} \times 3 = 12\ days$

S6. Ans. (e)
Sol. Let total capacity of tank be 630 units.
So, efficiency of A, B and C is 42, 35 and 30 units/hr respectively.
Let total time taken be T hours.
Therefore, C opened for T hours, B opened for (T – 1) hours and A opened for (T – 2) hours.
ATQ
$30 \times T + 35 \times (T - 1) + 42 \times (T - 2) = 630$
$30T + 35T + 42T - 35 - 84 = 630$
$107T = 749$
$T = 7$
So, required time = 7 hours

S7. Ans. (c)
Sol. Let total work be 480 units (LCM)
So, efficiency of A and B are 4 units/day and 3 units/day respectively.
Let efficiency of C be x units/day.
ATQ
$(4 + 3) \times 15 + 3 \times 21 + (3 + x) \times 52 = 480$
$105 + 63 + (3 + x) \times 52 = 480$
$3 + x = \frac{312}{52}$
$x = 6 - 3 = 3$
So, required time $= \frac{480}{3} = 160\ days$

S8. Ans. (e)
Sol. Let length of train X & Y be 4L meter and 5L meter respectively.
A/Q,
$(90 + 117) \times \frac{5}{18} = \frac{4L+5L}{\frac{144}{23}}$
$207 \times \frac{5}{18} \times \frac{144}{23} \times \frac{1}{9} = L$
L = 40 meter
Length of train X = 160 meters
Length of train Y = 200 meters
Let, when trains are running in same direction cross each other in T sec
$(117 - 90) \times \frac{5}{18} = \frac{160+200}{T}$
T = 48 sec

S9. Ans.(d)
Sol.

Distance PQ $= 60 \times 6\frac{1}{3} = 380\ km$

Speed of Swift $= \frac{380\times4}{19} = 80$ km/h

S10. Ans.(b)
Sol. Let speed of man in still water be x km/hr
Water Current speed = 2 km/hr
Distance between Y to Z = $40 \times \frac{75}{100} = 30\ km$
ATQ —

$$= \frac{40}{(x+2)} + \frac{30}{(x-2)} = 9$$

$40x - 80 + 30x + 60 = 9x^2 - 36$
$9x^2 - 70x - 16 = 0$
x = 8 km/hr

S11. Ans.(b)
Sol. I. $x^2 - 27x + 180 = 0$
$x^2 - 12x - 15x + 180 = 0$
$x(x - 12) - 15(x - 12) = 0$
$(x - 15)(x - 12) = 0$
$x = 15, 12$
II. $y^2 - 7y - 60 = 0$
$y^2 - 12y + 5y - 60 = 0$
$y(y - 12) + 5(y - 12) = 0$
$(y + 5)(y - 12) = 0$
$y = -5, 12$
$\Rightarrow x \geq y$

S12. Ans.(a)
Sol. I. $x^2 - 59x + 868 = 0$
$x^2 - 28x - 31x + 868 = 0$
$x(x - 28) - 31(x - 28) = 0$
$(x - 31)(x - 28) = 0$
$x = 28, 31$
II. $y^2 - 53y + 702 = 0$
$y^2 - 27y - 26y + 702 = 0$
$y(y - 27) - 26(y - 27) = 0$
$(y - 27)(y - 26) = 0$
$y = 26, 27$
$\Rightarrow x > y$

S13. Ans.(e)

Sol. I. $100x^2 - 120x + 32 = 0$

$100x^2 - 40x - 80x + 32 = 0$

$20x(5x - 2) - 16(5x - 2) = 0$

$(20x - 16)(5x - 2) = 0$

$x = \frac{4}{5}, \frac{2}{5}$

II. $10y^2 - 17y + 6 = 0$

$10y^2 - 12y - 5y + 6 = 0$

$2y(5y - 6) - 1(5y - 6) = 0$

$(2y - 1)(5y - 6) = 0$

$y = \frac{1}{2}, \frac{6}{5}$

$\Rightarrow$ No relation

S14. Ans.(b)

Sol. I. $15x^2 - 22x + 8 = 0$

$15x^2 - 12x - 10x + 8 = 0$

$3x(5x - 4) - 2(5x - 4) = 0$

$(5x - 4)(3x - 2) = 0$

$x = \frac{4}{5}, \frac{2}{3}$

II. $12y^2 - 5y - 2 = 0$

$12y^2 - 8y + 3y - 2 = 0$

$4y(3y - 2) + 1(3y - 2) = 0$

$(4y + 1)(3y - 2) = 0$

$y = -\frac{1}{4}, \frac{2}{3}$

$\Rightarrow x \geq y$

S15. Ans.(c)

Sol. I. $x^2 + 8x + 15 = 0$

$x^2 + 5x + 3x + 15 = 0$

$x(x + 5) + 3(x + 5) = 0$

$(x + 5)(x + 3) = 0$

$x = -5, -3$

II. $y^2 - 2y - 8 = 0$

$y^2 - 4y + 2y - 8 = 0$

$y(y - 4) + 2(y - 4) = 0$

$(y - 4)(y + 2) = 0$

$y = -2, 4$

$\Rightarrow x < y$

S16. Ans.(d)

Sol. Number of Accord cars sold by dealers D and E together

$= \left(\frac{6}{21}\times\frac{14}{100}+\frac{3}{14}\times\frac{21}{100}\right)\times 12000 = 480 + 540 = 1020$

Number of City cars sold by dealers B and F together

$= \left(\frac{3}{10}\times\frac{15}{100}+\frac{6}{15}\times\frac{20}{100}\right)\times 12000 = 540 + 960 = 1500$

Required Difference = 1500 - 1020 = 480

S17. Ans.(b)

Sol. Number of Accord and Civic cars sold by dealer A together = $\frac{6}{9}$ of 12% = 8%

Number of Civic and City cars sold by dealer D together = $\frac{15}{21}$ of 14% = 10%

Required Percentage = $\frac{8}{10}\times 100 = 80\%$

S18. Ans.(c)

Sol. Total number of Civic cars sold by dealers A, B, D and E together

$= \left(\frac{2}{9}\times\frac{12}{100}+\frac{4}{10}\times\frac{15}{100}+\frac{8}{21}\times\frac{14}{100}+\frac{6}{14}\times\frac{21}{100}\right)\times 12000 = 320 + 720 + 640 + 1080 = 2760$

Required Average = $\frac{2760}{4} = 690$

S19. Ans.(b)

Sol. Civic and City cars sold together by dealer B = $\frac{7}{10}$ of 15% = $\frac{21}{2}$%

Civic and City cars sold together by dealer E = $\frac{11}{14}$ of 21% = $\frac{33}{2}$%

Required Ratio = $\frac{21}{2}$% : $\frac{33}{2}$% = 7 : 11

S20. Ans.(e)

Sol. Percentage of City cars sold by:

Dealer A = $\frac{3}{9}$ of 12% = 4%

Dealer B = $\frac{3}{10}$ of 15% = 4.5%

Dealer C = $\frac{4}{15}$ of 18% = 4.8%

Dealer D = $\frac{7}{21}$ of 14% = 4.67%

Dealer E = $\frac{5}{14}$ of 21% = 7.5%

Dealer F = $\frac{6}{15}$ of 20% = 8%

Hence, dealer A sold the minimum number of City cars.

S21. Ans.(d)

Sol. Average speed of Monu to Cover distance on Monday and Tuesday together $= \frac{\text{Total distance covered}}{\text{Total time taken}}$

$= \frac{120+225}{2+3} = \frac{345}{5} = 69$ km/h

Distance travelled by Sonu on Wednesday $= \frac{140}{5} \times 7 = 196$ km

Distance travelled by Sonu on Thursday $= \frac{135}{3} \times 4 = 180$ km

Average speed of Sonu to cover distance on Wednesday and Thursday together $= \frac{\text{Total distance covered}}{\text{Total time taken}}$

$= \frac{196 + 180}{8} = \frac{376}{8} = 47$ km/h

Required difference = 69 – 47 = 22

S22. Ans.(c)

Sol. Distance covered by Sonu on Friday $= \frac{210}{6} \times 7 = 245$ km

Distance covered by Sonu on Thursday $= \frac{135}{3} \times 4 = 180$ km

Speed of Sonu on Friday $= \frac{245}{5} = 49$ km/h

Speed of Sonu on Thursday $= \frac{180}{4.5} = 40$ km/h

Required % $= \frac{49-40}{40} \times 100 = \frac{9}{40} \times 100 = 22.5\%$

S23. Ans.(b)

Sol. Distance covered by Sonu on Friday $= \frac{210}{6} \times 7$

= 245 km

Speed of Sonu on Friday $= \frac{245}{5} = 49$ km/h

Speed of Sonu on Saturday $= \frac{49}{7} \times 10 = 70$ km/h

Speed of Monu on Saturday $= \frac{70}{7} \times 6 = 60$ km/h

Required time $= \frac{210}{60} + \frac{245}{70} = 3.5 + 3.5 = 7$ hr

S24. Ans.(a)

Sol. Distance covered by Sonu on Tuesday $= \frac{225}{9} \times 11 = 275$ km

Speed of Sonu on Tuesday $= \frac{275}{25} = 110$ km/h

If speed of Sonu increases by 25% on Tuesday = 110 × 1.25

= 137.5 km/h

Time taken to cover distance $= \frac{275}{137.5} = 2$

Required difference = 2.5 – 2 = 0.5 hour

= 30 minutes

S25. Ans.(e)

Sol. Speed of Monu on Thursday $= \frac{135}{2.5} = 54$ km/h

Distance covered by Sonu on Monday $= \frac{120}{4} \times 5 = 150$

Speed of sonu on Monday $= \frac{150}{3} = 50$ km/h

Required % $= \frac{54}{50} \times 100 = 108\%$

S26. Ans.(b)

Sol. Pattern is ×2+1, ×4+3, ×6+5, ×8+7, ×10+9

∴ ? = 1151 × 10 + 9 = 11519

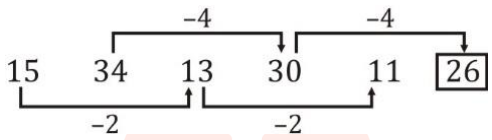
S27. Ans.(c)

Sol. Pattern is ×1+1, ×2+2, ×3+3, ×4+4, ×5+5, ...

∴ ? = 63 × 4 + 4 = 256

S28. Ans.(a)

Sol. Series is



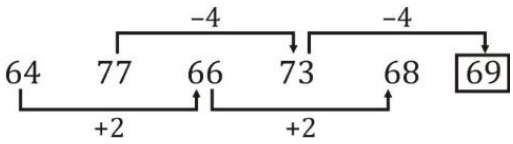
S29. Ans.(b)

Sol. Pattern is ×0.5+2, ×1+2, ×1.5+2, ×2+2, ×2.5+2

∴ ? = 27 × 2.5 + 2 = 69.5

S30. Ans.(d)

Sol. Series is



S31. Ans.(b)

Sol. From I

Sum cannot be find out as rate is not given.

From II

Difference = $\frac{PR^2}{100^2}$ $\begin{bmatrix} P \rightarrow \text{Sum} \\ R \rightarrow \text{Rate} \end{bmatrix}$

P = Rs. 10,000

∴ CI can be find out.

S32. Ans.(e)

Sol.

From I & II

Cannot be determined even after both statement.

S33. Ans.(a)

Sol. From Statement [I]

MP = x

After two successive discounts $= \frac{80}{100} \times \frac{95}{100} \times x$ = 0.76x

Final S.P after taking tax $= \frac{125}{100} \times 0.76x$ = 0.95x

According to question

MP – SP = 40

$x - 0.95x = 40$

$0.05x = 40$

x= 800

From statement [II]

Let, MP = x

$$S.P = \frac{85}{100} \times \frac{80}{100} \times x = 0.68x$$

As, any value is not given so we can't find out the M.P.

∴ Hence, Statement [I] alone is sufficient to answer the question but the Statement [II] alone is not sufficient

S34. Ans.(d)

Sol. From statement [I]

Let total amount =x

$$\frac{x}{2} \times \frac{5 \times 3}{100} + \frac{x}{2} \times \frac{6 \times 5}{100} = 4500$$

$$\frac{x}{2}\left[\frac{15}{100} + \frac{30}{100}\right] = 4500$$

$$x = 20{,}000$$

From statement [II]

$$2420 = x\left[1 + \frac{10}{100}\right]^3 - x\left[1 + \frac{10}{100}\right]^2$$

$$2420 = x \times 1.1^3 - x \times 1.1^2$$

$$2420 = 1.331x - 1.21x$$

$$0.121x = 2420$$

$$x = 20{,}000$$

∴ Hence, Either statement [I]alone or statement [II] alone is sufficient to answer the question.

S35. Ans.(a)
Sol. From I,
A + S+ V = 3 × 68 = 204 kg
R + P = 144 kg
A ⇒ 204 – 46 – 78 = 80 kg
P ⇒ 144 – 68 = 76 kg
S = 78 kg
From II,
A+S+V+R= 68*4=272
S=78kg, R=68kg, V=46kg
$\therefore A = 272 - (78 + 68 + 46) = 80kg$
$P = ?, P\ cannot\ be\ determined$

S36. Ans.(b)
Sol. $\frac{45}{100} \times 80 + \sqrt{841} + x^2 = 2121 \div 21$
$36 + 29 + x^2 = 101$
$x^2 = 36$
$x = 6$

S37. Ans.(c)
Sol. $\frac{36+3x}{23} + 1 = 52$
$36 + 3x + 23 = 52 \times 23$
$3x + 59 = 1196$
$3x = 1196 - 59$
$3x = 1137$
$x = 379$

S38. Ans.(c)
Sol. $\frac{343}{2} + \frac{175}{100} \times 350 = x^2$
$x^2 = 171.5 + 612.5$
$x^2 = 784$
$x = 28$

S39. Ans.(d)
Sol. $23(24 + 47 - 54) = x$
$x = 23 \times 17$
$x = 391$

S40. Ans.(c)
Sol. $\frac{6}{5} \times 650 + 320 + 51 = x$
$780 + 320 + 51 = x$
$x = 1151$

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