

IBPS clerk mains-2017 memory based paper (Quantitative aptitude)-Solution

S1. Ans.(b)

$$\text{Sol. Required Ratio} = \frac{200+280}{380+420} = \frac{480}{800} = \frac{3}{5}$$

S2. Ans.(b)

$$\begin{aligned} \text{Sol. Number of defective products} &= \frac{20}{100} (160 + 480) \\ &= \frac{20}{100} (640) \\ &= 128 \end{aligned}$$

S3. Ans.(a)

$$\text{Sol. Required percent} = \frac{180}{300} \times 100 = 60\%$$

S4. Ans.(b)

$$\begin{aligned} \text{Sol. Required percent} &= \frac{560-480}{480} \times 100 \\ &= \frac{80}{480} \times 100 \\ &= \frac{100}{6} \\ &= \frac{50}{3} \\ &= 16\frac{2}{3}\% \end{aligned}$$

S5. Ans.(d)

$$\begin{aligned} \text{Sol. Difference} &= (480 + 200 + 520) - (160 + 280 + 380) \\ &= 1200 - 820 \\ &= 380 \end{aligned}$$

S6. Ans.(e)

$$\text{Sol. Required ratio} = \frac{45 \times 40}{60 \times 30} \times \frac{2}{1} = \frac{2}{1}$$

S7. Ans.(a)

Sol. Let the total number of population

$$\begin{aligned} x \times \frac{60}{100} \times \frac{10}{100} \times \frac{1}{2} &= 300 \\ x &= 10000 \end{aligned}$$

S8. Ans.(e)

Sol. Number of people having Bank Account in village C = 0.6x

Number of people having Bank account in village D = 0.55 × 2x = 1.1x

$$\text{Required percentage} = \frac{1.1x - 0.6x}{1.1x} \times 100$$

$$\begin{aligned} &= \frac{0.5}{1.1} \times 100 \\ &= 45.45\% \end{aligned}$$

S9. Ans.(d)

$$\begin{aligned} \text{Sol. Required Percentage} &= \frac{1 \times 0.45 + 2 \times 0.6 + 3 \times 0.6}{1 + 2 + 3} \times 100 \\ &= \frac{3.45}{6} \times 100 = 57.5\% \end{aligned}$$

S10. Ans.(b)

Sol. Required percentage = $\frac{60-40}{40} \times 100 = 50\%$

S11. Ans.(d)

Sol. If the side of a right angle triangle is a, b and c and perimeter is P and area is Δ then

$$\text{In-radius} = \frac{1}{2}(a + b - c)$$

$$\text{Or} = \frac{2\Delta}{P}$$

Either using sentence B or using sentences A and C

S12. Ans.(d)

Sol. A $\rightarrow$ Amount = 9331.2, time = 2 year

B $\rightarrow$ difference between CI and SI = 51.2 for two years

C $\rightarrow$ P $\rightarrow$ 8000

From B & C

$$51.2 = \frac{8000 \times R^2}{100^2}$$

From A and C

$$\frac{9331.2 - 8000}{8000} \times 100 = 16.64\%$$

$$r = 8\%$$

S13. Ans.(d)

Sol.

(A)

	Q	P
efficiency	1.6	1
time	1	1.6

$$1.6t = 8$$

$$t = 5 \text{ days}$$

time taken by Q is 5 days

(B)

$$\frac{1}{p+q} = \frac{1}{p} + \frac{1}{q}$$

$$\frac{13}{40} = \frac{1}{8} + \frac{1}{q}$$

$$\frac{1}{q} = \frac{13-5}{40} = \frac{1}{8}$$

$$q = 8 \text{ days}$$

(C)

	P	Q
efficiency	$\frac{125}{2}$	100
time	8	5

Time taken by Q is 5 days

S14. Ans.(e)

Sol. from A, B & C

Non-voting population of a certain country

$$= \frac{70}{100} \times 30 \text{ milion}$$

$$= 21 \text{ milion}$$

S15. Ans.(b)

Sol. Profit = 300

$$A \rightarrow CP = 1200 - 300 = 900$$

$$\% \text{ profit} = \frac{300}{900} \times 100 = 33\frac{1}{3}$$

$$B \rightarrow 25 \rightarrow 400$$

$$1\% \rightarrow 16$$

$$100\% \rightarrow 1600$$

$$CP = 1200 - 300 = 900$$

$$\% \text{ profit} = \frac{300}{900} \times 100 = 33\frac{1}{3}$$

$$C \rightarrow \% \text{ profit} = \frac{300}{900} \times 100 = 33\frac{1}{3}$$

S16. Ans.(a)

$$\text{Sol. } x = \pm 12$$

$$y = 12$$

$$\therefore x \leq y$$

S17. Ans.(a)

$$\text{Sol. } x = 2, \frac{5}{2}$$

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

$$\therefore x \leq y$$

S18. Ans.(a);

$$\text{Sol. } x = 7, 8 \quad y = 5, 1$$

$$x > y.$$

S19. Ans.(a);

$$\text{Sol. } x = -\frac{\sqrt{102}}{\sqrt{200}}. x > -1y$$

$$y = \frac{\sqrt{200}}{\sqrt{160}}. y = -1$$

$$x > y$$

S20. Ans.(c);

$$\text{Sol. } x = 183$$

$$y = 200$$

$$x < y.$$

S21. Ans.(c)

Sol. Let pipes A and B takes t minutes together.

A will take (t + 3) minutes to fill the tank

B will tank $\left(t + \frac{64}{3}\right)$ minutes to fill the tank

$$\frac{1}{t+3} + \frac{3}{3t+64} = \frac{1}{t}$$

$$\frac{3t+64+3t+9}{(t+3)(3t+64)} = \frac{1}{t}$$

$$6t^2 + 73t = 3t^2 + 64t + 9t + 192$$

$$3t^2 - 192 = 0$$

$$(t^2 - 64) = 0$$

$$t = 8 \text{ minutes}$$

S22. Ans.(d)

$$\text{Sol. Marks of T} = 75$$

$$\text{Marks of R} = 65$$

$$\text{Marks of Q} = 110$$

$$\text{Marks of P} = 85$$

$$\text{Marks of U} = 120$$

$$\text{Maximum marks} = 200$$

$$\text{Required percentage} = \frac{120}{200} \times 100 = 60\%$$

S23. Ans.(d)

Sol. Let the largest and smallest angles be x and $3x$. Now

$$x + 3x + 56 = 180$$

$$x = 31$$

$$\text{largest angle} = 93^\circ.$$

S24. Ans.(a)

Sol. Let the odd numbers be $x, x + 2, x + 4, x + 6$ and the even numbers be $y, y + 2, y + 4$.

$$\text{Now } (4x + 12) - (3y + 6) = 20$$

$$\text{And } (y + 4) - (x + 6) = 5$$

Solving them, we get $x = 35$ and $y = 42$

$$\text{Required sum} = 35 + 42 = 77$$

S25. Ans.(b)

Sol. Let initial CP of book is x .

$$\text{CP to Shishir} = \frac{120}{100} \times \frac{125}{100} \times \frac{90}{100} x = 1.35x$$

$$\text{Required percentage decrease} = \frac{1.35x - x}{1.35x} \times 100 = 25.92\%$$

S26. Ans.(d)

Sol. 5%SP $\rightarrow$ 14

$$\text{SP} \rightarrow 280$$

$$1.4\text{CP} = 280$$

$$\text{CP} = 200$$

$$\text{New CP} = \frac{80}{100} \times 280 = 224$$

$$\text{Profit} = 224 - 200 = 24$$

S27. Ans.(b)

$$\text{Sol. } P_1 \left(1 + \frac{10}{100}\right)^2 = P_2 \left(1 + \frac{10}{100}\right)^3$$

$$\frac{P_1}{P_2} = \frac{11}{10}$$

$$P_2 = \frac{10}{11} \times 10500 = 5000$$

S28. Ans.(a)

$$\text{Sol. Total amount} = 9000 \left(\frac{8 \times 2}{100} + \frac{9.5 \times 4}{100} + \frac{11 \times 2}{100} + \frac{12 \times 4}{100} \right) + 9000 = 11160 + 9000 = 20160$$

S29. Ans. (a)

Sol. Ratio of investment

$$\begin{array}{ccccc} A & : & B & : & C \\ (8000 \times 12) & (12000 \times 4) + (16000 \times 8) & & & (16000 \times 9) + (12000 \times 3) \\ 24 & : & 44 & : & 45 \end{array}$$

$$\text{Share of A} = \frac{24}{113} \times 22600 = \text{Rs. 4800}$$

S30. Ans.(a)

Sol. Let speed of the trains = x, y km/h

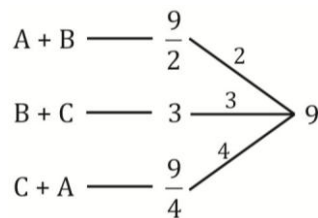
$$\frac{92}{x + y} = 4, x + y = 23, x - y = 7$$

$$x = 15 \text{ kmph}$$

$$y = 8 \text{ kmph}$$

S31. Ans.(b)

Sol.



$$\text{Total efficiency} = \frac{9}{2}$$

Time = 2 hours

S32. Ans.(a)

Sol. At the three years amount will be = $15000 + \frac{15000 \times 3 \times 8}{100}$

$$= 18600 \text{ Rs.}$$

Now, after three years C.I. annually

$$\text{So amount} = 18600 \left(1 + \frac{10}{100}\right)^2$$

$$= 22506 \text{ Rs.}$$

S33. Ans.(e)

Sol. AB = 60 km

Ram's speed = x kmph

$$\text{Syham's speed} = y \text{ kmph } \frac{60}{x} - \frac{60}{y} = 1 \dots\dots\dots(i)$$

$$\frac{60}{y} - \frac{60}{2x} = \frac{1}{2} \dots\dots\dots(ii)$$

From (i) and (ii)

$$x = 20 \text{ kmph}$$

S34. Ans.(d)

Sol. Let initially Cask holds V litres of wine

$$\frac{\text{Amount of left of wine}}{\text{Initial Amount of wine}} = \left(1 - \frac{6}{V}\right)^2$$

$$\frac{121}{121+23} = \left(1 - \frac{6}{V}\right)^2$$

$$\frac{121}{144} = \left(1 - \frac{6}{V}\right)^2$$

$$\frac{11}{12} = 1 - \frac{6}{V}$$

$$\frac{6}{V} = \frac{1}{12}$$

$$V = 72 \text{ litres}$$

S35. Ans.(c)

Sol. Distance travelled by passenger train in $(9 - 4) = 5$ hours

$$= 5 \times 30 = 150 \text{ km}$$

$$\text{time required to cross the passenger train by mail train} = \frac{150}{(45-30)} = 10 \text{ hour}$$

so second train will overtake the first, 10 hours after the second train starts

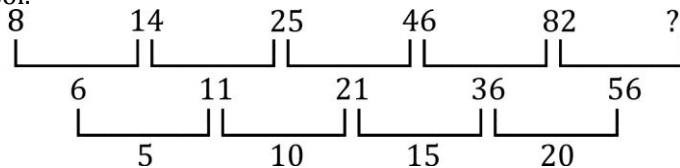
S36. Ans.(e)

$$\text{Sol. } \times 0.5 + 1, \times 1 - 1, \times 1.5 + 1, \times 2 - 1, \times 2.5 + 1$$

$$22 \times 2.5 + 1 = 56$$

S37. Ans.(c)

Sol.



$$82 + 56 = 138$$

S38. Ans.(d)

Sol. $\times 1 + 1, \times 2 + 2, \times 3 + 3, \times 4 + 4, \times 5 + 5$
 $93 \times 4 + 4 = 372 + 4 = 376$

S39. Ans.(c)

Sol. $\times 3 + 1, \times 3 + 2, \times 3 + 3 \dots$

$\therefore 477 \times 3 + 4 = 1431 + 4 = 1435$

S40. Ans.(d)

Sol. $\times 7 + 1, \times 6 + 2, \times 5 + 3, \times 4 + 4, \times 3 + 5 \dots$

$\therefore 22 \times 6 + 2 = 134$

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