RRB CLERK MAINS MEMORY BASED PAPER (QUANTITATIVE APTITUDE)SOLUTIONS

S1. Ans.(b)

Sol. Let initial quantity = 5x

$$\begin{array}{cc} \text{Milk} & \text{Water} \\ 4x & x \\ \dfrac{-3x}{x} & \dfrac{-0.75x}{0.25x+10} \end{array}$$

$$\frac{x}{(0.25x+10)} = \frac{3}{2}$$

1.25x = 30

x = 24 l

initial quantity of milk = 4x = 96 l

S2. Ans.(b)

Sol. Ratio of profit $2:3:5\times\frac{2}{3}:7\times\frac{2}{3} = 6:9:10:14$

Share of B = $\frac{18}{20}\times 12000 = 10800$ Rs

S3. Ans.(a)

Sol. Let initially length = l, Breadth = b

Area = lb

New area = 1.5 l × 0.9b = 1.35 lb

% age increase = 35%

S4. Ans.(b)

Sol. Let Principal = Rs 100

$$= \frac{6000\times x\times 6}{100} - \frac{6000\times(x+2)\times 4}{100} = 720$$

x = 10%

S5. Ans.(b)

Sol. Total cost price = $(150\times 250) + 2500$

= 37500 + 2500

= 40000

Total selling price = $320\times\frac{(100-5)}{100}\times 150 = 45600$

Profit percentage = $\frac{45600-40000}{40000}\times 100 = 14\%$

S6. Ans.(e);

Sol. A + B + C = 84 × 3 = 252

A + B + C + D = 80 × 4 = 320

Age of D = 320 − 252 = 68

Age of E = 71

B + C + D + E = 316

B + C = 316 – (68 + 71)

B + C = 177

Age of A = 252 − 177 = 75 years

S7. Ans.(c)

Sol. C.P. to the retailer = $1955\times\frac{100}{115} = 1700$

But it is at a discount of 15%, M.P. = $1700\times\frac{100}{85} = 2000$

Total discount = 2000 − 1700 = Rs. 300

S8. Ans.(b)

Sol. Initially low quality wheat=10% of 150=15kg

High quality wheat =150-15=135kg

15kg of low quality wheat will be 5% of the final quantity of wheat

Final quantity of wheat= $\frac{100}{5} \times 15 = 300$kg

Quantity of high quality wheat=300-15=285kg

High quality wheat added=285-135=150kg

S9. Ans.(e)

Sol. Required probability=$(^6C_3 + ^4C_3) \div (^{12}C_3) = \frac{6}{55}$

S10. Ans.(a)

Sol. per hour consumption of Ist candle = $\frac{1}{5}$

per hour consumption of IInd candle = $\frac{1}{4}$

Let after x hour their height is in ratio = 3 : 2

then, $\dfrac{1 - \left(x \times \frac{1}{5}\right)}{1 - \left(x \times \frac{1}{4}\right)} = \dfrac{3}{2}$

Solving the equation, x $= \frac{20}{7}$

S11.Ans.(c)

Sol. Required ratio $= \dfrac{760 \times \frac{8}{19}}{640 \times \frac{7}{16}} = 8 : 7$

S12. Ans.(a)

Sol. Total no. of females in company y = 450 + 360 + 280 + 280 = 1370

S13. Ans.(c)

Sol. No. of males in Delhi and Chennai = 360 + 320 = 680

No. of females in Chandigarh and Kolkata together = 210 + 280 = 490

Required percentage $= \frac{680}{490} \times 100 \approx 139\%$

S14. Ans.(b)

Sol. Required percentage $= \frac{1460}{2830} \times 100 \approx 52\%$

S15. Ans.(d)

Sol. Except Kolkata, in all cities the no. of females in company Y are more than the no. of females in company X

S16. Ans.(b)

Sol. Tax = $\frac{30}{100} \times 5$ crore

= 1.5 crores

Penalty = $\frac{30}{100} \times 1.5$ crore

= 0.45 crore

Total Tax = 1.5 + 0.45

= 1.95 crore

∴ Required money = (5 − 1.95) = 3.05 crores.

S17. Ans.(b)

Sol. Money that he will get → $3,25,000 - \frac{10}{100} \times 3,25,000 - \frac{55}{100} \times \left(\frac{10}{100} \times 3,25,000\right)$

= 2,74,625 Rs.

∴ Required no. of day $= \frac{274625}{65000}$

= 4.225 ≈ 5th day

S18. Ans.(e)
Sol. Required Ratio = $\frac{3,00,000}{60,000}$
$= \frac{30}{6} = 5 : 1$

S19. Ans.(a)
Sol. Tax $= \frac{30}{100} \times 20$ crore
= 6 crore
Penalty $= \frac{55}{100} \times 6$ crore = 3.3 crore
∴ Total tax → 9.3 crores
∴ Required amount $= \frac{25}{100} \times 9.3$ crores
= 2.325 crores
= 2,32,50,000

S20. Ans.(d)
Sol. Required days $= \frac{5200000}{65000} - \frac{500000}{10000} = 80 - 50 = 30$ days

S21. Ans.(c)
Sol. Share of C $= \frac{(15000 \times 16)}{(12000 \times 24) + (16000 \times 24) + (15000 \times 16)} = 12000$Rs

S22. Ans.(b)
Sol. Let the price before increase = x
Then new price $= \left(\frac{100+20}{100}\right)x = 1.2x$
$\frac{115}{100} \times (x \times 24) = 1.2x \times y$ (y = new consumption quantity)
$y = 23$ kg

S23. Ans.(e)
Sol. Average speed $= \frac{\text{Total distance covered}}{\text{Total time taken}} = \frac{64}{11} = 5\frac{9}{11}$ km/h

S24. Ans.(a)
Sol. Let CP = Rs 1000
SP at 10% loss $= \frac{(100-90)}{100} \times 1000 = 900$ Rs
But actual CP $= 1000 \times \frac{(100-20)}{100} = 800$ Rs
Profit percentage $= \frac{(900-800)}{800} \times 100 = 12.5\%$

S25. Ans.(d)
Sol. Let pipe B be turned off after x minutes
∴part filled by (A + B) in x min. + part filled by A in $(20 - x)$min. = 1
or, $\left(\frac{1}{30} + \frac{1}{45}\right)$ x $(20 - x)\frac{1}{30} = 1$
or, $\frac{5x}{90} - \frac{x}{30} = \frac{10}{30}$
or, x = 15 minutes.

S26. Ans.(a)
Sol. Let the duration be x hours.
ATQ, $\frac{600}{x} - \frac{600}{x+\frac{1}{2}} = 200$
or, $\frac{600}{x} - \frac{1200}{2x+1} = 200 \approx 2x^2 + x - 3 = 0$
It gives x = 1 hour.

S27. Ans.(c)
Sol. Let the sum of their present ages= x years.

Ater replacing, sum of their ages= $x - (4 \times 3) = x - 12$ years
Thus, required difference in age of two members= 12 years.

S28. Ans.(d)
Sol. Let the added money be x.
Then, $\frac{(830+x) \times 14 \times 3}{100} - \frac{830 \times 12 \times 3}{100} = 93.90$
or, $34860 + 42x - 29880 = 9390$
or, $x = Rs. 105$.

S29. Ans.(c)
Sol. ATQ $456976 = 390625 \left(1 + \frac{4}{100}\right)^n$
or, $\left(1 + \frac{4}{100}\right)^n = \frac{456976}{390625} = \left(\frac{26}{25}\right)^4$
or, $n = 4$ years.

S30. Ans.(a)
Sol. Area $= 2x^2$ m^2

$\therefore 2x^2 \times 2 = 256$
$x^2 = 64$
$x = 8$
$\therefore$ Required length $= 2 \times 8 = 16$ m

S31. Ans.(e)
Sol. I. $\rightarrow l = r = \frac{132}{44} \times 7 = 21$ cm
II. $\rightarrow 2l + \left(\frac{5}{24}P\right) \times 2 = P$
$P = \frac{12}{7} \times 2l = 72$ cm
$b = 36 - 21 = 15$ cm
area $= 21 \times 15 = 315$ cm^2
So both I & II are neccssary

S32. Ans.(b)
Sol. I. $\rightarrow x = 3, 4$
II. $\rightarrow x = 3, y = 6$ or $y = 3, x = 6$
$x^2 + y^2 = 45$
Statement II alone is sufficient

S33. Ans.(b)
Sol. Let length of Ist train $= L_1$
Length of IInd train $= L_2$
1. $\rightarrow \frac{L_1}{2x} = 9$
2. $\rightarrow \frac{L_1 + L_2}{(3x + 2x)} = 45$
$\frac{L_1 + L_2}{5x} = 45$
But when running in same direction relative speed will be
$3x - 2x = x$
$\frac{L_1 + L_2}{x} = 45 \times 5 = 225$ seconds
So Statement II alone is sufficient

S34. Ans.(d)
Sol. **1.** → Discount = 15%

SP – CP = 16 Rs

2. → MP – SP = $\frac{150}{100} \times 16 = 24$Rs

So even using both statements, we can't find the marked price of the article.

S35. Ans. (c)
Sol. Let there are x no. of columns

St. I – $0.625x \times x = 40, x^2 = 64$

$x = 8$, no. of rows = 5

student in each column = 5

St. II – $\frac{5}{8}x \times x = 40, x^2 = 64, x = 8$

no. of rows = 5

So either I or II is sufficient to answer the question

S36. Ans. (c)
Sol. $2x^2 - 12x - 9x + 54 = 0$

$2x(x - 6) - 9(x - 6) = 0$

$x = 6, \frac{9}{2}$

$y^2 - 7y - 7y + 49 = 0$

$y(y - 7) - 7(y - 7) = 0$

$y = 7, 7$

$x < y$

S37. Ans. (b)
Sol. $x^2 - 14x - 5x + 70 = 0$

$x(x - 14) - 5(x - 14) = 0$

$x = 5, 14$

$2y^2 - 10y - 7y + 35 = 0$

$2y(y - 5) - 7(y - 5) = 0$

$y = 5, \frac{7}{2}$

$x \geq y$

S38. Ans. (d)
Sol. $3x^2 + 8x - 3x - 8 = 0$

$x(3x + 8) - 1(3x + 8) = 0$

$x = 1, \frac{-8}{3}$

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

$y(y - 1) - 3(y - 1) = 0$

$y = 1, 3$

$x \leq y$

S39. Ans. (d)
Sol. $12x^2 - 6x - 10x + 5 = 0$

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

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

$18y^2 - 30y - 15y + 25 = 0$

$6y(3y - 5) - 5(3y - 5) = 0$

$y = \frac{5}{3}, \frac{5}{6}$

$x \leq y$

S40. Ans. (a)
Sol. $3x^2 - 3x - 8x + 8 = 0$

$3x(x - 1) - 8(x - 1) = 0$

$x = 1, \frac{8}{3}$

$3y^2 + 12y + 8y + 32 = 0$

$3y(y + 4) + 8(y + 4) = 0$

$y = -4, \frac{-8}{3}; x > y$