

RRB NTPC MATHS MEGA QUIZ 22TH DECEMBER (SOLUTIONS)

S1. Ans. (b)

Sol.

A 20 min 3
 60 min = 60 - 36 = 24 min
 B 30 min 2
 = $\frac{24}{3}$ min = 8 min

S2. Ans. (c)

Sol.

speed of first train = $\frac{150}{15} = 10$ m/sec.

Time = $\frac{\text{length of both trains}}{\text{Relative speed}}$

$12 = \frac{2 \times 150}{10 + x}$

$x = 15$ m/sec. = 54 km/h.

S3. Ans. (a)

Sol.

speed in still water = x km/h.

Speed of current = y km/h.

$x + y = \frac{1}{\frac{4}{60}} = 15$

$x - y = \frac{1}{\frac{10}{60}} = 6$

speed of current = $\frac{1}{2}[(x+y) - (x-y)]$

= $\frac{1}{2}[15 - 6] = \frac{9}{2} = 4.5$ km/h.

S4. Ans. (d)

Sol.

Let required no. = x

ATQ

$x \times \frac{60}{100} - 60 = 60$

$x = 200$

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S5. Ans. (b)

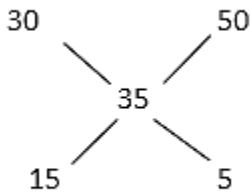
Sol.

Now it will bounce 20% of 10 = 2 meter less
= 10 - 2 = 8m

S6. Ans. (b)

Sol.

From Allegation method –



$$\text{Req. Ratio} = \frac{15}{5} = \frac{3}{1}$$

S7. Ans. (c)

Sol.

Group A = 40%

$$\text{Group B} = \frac{60 \times 75}{100} = 45\%$$

Group C = 15%

15% = 12 students.

Then 100% = 80 students

S8. Ans. (c)

Sol.

25% of the cost Price = 100

$$\text{Cost price} = \frac{100 \times 100}{25} = 400$$

S9. Ans. (c)

Sol.

$$\text{S.P.} = 178 \times \frac{100}{89} \times \frac{111}{100} = 222$$

S10. Ans. (b)

Sol.

$$\text{Profit percentage} = \frac{1000 - 850}{850} \times 100$$

$$= 17\frac{11}{17}\%$$

S11. Ans. (b)

Sol. Ram : Shyam : Sohan = 49 : 119 : 289

S12. Ans. (b);

Sol.

$$\frac{20,000 \times 6}{x \times 12} = \frac{6000}{3000}$$

=Rs. 5000

S13. Ans. (d)

Sol.

Total age of ram + 2 children = $17 \times 3 = 51$ year

Total age of both the children = $51 - 33 = 18$ yr

Total age of ram's wife + both the children = $16 \times 3 = 48$ yr

Required age of Ram's wife = $48 - 18 = 30$ yr

S14. Ans, (c)

Sol.

Let the initial average of age = x

Let the retired teacher's age = T

$$\therefore 10x - T + 25 = 10(x - 3)$$

$$10x - T + 25 = 10x - 30$$

$$-T + 25 = -30$$

$$T = 55$$

S15. Ans. (c)

Sol.

$$\text{Direct formula, } D = \frac{P \cdot r^2(300+r)}{(100)^2} = 305$$

S16. Ans. (c)

Sol.

Let the total capital be Rs. x.

$$\therefore \frac{x}{3} \times \frac{7}{100} + \frac{x}{4} \times \frac{8}{100} + \left(x - \frac{x}{3} - \frac{x}{4}\right) \times \frac{10}{100} = 561$$

$$x = 6600$$

S17. Ans. (a)

Sol.

Successive discount of 5% = 9.75%

9.75% of 80 = 7.8

So, S.P. = $80 - 7.8 = 72.2$ Rs.

S18. Ans. (b)

Sol.

successive discount of 20%, 15%, 10% = 38.8%

& successive discount of 25%, 12%, 8% = 39.28%

clearly seen, (2) deal is better.

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S19. Ans. (d)

Sol.

B G

31 : 23

124 : 107

75 girl – add., but boys remain same.

So, $31 \times 4 = 124$

124 : 92

124 : 107

15 Ratio = 75

1 Ratio = 5

Diff. = $124 - 107$

So, Req. No. = $17 \times 5 = 85$

S20. Ans. (b)

Sol.

$x + y = 7(x - y)$ or $6x - 8y = 0$ _____(i)

$x + 5 + y + 5 = 9(x - y)$

$8x - 10y = 10$ _____(ii)

After solving (i) & (ii)

$x = 20$ year

$y = 15$ year

S21. Ans. (b)

Sol.

$132 = 3 \times 4 \times 11$, so, divisible by 11, 4 & 3.

So, no. is = 488268

S22. Ans. (c)

Sol.

Given format = $124 \times 86 + 24 = 10688$

S23. Ans. (c)

Sol.

$323 = 17 \times 19$, 2 prime factor.

S24. Ans. (a)

Sol.

17956 is the square of 134

So required digit is 3

S25.Ans. (c);

Sol.

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


and

$$b + 1 = \sqrt{2} \Rightarrow \frac{1}{b+1} = \frac{\sqrt{2}}{2}$$
$$\therefore \frac{1}{a+1} + \frac{1}{b+1} = 1$$

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