

Quantitative Aptitude for RRB NTPC (Solutions)

S1. Ans.(b)

Sol.

Using shortcut

$$\frac{S_A}{S_B} = \sqrt{\frac{T_B}{T_A}}$$

$$\frac{S_A}{S_B} = \sqrt{\frac{9}{4}}$$

$$= 3 : 2$$

S2. Ans.(c)

Sol.

Distance travelled by Ravi = $60 - 12 = 48$

Distance travelled by Ajay = $60 + 12 = 72$

Distance Ratio $\Rightarrow 72 : 48$

Time taken by both to travel 72 km & 48 km is same

Speeds Ratio $\Rightarrow 72 : 48 \Rightarrow 3 : 2$

$(3 - 2)r \rightarrow 4 \text{ km/hr}$

$1r \rightarrow 4 \text{ km/hr}$

Speed of Ravi = $2 \times 4 = 8 \text{ km/hr}$

S3. Ans.(b)

Sol.

Train	Car	→	Time
60	240	→	4 hours
↓ +40	↓ -40		
100	200	→	4 h 10 minutes
↓			
300	0	→	5 hours

Speed of train = $300/5 = 60 \text{ km/hr}$

BILINGUAL



RRB NTPC 4.0

Starts April 9, 2020

2 PM to 3 PM

S4. Ans.(a)

Sol.

$$\begin{array}{ccccccc} & A & : & B & : & C \\ I \rightarrow & 3 & : & 7 & : & 4 \\ E \rightarrow & 4 & : & 3 & : & 5 \end{array}$$

Savings of A $\rightarrow (3x - 4y)$

B $\rightarrow (7x - 3y)$

C $\rightarrow (4x - 5y)$

According to the question,

$$3x - 4y = 300$$

$$2400 - 4y = 300$$

$$4y = 2100$$

$$\therefore y = 525 \text{ \& } x = 800$$

Savings of B = $7x - 3y$

$$= 5600 - 1575$$

$$= \text{Rs. } 4025$$

S5. Ans.(b)

Sol.

$$A \rightarrow 1000 \text{ m}$$

$$B \rightarrow 950 \text{ m}$$

$$C \rightarrow 931 \text{ m}$$

In 950 m B can give C a start of

$$950 - 931 \rightarrow 19 \text{ m}$$

$$950 \text{ unit} \rightarrow 19 \text{ m}$$

$$1 \text{ unit} \rightarrow 19/950$$

$$1000 \text{ unit} \rightarrow \frac{19}{950} \times 100$$

$$\Rightarrow 20 \text{ m}$$

S6. Ans.(b)

Sol. Let time taken by A to cover 1 km $\rightarrow x$ sec

Time taken by B $\rightarrow x + 30$

Time taken by C $\rightarrow x + 45$

$$A : B$$

$$\text{Distance} \rightarrow 1000 : 820$$

$$\text{Time} \rightarrow 820 : 1000$$

$$\Rightarrow 41 : 50$$

$$\frac{x}{x + 45} = \frac{41}{50}$$

$$50x = 41x + 41 \times 45$$

$$x = 205 \text{ sec.}$$

S7. Ans.(b)

Sol.

Ratio of speed $\rightarrow 5 : 4$

When A runs 500 m, B runs 400 m

A will pass B every time when the distance between them is 400 m.

A will cover $= \frac{400}{(500 - 400)} \times 500 = 2000$ to overtake B every time.

Number of time $= \frac{5000}{2000} = 2.5 \cong 2$

S8. Ans.(a)

Sol.

A : B : C

800 : 760

500 : 495

A : B : C $\rightarrow 2000 : 1900 : 1881$

A defeats C by 119 meters in a race of 2000 m

In a race of 200 m A defeats C by $= \frac{119}{10} = 11.9$ m

S9. Ans.(c)

Sol.

A : B : C

190 : 200

180 : 200

171 : 180 : 200

C will give a start of $\Rightarrow 200 - 171 \Rightarrow 29$ m

S10. Ans.(a)

Sol.

$$a + b = 3x$$

$$b + c = 4x$$

$$c + a = 5x$$

$$2(a + b + c) = 12x$$

$$a + b + c = 6x$$

$$c = (a + b + c) - (a + b)$$

$$= 6x - 3x$$

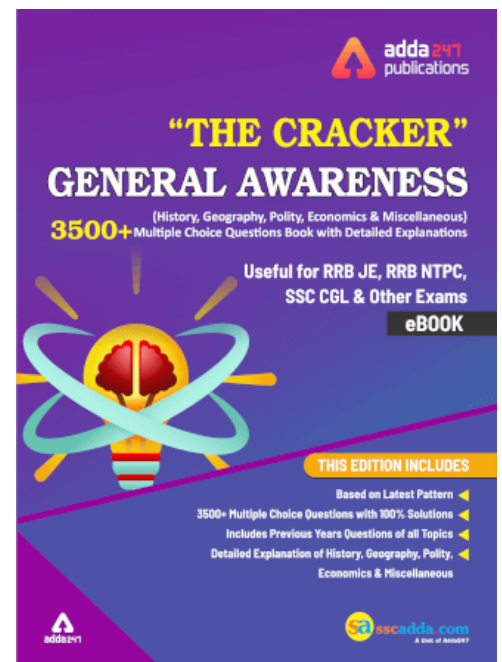
$$= 3x$$

According to the question,

$$6x = 17$$

$$x = \frac{17}{6}$$

$$c \rightarrow 3 \times \frac{17}{6} = \frac{17}{2}$$



S11. Ans.(c)

Sol.

Ratio of time taken by them to do work

$$= 8 : 10 : 12 = 4 : 5 : 6$$

$$\text{Ratio of efficiency} = \frac{1}{4} : \frac{1}{5} : \frac{1}{6} = 15 : 12 : 10$$

Since share is divided in the ratio of efficiency

$$\text{So, share of B} = \frac{7400}{37} \times 12 = \text{Rs. 2400}$$

S12. Ans.(a)

Sol.

Let initial radius = $4r$

Increased radius = $5r$

initial volume is $\pi r^2 h_1 = \pi \times 16 r^2 h_2$

Find volume = $\pi \times 25 r^2 \times h_2$

$$\pi 16 r^2 \times h_1 = \pi 25 r^2 h_2 \Rightarrow \frac{h_1}{h_2} = \frac{25}{16}$$

So, height have to be decreased by

$$= \frac{9}{25} \times 100\% = 36\%$$

S13. Ans.(b)

Sol.

Let CP = $1000x \Rightarrow$ So, MP = $1200x$

$$\text{S.P.} = \frac{95}{100} \times 1200x = 1140$$

$$\% \text{ profit} = \frac{140x}{1000x} \times 100 = 14\%$$

S14. Ans.(b)

Sol.

Total runs conceded = $5 \times 45 + 4 \times 15.75$

$$= 225 + 63 = 288$$

$$\text{Required average} = \frac{288}{9} = 32$$

S15. Ans.(c)

Sol.

Cost of 25 pens = 1 Rs.

$$\text{Cost of 1 pen} = \frac{100}{25} \text{paise} = 4 \text{paise}$$

Selling price of 15 pens = 1 Rs.

$$\text{Selling price of 1 pen} = \frac{100}{15} \text{paise}$$

$$\text{Profit \%} = \frac{\frac{100}{15} - 4}{4} \times 100 = \frac{40}{15 \times 4} \times 100 = 66\frac{2}{3}\%$$

S16. Ans.(c)

Sol.

Let x litre of milk is added to get 20% milk solution

$$\therefore \frac{\frac{10}{100} \times 80 + x}{80 + x} = \frac{20}{100} \Rightarrow \frac{8 + x}{80 + x} = \frac{1}{5}$$

$$40 + 5x = 80 + x \Rightarrow 4x = 40 \Rightarrow x = 10 \text{ litre}$$

S17. Ans.(c)

Sol.

In first hour bus will cover 21 km

In second hour it will cover 24 km

In third hour it will cover 27 km

So,

$$252 = \frac{n}{2} [2 \times 21 + (n-1)3]$$

$$504 = 42n + 3n^2 - 3n \Rightarrow 3n^2 + 39n - 504 = 0$$

$$n^2 + 13n - 168 = 0 \Rightarrow n^2 + 21n - 8n - 168 = 0$$

$$n(n+21) - 8(n+21) = 0 \Rightarrow n = 8, -21$$

So, n = 8 hours

S18. Ans.(d)

Sol.

$$2 \text{ year interest} = 448 - 400 = 48$$

$$1 \text{ year interest} = 24$$

$$\text{Rate} = \frac{24}{400} \times 100 = 6\% \Rightarrow 682 - 550 = \frac{550 \times 6 \times T}{100}$$

$$\Rightarrow 1320 = 55 \times 6 \times T \Rightarrow T = 4 \text{ years}$$

6 Months Subscription

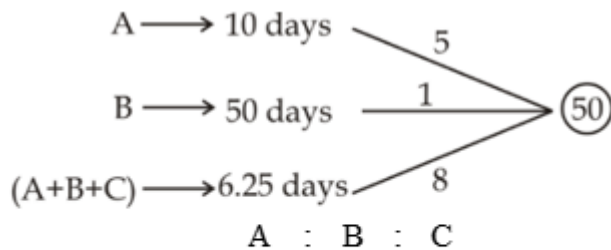
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S19. Ans.(b)

Sol.



Efficiency → 5 : 1 : 2

C, alone can do the work in = $\frac{50}{2} = 25$ days

S20. Ans.(d)

Sol.

$$SP = 450 \times \frac{180}{100} \times \frac{80}{100} \Rightarrow SP = \text{Rs. } 648$$

S21. Ans.(c)

Sol.

$$A \rightarrow 9 \quad 10$$

$$B \rightarrow 10 \quad 90 \quad 9$$

$$C \rightarrow 15 \quad 6$$

2 days work of B + C

$$= (9 + 6) \times 2$$

$$= 15 \times 2$$

$$= 30$$

Remaining work = 90 - 30

$$= 60$$

Time taken by A to finish the remaining work

$$= \frac{60}{10} = 6 \text{ days}$$

S22. Ans.(b)

Sol.

$$A + B \rightarrow 2 \quad 6$$

$$B + C \rightarrow 4 \quad 12 \quad 3$$

$$C + A \rightarrow \frac{12}{5} \quad 5$$

2(A + B + C)'s efficiency = 14

(A + B + C)'s efficiency = 7

A's efficiency = 7 - 3 = 4

A will alone do the work in = $\frac{62}{4} = 3$ days

S23. Ans.(b)

Sol.

$$\begin{array}{rcl} A \rightarrow & 20 & 3 \\ & 60 & \end{array}$$

$$B \rightarrow 15 \quad 4$$

(A + B)'s 6 day work

$$= 7 \times 6$$

$$= 42$$

Remaining work

$$= 60 - 42$$

$$= 18$$

Remaining work is finished by A + C in 4 days

So,

$$4 = \frac{18}{3 + C}$$

$$12 + 4C = 18$$

$$4C = 6$$

$$C = 3/2$$

$$C \text{ alone will finish the work in } = \frac{60}{3/2}$$

$$= 40 \text{ days}$$

S24. Ans.(d)

Sol.

$$\begin{array}{rcl} B \rightarrow & 6 & 4 \\ B + C \rightarrow & 4 & 24 \quad 6 \\ A + B + C \rightarrow & \frac{8}{3} & 9 \end{array}$$

$$\text{Efficiency of C} = 6 - 4$$

$$= 2$$

$$\text{Efficiency of A} = 9 - 4 - 2$$

$$= 9 - 6$$

$$= 3$$

Efficiency of A + B

$$= 3 + 4$$

$$= 7$$

$$A + B \text{ will finish the work in } \Rightarrow \frac{24}{7}$$

$$= 3\frac{3}{7} \text{ hour}$$

TEST SERIES

Bilingual



**RRB NTPC
PREMIUM**

♦ CBT-I and CBT-II

♦ 30 Previous Year Papers

120 TOTAL TESTS

S25. Ans.(c)

Sol.

$$x \rightarrow \frac{1}{4} \rightarrow 10 \text{ days}$$

$$1 \text{ work} \rightarrow 40 \text{ days}$$

$$y \rightarrow \frac{2}{5} \text{ work} \rightarrow 40 \text{ days}$$

$$1 \text{ work} \rightarrow 100 \text{ days}$$

$$Z \rightarrow \frac{1}{3} \rightarrow 13 \text{ days}$$

$$1 \text{ work} \Rightarrow 39 \text{ days}$$

Z will finish the work 1st

S26. Ans.(a)

Sol.

$$40\% \text{ work} = \frac{40}{100}$$

$$= \frac{2}{5}$$

$$\text{Remaining work} = 1 - \frac{2}{5}$$

$$= \frac{3}{5}$$

$$\frac{50 \times 25}{\frac{2}{5}} = \frac{x \times 25}{\frac{3}{5}}$$

$$x = 75 \text{ days}$$

$$\text{More Men} = 75 - 50 = 25$$

S27. Ans.(c)

Sol.

$$x \times 24 = (x - 9) \times 32$$

$$24x = 32x - 288$$

$$288 = 8x$$

$$x = 36$$

S28. Ans.(a)

Sol.

$$A + B = 5$$

Let A takes x days and B takes 4 days

$$\frac{1}{x} + \frac{1}{y} = \frac{1}{5}$$

$$\frac{1}{y} = \frac{1}{5} - \frac{1}{x}$$

ATQ,

$$\frac{1}{x/2} + \frac{1}{2y} = \frac{1}{4}$$

$$\frac{2}{x} + \frac{1}{2y} = \frac{1}{4}$$

$$\frac{2}{x} + \frac{1}{2} \left(\frac{1}{5} - \frac{1}{x} \right) = \frac{1}{4}$$

$$\frac{2}{x} + \frac{1}{10} - \frac{1}{2x} = \frac{1}{4}$$

$$\frac{2}{x} - \frac{1}{2x} = \frac{1}{4} - \frac{1}{10}$$

$$\frac{3}{2x} = \frac{3}{20}$$

$$x = 10 \text{ days}$$

S29. Ans.(c)

Sol.

$$15M = 24W = 36B$$

$$12W = \frac{15}{2}M$$

$$6B = \frac{15}{6}M$$

$$12W + 6B = \frac{15}{2}M + \frac{15}{6}M$$

$$= \frac{45 + 15}{6}M$$

$$= \frac{60}{6}M$$

$$= 10M$$

$$15 \times 12 \times 8 = \frac{(x + 10) \times 30 \times 6}{9/4}$$

$$\frac{15 \times 12 \times 8 \times 9/4}{30 \times 6} = x + 10$$

$$18 = x + 10$$

$$x = 8 \text{ Men}$$

S30. Ans.(b)

Sol.

Efficiency →

Asha : Usha

$$125 : 100$$

$$5 : 4$$

Time → 4 : 5

$$5r \rightarrow 25 \text{ days}$$

$$1r \rightarrow 5 \text{ days}$$

$$4r \rightarrow 20 \text{ days}$$

Asha → 20 5

100

Usha → 25 4

5 days work of Asha + Usha

$$= 9 \times 5 = 45$$

Remaining work = $100 - 45$

$$= 55$$

Asha worked alone for

$$= \frac{55}{3}$$

$$= 11 \text{ days}$$

