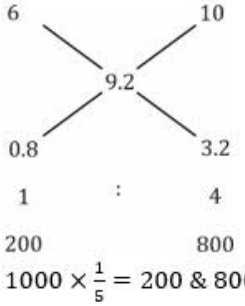
Quantitative Aptitude for RRB NTPC (Solutions)

S1. Ans.(d)
Sol.
Distance covered by car in 2 hours
$= \frac{300\times40}{100} = 120$ km
Remaining distance = 180 km
Remaining time = 2h
Required speed $= \frac{180}{2} = 90$ km/h
Speed of car $= \frac{120}{2} = 60$ km/hr
Required increase in speed = 90 – 60 = 30 km/h

S2. Ans.(c)
Sol.
Distance covered by Atlas cycling in $1\frac{1}{4}$ hr
$= 12 + 12 \times \frac{1}{4} = 15$ km
Elder brother catch the boy = in $2\frac{1}{4}$ hr
Now, according to question
$(\text{Bajaj Scooter})_{\text{Speed}} - (\text{Atlas Cycling})_{\text{Speed}} = \frac{15}{2\frac{1}{4}}$
$(\text{Bajaj Scooter})_{\text{speed}} = \frac{15\times4}{9} + 12$
$= \frac{20}{3} + 12 = \frac{56}{3} = 18\frac{2}{3}$

S3. Ans.(c)
Sol.
Required equation,
$x + 182 \times 13 = 2402$
$x = 2402 - 2366 \Rightarrow x = 36$

S4. Ans.(c)
Sol.



$1000 \times \frac{1}{5} = 200$ & 800.

S5. Ans.(b)

Sol.

Zaffer, Tahir and Jamila together can finish the work in 4 days.

Zaffer and Tahir together can do it in $\frac{24}{5}$ days

Tahir and Jamila together can do it in 8 days. Therefore,

zaffer alone can complete the work in

$= \frac{XY}{Y-X}$ days $= \left(\frac{8\times 4}{8-4}\right)$ days

[Here, X = 4 and Y = 8]

= 8 days.

So, Tahir alone can complete the work in

$= \left(\frac{XY}{Y-X}\right)$days $= \left(\frac{\frac{24}{5}\times 8}{8-\frac{24}{5}}\right)$ days

$\left[\text{Here, } Y = 8 \text{ and } X = \frac{24}{5}\right]$

= 12 days.

S6. Ans.(b)

Sol.

Here, a = 4, b = 6, n = 20, c = 6 and d = 11

If a men or b women complete a work in n days

then time taken by c men and d women to complete the same work

$= \left(\frac{nab}{bc+ad}\right)$ days $= \left(\frac{20\times 4\times 6}{6\times 6+4\times 11}\right)$ days

= 6 days.

When work is double than no. of days= 12 days.

S7. Ans.(b)

Sol.

Suppose, C alone can do this work in x days

$\therefore$ C will do $\frac{1}{x}$ work in 1 day

Now, work done by (B + C) in 1 day $= \frac{1}{16}$

$\therefore$ Work done by B in 1 day $= \left(\frac{1}{16}-\frac{1}{x}\right)$

And, work done by (A + B) in 1 day $= \frac{1}{12}$

$\therefore$ Work done by A in 1 day $= \frac{1}{12}-\left(\frac{1}{16}-\frac{1}{x}\right)$

$= \frac{1}{48}+\frac{1}{x}$

As per the question,

Work done by A in 5 days + work done by B in 7 days + work done by C in 13 days = whole work

$\therefore 5\left(\frac{1}{48}+\frac{1}{x}\right)+7\left(\frac{1}{16}-\frac{1}{x}\right)+\frac{13}{x}=1$

Or, $\frac{5}{48}+\frac{5}{x}+\frac{7}{16}-\frac{7}{x}+\frac{13}{x}=1$

Or, $\frac{26}{48}+\frac{11}{x}=1$, or, $\frac{11}{x}=1-\frac{26}{48}$

Or, $\frac{11}{x}=\frac{22}{48}$, or, $x=24$

$\therefore$ C alone would complete this work in 24 days.

S8. Ans.(d)

Sol.

Since 100 Men can complete one third work in 10 days therefore one third work is 100 × 10 Man days therefore total work is 100 × 10 × 3 Man days. Also 100 Men worked for first 10 days, 160 Men worked from beginning of 11th day to end of 18th day i.e. for 8 days. Now 18 days are already over and 5 more days are required to finish the work in total 10 + 13 i.e. 23 days. Let us assume X men will be discharged at the end of 18th day. Hence (160 – X) Men will work for another 5 days.

100 × 10 + 160 × 8 + (160 – X) × 5

= 100 × 10 × 3 ⇒ x = 16 men

S9. Ans.(c)

Sol.

Suppose, there were x packages in the Maruti van before deliver.

$\therefore$ After first deliver, the number of packages in the Maruti van

$=x-\frac{2}{5}x=\frac{3}{5}x$

After second delivery, the number of packages in the Maruti van

$=\frac{3}{5}x-3=\frac{3x-15}{5}$

$\therefore \frac{3x-15}{5}=\frac{x}{2}$(Given)

$\Rightarrow x=30.$

S10. Ans.(b)

Sol.

Average score before 17th innings

= 85 - 3 × 17 = 34

$\therefore$ Average score after 17th innings

= 34 + 3 = 37.

S11. Ans.(d)

Sol.

Maximum Marks → 1 : 2 : 2

Marks in 1st paper = $\frac{50}{100}$= 0.5

Marks in 2nd paper = 2 × $\frac{60}{100}$= 1.2

Marks in 3rd paper = 2 × $\frac{65}{100}$= 1.3

Overall % = $\frac{1.2 + 0.5 + 1.3}{5}$ × 100 = $\frac{3}{5}$ × 100 = 60%

S12. Ans.(b)

Sol.

Single Rebate = −20 − 30 + $\frac{600}{100}$

= −50 + 6

= 44%

S13. Ans.(a)

Sol.

Amount at the end of first the year = 1200 × 1.1= 1320

Amount Remaining after withdrawal and paying transaction fees

= $1320 - \left(1320 \times \frac{30}{100} + 24\right)$

= 1320 − 420 =900

Amount at the end of second year = 900 × 1.1= 990

Amount remaining after withdrawal at the end of 2nd year

= $990 - \left(990 \times \frac{30}{100} + 93\right)$

= 990 − (390)

= 600

Amount at the end of 3rd year = 600 × 1.1= 660

S14. Ans.(c)

Sol.

Salary last month = Rs. 10000

Saving : Expenditure = 2 : 8

Saving last month = $\frac{2}{10}$ × 10000 = Rs. 2000

This Month's Saving = 2000 × $\frac{50}{100}$ = Rs. 1000

This Month's Salary = 10000 × $\frac{115}{100}$ = Rs. 11500

This Month's Expenditure = 11500 − 1000 = 10500

S15. Ans.(b)

Sol.

Total students → 100

Boys → 60, Girls → 40

Boys who passed the exam = $60 \times \frac{75}{100} = 45$

Boys scored 1st division = $45 \times \frac{40}{100} = 18$

Total students passed = 80

Total students who scored 1st division = $80 \times \frac{50}{100} = 40$

Girls who scored 1st division = 40 – 18 = 22

Percentage of girls who scored 1st division = $\frac{22}{100} \times 100 = 22\%$

S16. Ans.(d)

Sol.

$x \rightarrow$ tea

$y \rightarrow$ sugar

$x + y = 95$ ... (i)

$\frac{90x}{100} + \frac{120y}{100} = 90$

$9x + 12y = 900$ ... (ii)

From (i) & (ii)

$y = 15$

$x + 15 = 95$

$x = 80$

Original price of tea = Rs. 80

S17. Ans.(c)

Sol.

Coats Remaining = 800 – 500 = 300

Full length coats = $800 \times \frac{15}{100} = 120$

$\% = \frac{120}{300} \times 100 = 40\%$

S8. Ans.(c)

Sol.

$P\% = M\% - D\% - \frac{MD}{100}$

$33 = M - 5 - \frac{M \times 5}{100}$

$38 = \frac{19M}{20}$

$M = 40\%$

S19. Ans.(c)

Sol.

Rakesh : Vikas = 50 : 100 = 1 : 2
Vikas : Mayur = 190 : 100= 19 : 10
Rakesh : Vikas : Mayur = 19 : 38 : 20
Mayur : Shweta = 2 : 1
Rakesh : Vikash : Mayur : Shweta = 19 : 38 : 20 : 10
Shweta : Deepika = 60 : 100 = 3 : 5
Rakesh : Vikas : Mayur : Shweta : Deepika = 57 : 114 : 60 : 30 : 50
Shweta's weight is last out of all these people.

S20. Ans.(c)

Sol.

Product A → 20%
Product B → 60%
Not Certain → 20%
ATQ,
(60% – 20%)r → 720
40r → 720
1r → 18
100r → 1800
Number of people in survey = 1800

S21. Ans.(c)

Sol.

C.P S.P

100 $\xrightarrow{20\%\ \text{profit}}$ 120

20% loss ↓

80 $\xrightarrow{25\%\ \text{profit}}$ 100

(120 – 100)r → 180 Rs.
20r → 180 Rs.
100r → 900 Rs.

S22. Ans.(a)

Sol. Let C.P of 1 Pen → 10
C.P of 90 Pens → 900
S.P of 40 Pens → $400 \times \frac{110}{100} \Rightarrow 440$
S.P of 50 Pens → $500 \times \frac{120}{100} \Rightarrow 600$
S.P of 90 pens at 15% profit = $900 \times \frac{115}{100} = 1035$
Difference in S.P = 1040 – 1035
5r → 40 Rs.
10r → 80 Rs.
C.P of each pen = 80 Rs.

S23. Ans.(c)
Sol. ATQ,
Let price of 1 shirt → x
Price of 1 pant → y
5x + 10y = 1600 ... (i)
$5x \times \frac{115}{100} + 10y \times \frac{90}{100} = 1690$
5.75x + 9y = 1690 ... (ii)
Solving (i) & (ii) we get
x = 200 Rs., y = 60 Rs.

S24. Ans.(a)
Sol. C.P of 750 articles = 750 × 60= 45000 paise
S.P of 600 article = $45000 \times \frac{140}{100}$= 63000
S.P of 1 article = $\frac{63000}{600}$ = 105
S.P of 630 article = 630 × 105= 66150 paise
Profit % = $\frac{66150 - 45000}{45000} \times 100 = \frac{21150}{450}$= 47%

S25. Ans.(c)
Sol.
$$\frac{\sqrt{7}-1}{\sqrt{7}+1} - \frac{\sqrt{7}+1}{\sqrt{7}-1} = a + \sqrt{7}b$$
$$\frac{(\sqrt{7}-1)^2 - (\sqrt{7}+1)^2}{7-1} = a + \sqrt{7}\,b$$
$$\frac{7+1-2\sqrt{7}-7-1-2\sqrt{7}}{6} = a + \sqrt{7}\,b$$
$$-\frac{4}{6}\sqrt{7} = a + \sqrt{7}\,b$$
$$a + \sqrt{7}\,b = \frac{-2}{3}\sqrt{7}$$
a = 0, b = –2/3

S26. Ans.(d)
Sol. Sofa set → 100
Center table → 40
Actual Bill ⇒ $40 \times \frac{90}{100} + 100 \times \frac{75}{100}$ = 36 + 75= 111
What she paid = $40 \times \frac{75}{100} + 100 \times \frac{90}{100}$= 30 + 90 = 120
Extra paid = $\frac{9}{111} \times 100$
= $\frac{900}{111}$ = 8.1%

S27. Ans.(a)

Sol. Let C.P of watch = x

Profit % = x%

$x \times \frac{(100+x)}{100} = 96$

$x^2 + 100x = 9600$

$x^2 + 100x - 9600 = 0$

$x^2 + 160x - 60x - 9600 = 0$

$x(x + 160) - 60(x + 160) = 0$

$x = 60$

New S.P = $60 \times \frac{220}{100}$

= 132

S28. Ans.(b)

Sol. Let C.P of 1000 gm → Rs. 1000

C.P of 1100 gm → Rs. 1000

C.P of 1000 gm for shopkeeper→ $\frac{10000}{11}$

S.P of 900 gm → Rs. 1000

S.P of 1000 gm → $\frac{10000}{9}$

$\text{Profit} = \frac{10000}{9} - \frac{10000}{11}$

$= \frac{20000}{99}$

$\text{Profit \%} = \frac{\frac{20000}{99}}{\frac{10000}{11}} \times 100$

$= \frac{200}{9} = 22\frac{2}{9}\%$

S29. Ans.(b)

Sol. Profit % = $14\frac{2}{7}\%$

$= \frac{1}{7} \rightarrow \frac{\text{Profit}}{\text{S.P}}$

C.P = 7 – 1 = 6

7r → 280

1r → 40

6r → 240

C.P ⇒ 240

S.P ⇒ 280

Actual Profit = $\frac{40}{240} \times 100$

$= \frac{50}{3} = 16.66\%$

S30. Ans.(b)

Sol. Let price per kg → Rs 1

C.P of 4000 kg = Rs. 4000

S.P of 11% profit = Rs. 4440

S.P of $\frac{1}{5}$th i.e. 800 kg wheat= $800 \times \frac{105}{100} = 840$ Rs.

S.P of $\frac{1}{4}$th i.e. 1000 kg = $1000 \times \frac{110}{100} = 1100$ Rs.

S.P of $\frac{1}{2}$ i.e. 2000 kg wheat= $2000 \times \frac{112}{100} = 2240$ Rs.

S.P of Remaining 200 kg= $200 \times \frac{116}{100} = 232$ Rs.

Total S.P = 840 + 1100 + 2240 + 232 = 4412

(4440 – 4412)r → 72.80

28r → 72.80

1r → 2.60 Rs.

C.P of 1 kg wheat = 2.60 Rs.