

Quantitative Aptitude Sunday Mega Quiz for RRB NTPC – (Solutions)

S1. Ans.(a)

Sol.

$$\frac{1}{5}x - \frac{1}{7}x = 10$$

$$\frac{2x}{35} = 10$$

$$x = 175$$

S2. Ans.(d)

Sol.

$$\text{Number} = 899k + 63$$

$$\text{Remainder} \Rightarrow \frac{899k + 63}{29} = \frac{63}{29} = 5$$

S3. Ans.(b)

Sol.

$$\text{First number} = 102, \text{ last number} = 198$$

$$\text{Total numbers} = \frac{198 - 102}{3} + 1 = \frac{96}{3} + 1 = 33$$

$$\text{Sum} = \frac{n}{2} [2a + (n - 1)d]$$

$$= \frac{33}{2} [2 \times 102 + (33 - 1) \times 3]$$

$$= \frac{33}{2} [204 + 96] = \frac{33}{2} \times 300$$

$$= 4950$$

S4. Ans.(c)

Sol.

$$\text{Dividend} = \text{quotient} \times \text{divisor} + \text{Remainder}$$

$$\text{Divisor} = 25 \times q = 25 \times 16 = 400$$

$$\text{Divisor} = 5 \times R$$

$$400 = 5 \times R$$

$$R = 80$$

$$\text{Dividend} = 16 \times 400 + 80 = 6400 + 80 = 6480$$

S5. Ans.(a)

Sol.

$$\text{Unit digit} = 1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8 \times 9 = 0$$



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S6. Ans.(a)

Sol.

$$\text{Sum of 1st } n \text{ odd numbers} = (n)^2 = (19)^2 = 361$$

S7. Ans.(d)

Sol.

$$\text{Sum of squares of 1st } n \text{ natural numbers} = \frac{n(n+1)(2n+1)}{6}$$

$$\text{Sum} = \frac{10 \times 11 \times 21}{6} = 385$$

S8. Ans.(a)

Sol.

Numbers $\rightarrow 7x, 8x$

$$\text{L.C.M of } (7x, 8x) = 7 \times 8x = 56x$$

$$56x = 280$$

$$x = 5$$

Numbers $\rightarrow 35, 40$

S9. Ans.(d)

Sol.

$x \rightarrow$ cows, $y \rightarrow$ hens

$$x + y = 180 \times 2$$

$$4x + 27 = 420$$

$$2x + 2y = 360$$

$$4x + 2y = 420$$

$$2x = 60$$

$$x = 30$$

Number of cows = 30

S10. Ans.(d)

Sol.

Let number of seat in one bus $\Rightarrow x$

Total seats $\rightarrow 3x$

$$\text{No. of seats occupied} = 3x \times \frac{4}{5} = \frac{12x}{5}$$

$$\text{No. of Passengers} = \frac{12x}{5}$$

$$\text{Passengers left} = \frac{12x}{5} \times \frac{1}{4} = \frac{3x}{5}$$

$$\text{Remaining Passengers} = \frac{12x}{5} - \frac{3x}{5} = \frac{9x}{5}$$

No. of seats = $2x$

$$\text{Traction of seats occupied} = \frac{\frac{9x}{5}}{2x} = \frac{9}{10}$$

S11. Ans.(d)**Sol.**

$$\text{Rate} = 10\% = \frac{10}{100} = \frac{1}{10}$$

$$\text{Let principal} = (10)^2 = 100$$

$$\text{Interest 1st year} = 100/10 = 10$$

$$\text{Interest 2nd year} = \frac{100}{10} + \frac{10}{10} = 10 + 1 = 11$$

$$\text{C.I for 2 years} = 10 + 11 = 21$$

$$\text{S.I for 2 years} = 10 + 10 = 20$$

$$(21 - 20)r \rightarrow \text{Rs. } 65$$

$$1r \rightarrow 65$$

$$100r \rightarrow 6500 \text{ Rs.}$$

S12. Ans.(a)**Sol.**

$$\text{Rate} = 5\% = \frac{5}{100} = \frac{1}{20}$$

$$\text{Let principal} = (20)^2 = 400$$

$$\text{Interest 1st year} = \frac{400}{20} = 20$$

$$\text{Interest 2nd year} = \frac{400}{20} + \frac{20}{20} = 21$$

$$\text{C.I for 2 years} = 20 + 21 = 41$$

$$41r \rightarrow 328 \text{ Rs.}$$

$$1r \rightarrow 8 \text{ Rs.}$$

$$400r \rightarrow 3200 \text{ Rs.}$$

$$\text{S.I} = \frac{3200 \times 2 \times 5}{100} = 320 \text{ Rs.}$$

S13. Ans.(a)**Sol.**Yearly \rightarrow

$$\text{Rate} \rightarrow 20\% \Rightarrow \frac{1}{5}, \text{Time} = 1 \text{ year}$$

$$\text{Let principal} \Rightarrow 5$$

$$\text{C.I} = 5/5 = \text{Rs. } 1$$

Half yearly \Rightarrow

$$\text{Rate} = \frac{20}{2}\% = 10\%$$

Time = 2 half year

$$\text{C.I} = \frac{5}{10} + \frac{5}{10} + \frac{0.5}{10}$$

$$= 1.05$$

$$(1.05 - 1)r \rightarrow 723$$

$$0.05r \rightarrow 723$$

$$5r \rightarrow 72300$$

$$\text{Sum} = 72300 \text{ Rs.}$$

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S14. Ans.(d)

Sol.

Let capacity of tank $\rightarrow x$

Let capacity of bottle $\rightarrow y$

ATQ,

$$\frac{4x}{5} - 6y + 4y = \frac{3x}{4}$$

$$\frac{4x}{5} - \frac{3x}{4} = 2y$$

$$\frac{16x - 15x}{20} = 2y$$

$$x = 40y$$

40 bottles of oil is required.

S15. Ans.(c)

Sol.

$$\begin{aligned} & \frac{1}{\sqrt{7}-\sqrt{6}} - \frac{1}{\sqrt{6}-\sqrt{5}} + \frac{1}{\sqrt{5}-2} - \frac{1}{\sqrt{8}-\sqrt{7}} + \frac{1}{3-\sqrt{8}} \\ &= \frac{\sqrt{7}+\sqrt{6}}{7-6} - \frac{(\sqrt{6}+\sqrt{5})}{6-5} + \frac{\sqrt{5}+2}{5-4} - \frac{(\sqrt{8}+\sqrt{7})}{8-7} + \frac{(3+\sqrt{8})}{9-8} \\ &= \sqrt{7}+\sqrt{6}-\sqrt{6}-\sqrt{5}+\sqrt{5}+2-\sqrt{8}-\sqrt{7}+3+\sqrt{8} \\ &= 2+3=5 \end{aligned}$$

S16. Ans.(b)

Sol.

$$\text{C.P} = 43.20 \times \frac{100}{90} = \frac{432}{9} = 48 \text{ Rs.}$$

$$\text{S.P} = 48 \times \frac{110}{100} = 52.8 \text{ Rs.}$$

S17. Ans.(a)

Sol.

$$\text{C.P of 1st mobile} = 6000 \times \frac{100}{120} = 5000 \text{ Rs.}$$

$$\text{C.P of 2nd mobile} = 6000 \times \frac{100}{75} = 8000 \text{ Rs.}$$

$$\text{Total C.P} = 8000 + 5000 = 13000 \text{ Rs.}$$

$$\text{Total S.P} = 12000 \text{ Rs.}$$

$$\text{Loss \%} = \frac{1000}{13000} \times 100 = \frac{100}{13} = 7.7\%$$

S18. Ans.(b)

Sol.

$$x \tan 60^\circ + \cos 45^\circ = \sec 45^\circ$$

$$x \tan 60^\circ = \sqrt{2} - \frac{1}{\sqrt{2}}$$

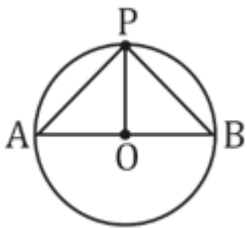
$$x \times \sqrt{3} = \frac{1}{\sqrt{2}}$$

$$x = \frac{1}{\sqrt{6}}$$

$$x^2 + 1 = \frac{1}{6} + 1 = \frac{7}{6}$$

S19. Ans.(a)

Sol.



$$\angle POB = 180^\circ - \angle POA = 180^\circ - 120^\circ = 60^\circ$$

$$\angle POB + \angle PBO + \angle OPB = 180^\circ$$

$$60 + \angle PBO + \angle OPB = 180^\circ$$

$$\angle OPB = \angle PBO (\because PO = OB = r)$$

$$\therefore 2\angle PBO = 120^\circ$$

$$\angle PBO = 60^\circ$$

S20. Ans.(c)

Sol.

$$A_{10} \Rightarrow \frac{S_{10}}{10} = 80$$

$$S_{10} = 800$$

$$S_9 + 60 = 800$$

$$S_9 = 720$$

$$S_{10} = 720 + 50 = 790$$

$$\text{Average} = \frac{790}{10} = 79$$

S21. Ans.(c)

Sol.

$$9 \quad 2$$

$$18$$

$$6 \quad 3$$

Both puncture together will make it flat in = $\frac{18}{5}$ minutes

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

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S22. Ans.(a)

Sol.

Let the work done by each one of A, B & C per day be x, y, z.

$$x + y = \frac{1}{12}$$

$$x = \frac{1}{12} - y$$

$$y + z = \frac{1}{16}$$

$$z = \frac{1}{16} - y$$

ATQ,

$$5x + 7y + 13z = 1$$

$$\frac{5}{12} - 5y + 7y + \frac{13}{16} - 13y = 1$$

$$\frac{5}{12} + \frac{13}{16} - 1 = 11y$$

$$11y = \frac{11}{48}$$

$$y = 1/48$$

B alone will finish the work in 48 days.

S23. Ans.(a)

Sol.

Three sides of triangle = a + b, b + c, c + a

$$S = \frac{2(a + b + c)}{2} = a + b + c$$

$$\text{Area} = \sqrt{s(s - x)(s - y)(s - z)}$$
$$= \sqrt{(a + b + c) abc}$$

S24. Ans.(a)

Sol.

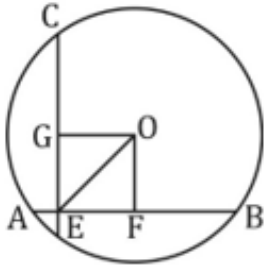
No. of spheres

$$= \frac{\frac{1}{3}\pi(30)^2 \times 45}{\frac{4}{3}\pi(5)^3}$$

$$= 81$$

S25. Ans.(a)

Sol.



$$AE = 2$$

$$EB = 6$$

$$ED = 3$$

$$AE \times EB = CE \times ED$$

$$2 \times 6 = CE \times 3$$

$$CE = 4 \text{ cm}$$

$$CD = 4 + 3 = 7$$

$$EF = AB - FB - AE$$

$$= 8 - 4 - 2$$

$$= 2$$

$$\text{Radius} = \sqrt{\left(\frac{7}{2}\right)^2 + (2)^2}$$

$$= \sqrt{\frac{49}{4} + 4}$$

$$= \frac{1}{2}\sqrt{65}$$

$$\text{Diameter} = \sqrt{65}$$

S26. Ans.(a)

Sol.

Kites of Rs. 20 is available for Rs. 19

Discount $\Rightarrow 10\%$

Kites of Rs. 20 is available for Rs. 18

$$\text{No. of Kites} = \frac{2}{18} \times 27 = 3$$

S27. Ans.(c)

Sol.

$$\text{Total C.P} = 1600 + 2400 = 4000$$

$$\text{Total C.P} = 1600 + 2400 = 4000$$

$$\text{S.P after discount} = 7800 \times \frac{90}{100} = 7020$$

$$\text{Profit \%} = \frac{3020}{4000} \times 100 = 75.5\%$$

S28. Ans.(c)

Sol.

$$\text{Area of circle} = \pi r^2$$

$$\text{Area of smaller circle} = 9k$$

$$\text{Area of larger circle} = 25k$$

$$\text{Ratio} = (25k - 9k) : 25$$

$$= 16k : 25k$$

$$= 16 : 25$$

S29. Ans.(d)

Sol.

$$R + 2 \times C = 17 \times 3 = 51$$

$$R + 2 \times C = 17 \times 3 = 51$$

$$W + 2C = 16 \times 3 = 48$$

$$W + 51 - R = 48$$

$$W + 51 - 33 = 48$$

$$W = 30 \text{ years}$$

S30. Ans.(a)

Sol.

Effective change

$$\Rightarrow a + b + \frac{ab}{100}$$

Let the other side is decreased by $x\%$

$$\Rightarrow 30 - x - \frac{30x}{100} = 0$$

$$30 - \frac{13x}{10} = 0$$

$$x = \frac{300}{13} = 23 \frac{1}{13}\%$$

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