

Quantitative Aptitude for RRB NTPC – (Solutions)

S1. Ans.(a)

Sol.

$$(u + v) \times 1 = 20 \quad \dots(i)$$

$$(u - v) \times 2 = 20 \quad \dots(ii)$$

After solving these equation–

$$u = 15 \text{ km/hr.}$$

S2. Ans.(d)

Sol. Let no. of benches = x

And, no. of students = y

ATQ,

$$y = 4(x-3) \dots(1)$$

$$y = 3x + 3 \dots(2)$$

from (1) and (2),

$$x = 15$$

$$\text{And, } y = 48$$

S3. Ans.(c)

Sol.

$$\text{The middle no.} = \frac{175}{7} = 25$$

$$\text{The largest no.} = 25 + 3 = 28$$

$$\text{Smallest no.} = 25 - 3 = 22$$

$$\text{Required difference} = 22 \times 3 - 28 \times 2 = 10$$

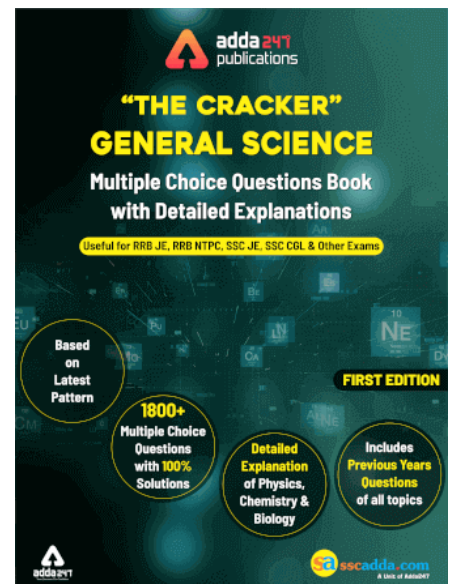
S4. Ans.(b)

Sol.

$$x - \frac{x}{3} - \frac{x}{3} = 3000$$

$$x = 9000$$

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S5. Ans.(c)

Sol.

$$\frac{(1.\bar{3})^3 - 1}{(1.\bar{3})^3 + 1} = \frac{\left(1\frac{3}{9}\right)^3 - 1}{\left(1\frac{3}{9}\right)^3 + 1} = \frac{37}{91}$$

S6. Ans.(b)

Sol.

$$0.7 + \sqrt{0.16} = 1.1 \text{ and } \sqrt{1.44} = 1.2$$

$$1.02 - \frac{0.6}{24} = 0.995, \quad 1.2 \times 0.83 = 0.976 \text{ so,}$$

$$\text{Largest no.} = 1.2 = \sqrt{1.44}$$

S7. Ans.(c)

Sol.

$$\text{Req. value} = \sqrt{(1-2a)^2} + 3a$$

$$= 1 - 2a + 3a$$

$$= 1 + a$$

$$= 1.1039$$

We cannot write $\sqrt{4a^2 - 4a + 1} = 2a - 1$, because the value of $2a - 1$ is a negative no.

S8. Ans.(a)

Sol.

$$\text{Req. SUM} = \frac{12 \times 13 \times 25}{6} - 1^2 + 2^2 + 3^2 = 636$$

S9. Ans.(b)

Sol.

$$\text{S.I. in 12 years} = 32000 - 20000 = 12000$$

$$\text{SI In 1 year} = 12000/12 = 1000$$

$$\text{Rate of Interest} = \frac{1000}{20000} \times 100\% = 5\%$$

$$\text{Compound Interest in 2 years} = a + b + \frac{ab}{100} = 5 + 5 + \frac{5 \times 5}{100}$$

$$= 10.25 \%$$

$$\text{Amount at CI in 2 years} \Rightarrow 100 + 10.25 = 110.25\%$$

$$\text{Amount} = 20000 \times \frac{110.25}{100}$$

$$= 22050$$

S10. Ans.(a)**Sol.**

$$20 + 12 - \frac{20 \times 12}{100} = 29.6$$

Now,

$$70.4\% = 740$$

$$100\% = \text{Rs. } 1000$$

S11. Ans.(a)**Sol.**

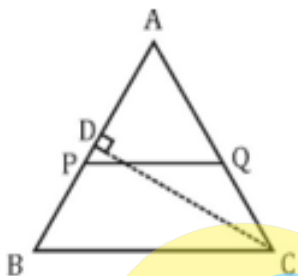
(A + B)'s efficiency = 7

Total (A + B + C)'s efficiency = 11

So, efficiency of C = 11 - 7 = 4

$$\text{Total work of 1 unit} = \frac{550}{11} = 50$$

$$\text{So, share of C} = 4 \times 50 = 200$$

S12. Ans.(d)**Sol.** $\Delta ABC,$

$$CD = 6 \text{ cm} \Rightarrow AD = 8 \text{ cm}$$

$$AC^2 = CD^2 + AD^2 \Rightarrow AC = 10 \text{ cm}$$

$$\text{So, } PQ = \frac{1}{2} \times AC = 5 \text{ cm}$$

S13. Ans.(b)**Sol.** S.P. = 500

$$\text{Ist discount} = 500 - (10\% \text{ of } 500) = 450$$

$$\text{IInd discount} = 450 - (10\% \text{ of } 450) = 405$$

S14. Ans.(a)**Sol.** Difference between price = 78 - 69 = 9

$$\text{So, CP} = 9 + 9 = 18$$

$$\text{So, C.P.} = 78 - 18 = 60$$

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S15. Ans.(a)

Sol.

$$100\% = \frac{574}{14} \times 100 = 4100$$

S16. Ans.(c)

Sol.

$$\text{Speed of train} = \frac{240}{16} \times \frac{18}{5} = 54 \text{ km/hr}$$

S17. Ans.(c)

Sol.

$$\begin{aligned} a(a^2 + 1) &= a^2 \\ a^3 + a &= (a - 1) \\ \therefore a^2 &= (a - 1) \Rightarrow a^3 = -1 \end{aligned}$$

S18. Ans.(a)

Sol.

$$x + 3y = -3x + y$$

$$4x = 2y$$

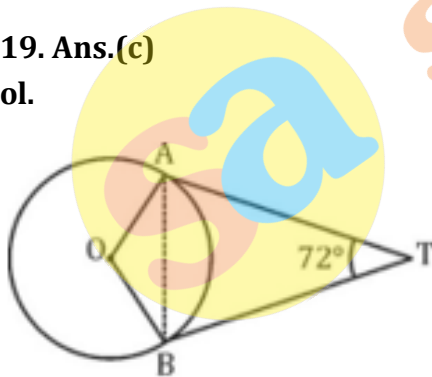
$$\frac{x}{y} = \frac{1}{2} \dots\dots\dots(i)$$

Squaring equation (i) and multiplied by $\frac{1}{2}$.

$$\frac{x^2}{2y^2} = \frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$$

S19. Ans.(c)

Sol.



Angle between tangent

$$\angle AOB = 180^\circ - 72^\circ \Rightarrow = 108^\circ$$

S20. Ans.(b)

Sol. Condition of triangle -

(i) $\angle A + \angle B > \angle C$

(ii) $\angle A - \angle B < \angle C$

Option (b) satisfy the triangle condition.

S21. Ans.(c)

Sol.

$$\sin \theta + \operatorname{cosec} \theta = 2 \Rightarrow \sin \theta + \frac{1}{\sin \theta} = 2,$$

$$\sin \theta = 1, \operatorname{cosec} \theta = 1$$

$$\sin^7 \theta + \operatorname{cosec}^7 \theta = \frac{1}{\operatorname{cosec}^7 \theta} + \operatorname{cosec}^7 \theta$$

$$\Rightarrow (1)^7 + (1)^7 = 2$$

S22. Ans.(a)

Sol. The number of cows = $[142 - (50 \times 2)] \div 2 = 21$

S23. Ans.(d)

Sol.

All students height = x. a

10 students height = 10.b

Remaining students height = $(x - 10).c$

ATQ,

$$10.b + (x - 10).c = x.a \Rightarrow x = \frac{10(b-c)}{(a-c)}$$

S24. Ans.(a)

Sol.

$$\frac{3 \cdot \sqrt{7}(\sqrt{5}-\sqrt{2})}{3} - \frac{5\sqrt{5}(\sqrt{7}-\sqrt{2})}{5} + \frac{2\sqrt{2}(\sqrt{7}-\sqrt{5})}{2}$$
$$= \sqrt{35} - \sqrt{14} - \sqrt{35} + \sqrt{10} + \sqrt{14} - \sqrt{10} = 0$$

S25. Ans.(c)

Sol.


Put $b = 1,$

$$(a - 7)^2 - a^2 = 0$$

by using option, $a = \frac{7}{2}$

satisfied the equation.

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