RRB ALP CBT - 1
Answers with Explanation–9

1. (B) $240 \times \dfrac{30}{100} + 2 \times 70$

 $= 72 + 140 = 212$

2. (C) $\angle BAC = 180 - (\angle ABD + \angle ACD)$

 $= 180 - (30 + 55)$

 $= 180 - 85 = 95°$

3. (C) Total Number of students = 72

 1 out of 3 student = $\dfrac{1}{3}$ = 33.33%

 We have to calculate $\dfrac{1}{3}$ of 72 students

 Minimum one student's spoken language out of three students = $\dfrac{72}{3} = 24$

 So 25 students speak Hindi.

4. (B) $\dfrac{4800}{80} = \dfrac{x}{120}$

 x = 7200

5. (C) ATQ,

 3.03 + 2.05 = 5.08

 3.03 ~ 2.05 = 0.98

 = 5.08 + 0.98 = 6.06

6. (A) Sin(45+A) – Cos (45–A)

 Sin(45+A) – Sin(90–(45–A)

 Sin(45+A) – Sin(45+A)= 0

7. (A)

8. (A) Total surface area =

 = 7×5+15×7+(15–8)×5 +(20–7)×8+(20–7)×5+5×8

 = 35+105+35+104+65+40

 = 384 cm^2

9. (A) R E W A R I
 +2 +2 +2 +2 +2 +2
 T G Y C T K

 Similarly,
 D E L H I
 +2 +2 +2 +2 +2
 F G N J K

10. (D) 317–243 = 74 Similarly 621 – 548 = 73

 74×3 = 222   73×3 = 219

11. (B) Floride is a major producer of Oranges.

 Similarly, Hawaii is the major producer of Pineapple.

12. (B) K I T [CAT] ⟶ CAT T I K

 In reverse order

 Similarly,

 P E N [TOP] ⟶ TOP N E P

 In reverse order
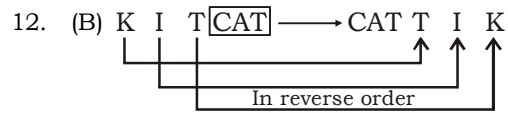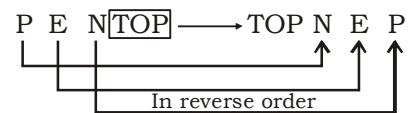
13. (D) In all the other pairs, second number is 23 more than the first number.

14. (D) All other numbers are perfect squares.

15. (C) D ↔ W;   H ↔ S

 Pairs of opposite letters

 B ↔ Y;   D ↔ W
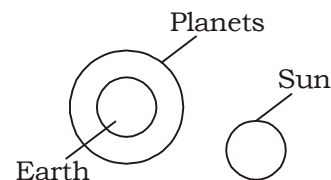
 E ↔ V;   J ↔ Q

 The opposite letter of C is X and that of F is U.

16. (C) After interchanging the digits 8 and 3 we have,

 24 ÷ 3 × 2 – 4 + 8

 = 8 × 2 – 4 + 8

 = 16 + 8 – 4

 = 24 – 4

 = 20

17. (C)

 Planets

 Sun

 Earth

 Earth is a planet. But, Sun is entirely different.

18. (C) Net ascent of the monkey in 1 hour

 = (30 – 20) feet

 = 10 feet

 So, the monkey ascends 90 feet in 9 hours i.e., till 5 : 00 pm

 Clearly, in the next 1 hour i.e., till 6 : 00 pm the monkey ascends remaining 30 feet to touch the flag.

19. (A) S K C O **R** S U P M A C D K

 3rd letter to left of 6th letter from right   6th letter from the right

20. (A) (16 × 2) + (5 × 6) = 32 + 30 = 62

 (2 × 19) + (21 × 5) = 38 + 105 = 143

 (17 × 4) + (51 × 3) = 68 + 153 = **221**

21. (C) The series is n<u>nmm</u>/n<u>n</u>mm/nn<u>m</u>m/nnm<u>m</u>.
Thus, the pattern 'nnmm' is repeated.

22. (A) The given sequence is a combination of two series.
First: M, O, R, V and Second: N, L, I, E
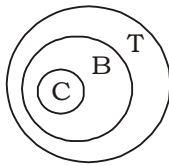The pattern in First is

$$M \xrightarrow{+2} O \xrightarrow{+3} R \xrightarrow{+4} V \xrightarrow{+5} \boxed{A}$$

The pattern in Second is

$$N \xrightarrow{-2} L \xrightarrow{-3} I \xrightarrow{-4} E$$

So, the missing letter is A.

23. (A) All follows

I. ✔
II. ✔
III. ✔

24. (C) The given sequence is a combination of two series
I. 13, 24, 35, 46, 57
and II. 32, 43, ?, 65, 76
The pattern in both I and II is +11.
So, missing term = 43 + 11 = **54**

25. (B) W < Y < P $\leq$ O < I
I. Y $\leq$ I → False
II. O > W → True
Only II is true

26. (B) Deepu's new position is 17th from the left and 13th from the right.
So, number of children in the row
= (16 + 1 + 12) = 29
Now, Kashish's new position is
Deepti's earlier position which is 9th from the left.
Number of children to the right of Kashish
= (29 – 9) = 20
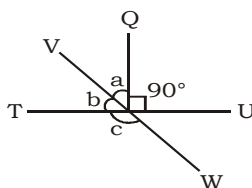Hence, Kashish's new position from the right is 21st.

27. (C) The LCM of 12, 18, 21, 30

$$
\begin{array}{r|rrrr}
2 & 12, & 18, & 21, & 30 \\
\hline
3 & 6, & 9, & 21, & 15 \\
\hline
& 2, & 3, & 7, & 5
\end{array}
$$

∴ LCM = 2 × 3 × 2 × 3 × 7 × 5 = 1260

∴ The required number = $\dfrac{1260}{2}$ = 630

28. (D)

∠a = 36°
∠b = 54°

∴ value of ∠c = 180° – ∠54
∠c = 126°

29. (B) Given 5N = 15R
N : R = 3 : 1
& 10R = 20K
R : K = 2 : 1

$$
\begin{array}{ccc}
N & : \ R \ : & K \\
3 & : \quad 1_{\times 2} \\
& \quad 2 \ : & 1 \\
\hline
6 & : \quad 2 \ : & 1_{\times 2000} \\
\end{array}
$$

Nitya's income $\boxed{12000}$ $\xleftarrow{\times 2000}$ ... 2000

30. (C) AB|| CD||PQ (Given)
Let AB = a, PQ = b, CD = c

$$\therefore \frac{1}{b} = \frac{1}{a} + \frac{1}{c}$$

$$\Rightarrow \frac{1}{b} = \frac{1}{12} + \frac{1}{18}$$

$$\Rightarrow \frac{1}{b} = \frac{3+2}{36}$$

$$\Rightarrow \frac{1}{b} = \frac{5}{36} \Rightarrow b = \frac{36}{5} \text{ cm}$$

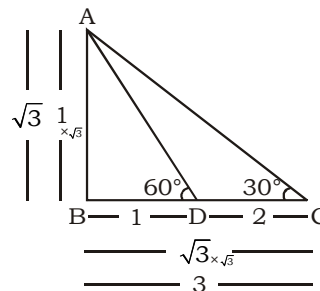31. (D) Given $\dfrac{P^2 - 4P + 4}{4P} = 8$

$$= \frac{P^2 - 4P + 4}{P} = 32$$

$$= \frac{P^2}{P} - \frac{4P}{P} + \frac{4}{P} = 32$$

$$\Rightarrow P - 4 + \frac{4}{P} = 32$$

$$= P + \frac{4}{P} = 36$$

32. (A) **Short-trick:-**

∵ AB = $\sqrt{3}$ = 30 given

$\therefore$ CD = $\dfrac{30}{\sqrt{3}}$ × 2

= $20\sqrt{3}$

33. (A) $\because$ $x = \dfrac{1}{y}$

$\therefore x + \dfrac{1}{x} = 4$

ATQ,

$\dfrac{x^2 + y^2}{x^3 + y^3} = \dfrac{x^2 + \dfrac{1}{x^2}}{x^3 + \dfrac{1}{x^3}} = \dfrac{14}{52} = \dfrac{7}{26}$

34. (C) Let $a = b = c = 2$, then $2s = 6$

s = 3

$\therefore (s - a)^3 + (s - b)^3 + 3(s - a)(s - b)c$

= $(3 - 2)^3 + (3 - 2)^3 + 3(3 - 2)(3 - 2) \times 2$

= $1 + 1 + 3 \times 2 = 8$

= c^3

35. (A) $\sqrt{8} + 2\sqrt{32} - 3\sqrt{128} + 4\sqrt{50}$

= $2\sqrt{2} + 8\sqrt{2} - 3 \times 8\sqrt{2} + 4 \times 5\sqrt{2}$

= $2\sqrt{2} + 8\sqrt{2} - 24\sqrt{2} + 20\sqrt{2}$

= $(2 + 8 - 24 + 20)\sqrt{2}$

= $6\sqrt{2} = 6 \times 1.414 = 8.484$

36. (D) Let the total spendings on sports be Rs. x. Then,

Amount spent on Golf = Rs. $\left(\dfrac{36}{360} \times x\right)$ = Rs. $\dfrac{x}{10}$.

Amount spent on Hockey = Rs. $\left(\dfrac{63}{360} \times x\right)$

= Rs. $\dfrac{7}{40} x$.

Difference = Rs. $\left(\dfrac{7}{40} x - \dfrac{x}{10}\right)$ = Rs. $\dfrac{3x}{40}$

$\therefore$ Required Percentage

= $\left[\left(\dfrac{3x/40}{x/10}\right) \times 100\right]\%$ = 75%

37. (B) If 360° = 2 crore

then money spent on Cricket and Hockey =

$(63+81)° \times \dfrac{2}{360}$

= $144 \times \dfrac{2}{360} = \dfrac{24}{30} = \dfrac{4}{5}$ crore

= 80 lakh

= 80,00,000 Rs.

38. (D) Assume $\theta = 45°$

then 4 m = 1 × $\left(1 + \dfrac{1}{\sqrt{2}}\right)$

$m = \dfrac{\sqrt{2}+1}{4\sqrt{2}}$ and $n = \dfrac{\sqrt{2}-1}{4\sqrt{2}}$

$\therefore m^2 - n^2 = \dfrac{1}{32}[(\sqrt{2}+1)^2 - (\sqrt{2}-1)^2]$

= $\left[\dfrac{1}{32}(4\sqrt{2})\right] = (m^2 - n^2) = \dfrac{1}{32}$

from options-

$mn = \dfrac{\sqrt{2}+1}{4\sqrt{2}} \cdot \dfrac{\sqrt{2}-1}{4\sqrt{2}} = \dfrac{1}{32}$

$\therefore (m^2 - n^2) = mn$

RRB ALP - 09 (ANSWER KEY)

1.	(B)	18.	(C)	35.	(A)	52.	(D)	69.	(B)
2.	(C)	19.	(A)	36.	(D)	53.	(C)	70.	(A)
3.	(C)	20.	(A)	37.	(B)	54.	(A)	71.	(C)
4.	(B)	21.	(C)	38.	(D)	55.	(B)	72.	(C)
5.	(C)	22.	(A)	39.	(C)	56.	(B)	73.	(B)
6.	(A)	23.	(A)	40.	(B)	57.	(A)	74.	(A)
7.	(A)	24.	(C)	41.	(D)	58.	(A)	75.	(D)
8.	(A)	25.	(B)	42.	(B)	59.	(D)		
9.	(A)	26.	(B)	43.	(B)	60.	(A)		
10.	(D)	27.	(C)	44.	(A)	61.	(C)		
11.	(B)	28.	(D)	45.	(B)	62.	(B)		
12.	(B)	29.	(B)	46.	(A)	63.	(A)		
13.	(D)	30.	(C)	47.	(B)	64.	(B)		
14.	(D)	31.	(D)	48.	(D)	65.	(A)		
15.	(C)	32.	(A)	49.	(D)	66.	(C)		
16.	(C)	33.	(A)	50.	(A)	67.	(B)		
17.	(C)	34.	(C)	51.	(A)	68.	(B)		