

**RRB ALP CBT-1**  
**Answers with Explanation-14**

1. (A) S.P. = 66, Loss = 11, CP = 77

$$\text{Loss \%} = \frac{11}{77} \times 100 = 14 \frac{2}{7} \%$$

2. (B)  $pq + qr + rp = 0$

$$\Rightarrow \begin{aligned} -qr &= pq + rp && \dots(i) \\ -pq &= qr + rp && \dots(ii) \\ -rp &= pq + qr && \dots(iii) \end{aligned}$$

$$\frac{p^2}{p^2 - qr} + \frac{q^2}{q^2 - rp} + \frac{r^2}{r^2 - pq}$$

$$\Rightarrow \frac{p^2}{p^2 - rp + pq} + \frac{q^2}{q^2 - pq + qr} +$$

$$\frac{r^2}{r^2 - qr + rp}$$

$$\frac{p+q+r}{p+q+r} = 1$$

3. (B) Let the daily sale be ` 100

Then,

$$100 \times \frac{75}{100} \times \frac{130}{100} = 97.5$$

$$= 2 \frac{1}{2} \% \text{ decrease}$$

4. (C) Let the present age of Ram and Shyam be  $4x$  and  $5x$  years

After 5 years

$$\frac{4x+5}{5x+5} = \frac{5}{6}$$

$$\Rightarrow 24x + 30 = 25x + 25$$

$$\Rightarrow x = 5$$

Present age of Ram =  $4 \times 5 = 20$  years

5. (B)  $(4 \times 4 - 3 \times 5)\%$  of sum = 80

100% of sum = 8000

6. (B)  $\sec \theta - \cos \theta = \frac{3}{2}$

$$\Rightarrow \sec \theta - \frac{1}{\sec \theta} = \frac{3}{2}$$

$$\Rightarrow \frac{\sec^2 \theta - 1}{\sec \theta} = \frac{3}{2}$$

$$\Rightarrow 2\sec^2 \theta - 2 = 3\sec \theta$$

$$\Rightarrow 2\sec^2 \theta - 3\sec \theta - 2 = 0$$

$$\Rightarrow 2\sec^2 \theta - 4\sec \theta + \sec \theta - 2 = 0$$

$$\Rightarrow (\sec \theta - 2)(2\sec \theta + 1) = 0$$

$$\sec \theta = 2 \text{ or } \sec \theta = -\frac{1}{2}$$

$\theta$  is positive acute angle.

So,  $\sec \theta = 2$

7. (C)  $x + y + z = 6 = 1 + 2 + 3$

$$(x-1) + (y-2) + (z-3) = 0$$

We know that if  $a + b + c = 0$

Then

$$a^3 + b^3 + c^3 = 3abc$$

$$\therefore (x-1)^3 + (y-2)^3 + (z-3)^3 = 3(x-1)(y-2)(z-3)$$

8. (C) If PQRS is cyclic quadrilateral

Then,

$$\angle S + \angle Q = 180^\circ$$

$$\angle Q = 180^\circ - 130^\circ = 50^\circ$$

$\therefore$  (PRQ =  $90^\circ$ ) (Angle in a semicircle is right angle)

$$\angle RPQ = 180^\circ - 90^\circ - 50^\circ = 40^\circ$$

9. (D) Let the current age of elder brother =  $x$

Then,

The current age of younger brother =  $x - 8$

After 10 years

Age of elder brother =  $x + 10$

Age of younger brother =  $x - 8 + 10 = x + 2$

ATQ,

$$\therefore x + 10 + x + 8 = 2(x + x - 8)$$

$$\Rightarrow 2x + 12 = 2(2x - 8)$$

$$\Rightarrow 2x + 12 = 4x - 16$$

$$\Rightarrow 2x = 28$$

$$\Rightarrow x = 14$$

So we have

Age of elder brother = 14 years

Age of younger brother =  $14 - 8 = 6$  years

$$\text{Required ratio} = \frac{6}{14} = 3 : 7$$

10. (A) L.C.M. of 2, 3 and 5 = 30

$$\therefore \text{Required Number} = 30 + 1 = 31$$

11. (B) Number of people who have saving habit

$$= 2500 \times \frac{60}{100} = 1500$$

% of share holders =  $(100 - 30\% - 32)\%$

= 38%

∴ Required number =  $1500 \times \frac{38}{100} = 570$

12. (D)

	1	50-P	25-P	
Number	5	6	8	
Value	5	3	2 = 10	
			↓ × 24	
			240	
				Number of 25-P coins = $8 \times 24 = 192$

13. (B) Required ratio = 50 : 10 or 5 : 1

14. (A) Area of square = 88 cm<sup>2</sup>

So, Perimeter of square =  $4\sqrt{88}$  cm

∴ Circumference of the circle =  $4\sqrt{88}$

$$2\pi r = 4\sqrt{88}$$

$$r = \frac{4\sqrt{88}}{2\pi}$$

∴ Area of circle =  $\pi r^2 = \pi \times \left(\frac{2\sqrt{88}}{\pi}\right)^2$

$$= \pi \times \frac{2 \times 2 \times 88}{\pi \times \pi} = \frac{4 \times 88 \times 7}{22} = 112 \text{ cm}^2$$

15. (A)  $\sin \theta = 1 - \sin^2 \theta = \cos^2 \theta$

$$\cos^2 \theta + \cos^4 \theta$$

$$\Rightarrow \sin \theta + (\sin \theta)^2$$

$$\Rightarrow \sin \theta + \sin^2 \theta$$

$$\Rightarrow 1 \text{ (given)}$$

16. (C) Let the C.P. of retailer be 100%.

Marked Price = 150%

$$\text{S.P} = 150 \times \frac{75}{100} = \frac{225}{2} \%$$

$$\text{Actual profit} = \frac{225}{2} \% - 100\% = \frac{25}{2} \% = 12 \frac{1}{2} \%$$

17. (A) Let the first number be x.

$$x + x + 1 + x + 2 + x + 3 + x + 4 = 5 \times a$$

$$5x = 5a - 10$$

$$x = a - 2 \dots\dots\dots(i)$$

$$\Rightarrow 5x + 10 + x + 5 + x + 6 + x + 7 + x + 8 = 9x + 36$$

Average of 9 numbers

$$= \frac{9(x + 4)}{9} = x + 4$$

So, average of 9 numbers

$$\Rightarrow x + 4 = a - 2 + 4 = a + 2 \text{ or 2 more.}$$

18. (C) Let the number be x and (184 - x) then,

$$\frac{x}{3} - \frac{(184 - x)}{7} = 8$$

$$\Rightarrow 7x - 3(184 - x) = 168$$

$$\Rightarrow 10x = 720$$

$$x = 72$$

$$\Rightarrow (184 - x) = 184 - 72 = 112$$

∴ Smaller number is 72.

19. (B) Work done by the leak in one hour

$$= \frac{1}{3} - \frac{1}{7} \text{ unit}$$

$$= \frac{7 - 6}{21} \text{ unit}$$

$$= \frac{1}{21} \text{ unit}$$

So, leakage will take 21 hours to empty tank.

20. (D) Monday to Wednesday = 37 × 3

Tuesday to Thursday = 34 × 3

Monday - Thursday = 3 (37 - 34)

Monday - Thursday = 9°C

Monday -  $\frac{4}{5}$  Monday = 9°C

Monday = 45°

Thursday = 45 - 9 = 36°C

21. (B) As, JY ⇒ 35

$$10 + 25$$

Similarly, R T ⇒ **38**

$$18 + 20$$

22. (B) A D ⇒ N

$$1 \quad 4 \quad 14$$

Similarly,

$$\frac{B}{2} \quad D \Rightarrow \mathbf{X}$$

$$4 \quad 24$$

23. (A) As, 97 ⇒ 9 - 7 = 2

Similarly, 84 ⇒ 8 - 4 = 4

24. (D) Except olr, others have vowel at first and last position.

25. (C) 2691 ⇒ 2 + 6 + 9 + 1 = 18

$$9900 \Rightarrow 9 + 9 + 0 + 0 = 18$$

$$\mathbf{5632} \Rightarrow 5 + 6 + 3 + 2 \neq 18$$

$$2790 \Rightarrow 2 + 7 + 9 + 0 = 18$$

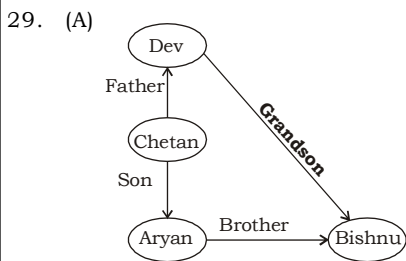
26. (A) Except 308, others are multiple of '12'.

27. (C) As, T O M A T O

↓ ↓ ↓ ↓ ↓ ↓  
0 2 3 4 0 2  
and, O R I O N L  
↓ ↓ ↓ ↓ ↓ ↓  
2 7 5 2 6 9

Similarly,  
**N O R M A L**  
↓ ↓ ↓ ↓ ↓ ↓  
**6 2 7 3 4 9**

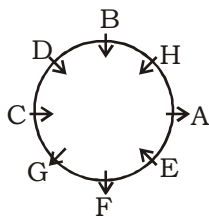
28. (A)  $104 \times 13 + 9 - 5 \div 6$   
After changing the signs as per the given details,  
 $104 \div 13 - 9 \times 5 + 6$   
 $= 8 - 45 + 6 = - 31$



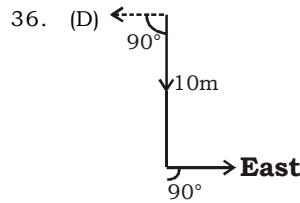
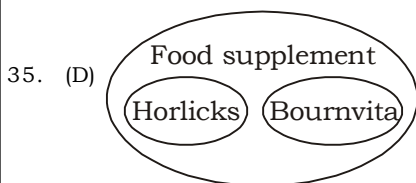
(30-31) :



30. (B) Only conclusion II follows.  
केवल निष्कर्ष II अनुसरण करता है।
31. (A) Only conclusion I follows.  
केवल निष्कर्ष I अनुसरण करता है।



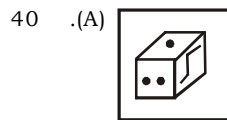
32. (B) G is immediate neighbour of F and C
33. (D) A and G are both the persons not facing the centre.
34. (C)  $6 + 7 + 3 = 16$   
 $10 + 2 + 4 = 16$   
 $9 + 1 + 6 = 16$



- ∴ Required direction = East
37. (A) abbc / accb / abbc
38. (C) Nature → Nest → News → Numeric
39. (B) As, ~~N A T I O N A L~~

~~O N A L N A T I~~

Similarly, ~~Z E N I T H~~  
~~I T H Z E N~~



**RRB ALP - 14 (ANSWER KEY)**

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