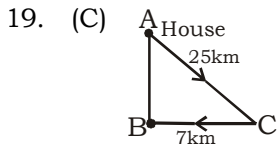
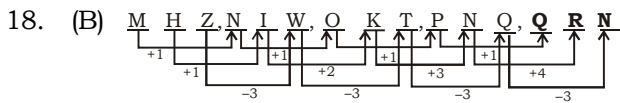


RRB ALP CBT-1
Answers with Explanation-8

1. (A) $\sec \theta = 5x$
 $\sec^2 \theta = 25x^2$
 $\tan \theta = \frac{5}{x}$
 $\tan^2 \theta = \frac{25}{x^2}$
 ATQ,
 $10 \left[x^2 - \frac{1}{x^2} \right] = 10 \left[\frac{\sec^2 \theta}{25} - \frac{\tan^2 \theta}{25} \right]$
 $= \frac{10}{25} (\sec^2 \theta - \tan^2 \theta) = \frac{2}{5}$
2. (A)
3. (A)
- | | | | |
|-----|-----|-----|-----|
| A | C | D | F |
| +6↓ | +6↓ | +6↓ | +6↓ |
| G | I | J | L |
| +6↓ | +6↓ | +6↓ | +6↓ |
| M | O | P | R |
| +6↓ | +6↓ | +6↓ | +6↓ |
| S | U | V | X |
4. (D) 5, 12, 26, 54, 110, 222, 446,
(×2+2) (×2+2) (×2+2) (×2+2) (×2+2) (×2+2)
5. (A) $\cot 15^\circ + \tan 15^\circ$
 $= \frac{\cos 15^\circ}{\sin 15^\circ} + \frac{\sin 15^\circ}{\cos 15^\circ}$
 $= \frac{\cos^2 15^\circ + \sin^2 15^\circ}{\sin 15^\circ \cos 15^\circ} = \frac{1}{\sin 15^\circ \cos 15^\circ}$
 multiplying and dividing by 2 in equation
 $\frac{2}{2 \sin 15^\circ \cos 15^\circ} = \frac{2}{\sin 30^\circ} = \frac{1}{\frac{1}{2}} = 4$
6. (C) Rate = R%
 ATQ,
 $\frac{7200 \times R \times 3}{100} + \frac{8400 \times R \times 4}{100} = 4968$
 $72R + 112R = 1656$
 $R = 9\%$
7. (A)
8. (C)
- | | | |
|--------|--------|-------|
| Reeta | Tina | Priya |
| ↙ | ↓ | ↘ |
| Madhu | | Vijay |
| ↙ | ↑ | ↘ |
| Sharda | Urmila | Neeta |
- Reeta, Neeta -----

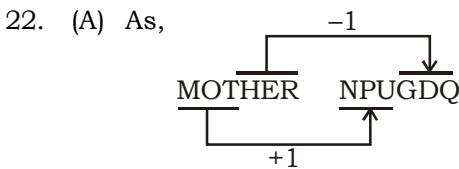
9. (C)
10. (C)
- | | | | | | | | |
|---|---|---|---|---|---|---|---|
| V | A | G | A | B | O | N | D |
| N | D | V | A | B | O | G | A |
- Similarly,
- | | | | | | | | |
|---|---|---|---|---|---|---|---|
| P | R | A | C | T | I | C | E |
| C | E | P | R | T | I | A | C |
11. (A)
- | | | |
|----|---|----|
| 9 | + | 9 |
| 17 | + | 8 |
| 25 | + | 16 |
| 41 | + | 8 |
| 49 | + | 8 |
| 57 | + | 16 |
12. (D)
13. (D) All are metal except steel.
14. (C)
- | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|
| D | 4 | C | 3 | B | 2 | A | 1 |
| +4↓ | +4↓ | +4↓ | +4↓ | +4↓ | +4↓ | +4↓ | +4↓ |
| H | 8 | G | 7 | F | 6 | E | 5 |
- Similarly,
- | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|
| L | 12 | K | 11 | G | 10 | I | 9 |
| +4↓ | +4↓ | +4↓ | +4↓ | +4↓ | +4↓ | +4↓ | +4↓ |
| P | 16 | O | 15 | K | 14 | M | 13 |
15. (B) As,
- | | |
|---------------|---------------|
| <u>GROUPS</u> | <u>ITOWRU</u> |
| +2 | |
- Similarly,
- | | |
|---------------|---------------|
| <u>SECOND</u> | <u>UGEOPF</u> |
| +2 | |
16. (C) As, R E A D E R
 1 2 3 4 2 1
 and, D I R T Y
 4 9 1 7 8
 Similarly, **D E A R E R**
4 2 3 1 2 1
17. (A)
- | | | |
|--------|---------|--------|
| | Brother | Sister |
| ○ | + | ○ |
| ↑ | | ↓ |
| Mother | | Son |
| ○ | | ○ |
| ↔ | | ↔ |
| Girl | | Boy |
| ○ | | |
| Cousin | | |



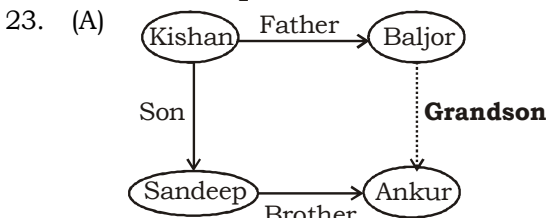
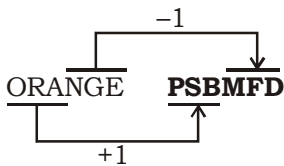
In ΔABC ,
 $AB^2 = 25^2 - 7^2$
AB = 24 km

20. (D) $wxyz / wxyz / wxyz$

21. (D) Examination \rightarrow Expenditure
 \rightarrow Experience \rightarrow Explicit



Similarly,



24. (C) Let the side of the square be x .

Then, $(\sqrt{2}x)^2 = (12\sqrt{2})^2$
 $\Rightarrow x = 12$

Now, perimeter of equilateral triangle

$= 12 \times 4 = 48 \text{ cm}$

Side of equilateral triangle

$= \frac{48}{3} = 16 \text{ cms}$

Area of equilateral triangle

$= \frac{\sqrt{3}}{4} \times (16)^2 = 64\sqrt{3} \text{ cm}^2$

25. (B) Required time = LCM of 18, 24 and 32 = 288 seconds.

26. (D) Total age of Rahul, Manish and Suresh = $63 \times 3 = 189$ years

Let the age of Manish be x years.

\therefore Rahul's age = $(x + 10)$ years

\therefore Suresh's age = $(x + 10 + 7)$ years

ATQ, $\quad \quad \quad = (x + 17)$ years

$x + x + 10 + x + 17 = 189$

$\Rightarrow 3x + 27 = 189 \Rightarrow 3x = 162 \Rightarrow x = 54$

\therefore Sum of ages of Manish and Suresh
 $= x + x + 17 = 2x + 17 = 2 \times 54 + 17$
 $= 125$ years

27. (C) Side of the square = $\sqrt{1024} = 32 \text{ cm}$.

\therefore Length of rectangle = $2 \times 32 = 64 \text{ cm}$.
 Breadth of rectangle
 $= 32 - 12 = 20 \text{ cms}$.

\therefore Required ratio = $64 : 20 = 16 : 5$

28. (D) Let the no. of 2 rupee coins is $6x$ and no. of 5 Rupees coin is $11x$. If the no. of 5 rupees coins is halved, then he will have an amount of ₹ 395

ATQ,

$6x \times 2 + \left(\frac{11}{2}x\right)5 = 395$

$\Rightarrow 39.5x = 395 \Rightarrow x = 10$

\therefore No. of 2 rupees coins that Shweta has = $6x = 6 \times 10 = 60$

29. (C) Total marked Price of article

$= 25 \times 45 = ₹ 1125$

Selling Price (Giving 10% discount)

$= \frac{90}{100}$ of 1125 = ₹ 1012.5

CP = $\frac{1012.50}{150} \times 100 = ₹ 675$

Now the selling price is ₹1125 then profit = $1125 - 675 = ₹ 450$

% profit = $\frac{450}{675} \times 100 = 66\frac{2}{3}\%$

30. (C) R.I = $5\% = \frac{1}{20}$

ATQ,

$\left(\frac{21}{20}\right)^3$ Sonu = $\left(\frac{21}{20}\right)^5$ Shyam

$\frac{\text{Sonu}}{\text{Shyam}} = \left(\frac{21}{20}\right)^2 = \frac{441}{400}$

Sonu gets = $\frac{441}{841} \times 2523 = ₹ 1323$

31. (B)

Number of working days = P : Q : R = 30 : 50 : 40

Each day salary = 4 : 3 : 2

Total Income = 120 : 150 : 80

Income of Q = 150

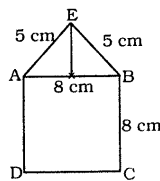
32. (D) Total failed candidates

$= 25x + 40x - 19x = 46x$

Passed in both subjects
 $= 100x - 46x = 54$
 Total no. of appeared candidates = $100x$
 $\therefore 54x = 972$
 $\therefore 100x = \frac{972}{54x} \times 100x = 1800$

33. (D) By question,
 $AE + AB + EB = 18 \text{ cm}$
 $AE + EB = 10 \text{ cm}$
 $AE = EB = 5 \text{ cm}$

$$EF = \sqrt{(5)^2 - (4)^2} = 3 \text{ cm}$$

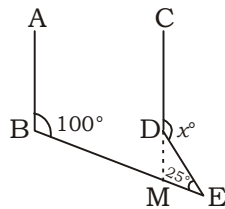


Now, area of the required figure = area of square + area of isosceles triangle

$$= 8 \times 8 + \frac{1}{2} \times 8 \times 3$$

$$= 64 + 12 = 76 \text{ cm}^2$$

34. (A)



$$\angle MDE = 180^\circ - (100 + 25) = 55^\circ$$

$$\angle CDE = 180^\circ - 55^\circ = 125^\circ$$

35. (C) Required Average
 $= \frac{(5+10+25+20+25+15) \times 1000}{6}$
 $= \frac{100000}{6} = 16666 \frac{2}{3}$

36. (D) Required %
 $= \frac{(X+Y+Z) \text{ in } 2007}{(X+Y+Z) \text{ in } 2008} \times 100$
 $= \frac{55 \times 1000}{60 \times 1000} \times 100 = 91.67\%$

37. (A) The required percentage = $\frac{10}{55} \times 100$
 $= 18.18\%$
 $= 18$ (approx)

38. (A) $\tan(5x - 10^\circ) = \cot(5y + 20^\circ)$
 $\tan(5x - 10^\circ) = \tan[90^\circ - (5y + 20^\circ)]$
 $\therefore 5x - 10^\circ = 90^\circ - 5y - 20^\circ$

$$\Rightarrow 5x - 10^\circ = 70^\circ - 5y^\circ$$

$$\Rightarrow 5x + 5y = 70 + 10 = 80^\circ$$

$$\Rightarrow x + y = \frac{80}{5} = 16^\circ$$

39. (A) According to question,

$$\text{SI for 10 years} = \frac{2000 \times 5 \times 10}{100}$$

$$= ₹ 1000$$

$$\text{Now, } P = ₹ 3000, A = ₹ 4000$$

$$\therefore \text{SI} = ₹ 1000$$

$$\text{Now, } T = \frac{1000 \times 100}{3000 \times 5}$$

$$= 6 \frac{2}{3} \text{ years}$$

$$\therefore \text{Total time} = 16 \frac{2}{3} \text{ years}$$

$$40. (C) \frac{x^2 + y^2}{x^2 - y^2} = \frac{\frac{36}{25} + 1}{\frac{36}{25} - 1} = \frac{61}{11}$$

RRB ALP - 08 (ANSWER KEY)

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