

ACE OF PACE (SOLUTION)

1. (B)

2. (B)

9, 19,.....89,90,91, .....99, 19 numbers of 2 digit contain 9. Similarly 19 3 digit numbers with first digit 1 contain 9 & so on. Additionally 900, 901, .....999, 100 numbers contain 9.

Total numbers containing 9 =  $9 \times 19 + 100 = 271$

$$1000 - 271 = 729$$

3. (B)

$$1 + 2 + 3 = 6, \quad 2 + 3 + 4 = 9, \dots, 32 + 33 + 34 = 99$$

$\therefore$  There are 32 numbers

4. (B)

$$\text{After time } t \text{ height } h_1 = \left(1 - \frac{t}{4}\right)$$

$$\text{After time } t \text{ height } h_2 = \left(1 - \frac{t}{5}\right)$$

$$\therefore 2h_1 = h_2 \Rightarrow 2\left(1 - \frac{t}{4}\right) = \left(1 - \frac{t}{5}\right)$$

$$1 = \frac{t}{2} - \frac{t}{5} \Rightarrow t = \frac{10}{3} = 3\text{hrs}20\text{ min s}$$

5. (C)

$$1 + 2 + \dots + n = n \frac{(n+1)}{2} \& \frac{n(n+1)}{2} = 1035 \text{ for } n = 45$$

6. (A)

First bucket :  $4W$  second bucket  $5M + 1W$

$$\text{First bucket : } 4W + \frac{1}{6} (5M + 1W)$$

$$\text{Second bucket : } \frac{5}{6} (5M + 1W)$$

$$\therefore \frac{5/6}{4 + \frac{1}{6}} = \frac{1}{5}$$

7. (D)

The line goes through the point  $(0, -2)$  &  $(2, 0)$

8. (C)

Put  $A = a^3$ ,  $B = b^3$

$$2197AB = (13ab)^3, (A - B)^9 = ((A - B)^3)^3, 4913B = (17b)^3$$

9. (C)

$$(a + b)^2 = a^2 + b^2 + 2ab \Rightarrow 1 = 2 + 2ab \Rightarrow ab = -\frac{1}{2}$$

$$a^3 + b^3 = (a + b)(a^2 + b^2 - ab) = 2.5$$

10. (A)

outlet pipe empties  $\frac{1}{12}$  of the pool on one hour. The inlet pipe fills  $\frac{1}{8}$  of the pool in one hour. Both pipe fill  $\frac{1}{8} - \frac{1}{12} = \frac{1}{24}$  in 1 hour.  $\therefore$  it takes 24 hours to fill the pool if both valves are open

11. (D)

$$44444 \times 99999 = 44444(100000 - 1) = 4444400000 - 44444 = 4444355556$$

12. (B)

$$2^{101} \times 5^{99} = 2^2 \times 10^{99} = 4 \text{ followed by 99 zeros}$$

13. (C)

$$2014^2 - (2014 - 2)(2014 + 2) = 2014^2 - 2014^2 + 2^2 = 4$$

14. (B)

$$\text{Here, } \sec A + \tan A = \frac{1}{p}$$

15. (D)

Cost of 1 litre of water = Rs 25 & 1L of syrup = Rs. 525

Let syrup in the mixture be (x) L & water be (1 - x)L

$$\text{Cost of 1L of mixture} = \frac{260 - 2 \times 5}{5} = \text{Rs}50$$

$$\therefore x \times 525 + (1 - x) \times 25 = 50$$

$$500x = 25 \Rightarrow x = \frac{1}{20} = 5\%$$

16. (A)

Let v be Shyam's speed.  $\therefore$  distance = 2 v

$$\therefore 2 \times v = (2 + 0.5) \times 50$$

$$\Rightarrow 2v = 125 \Rightarrow v = 62.5 \text{ kmph}$$

17. (D)

$$\frac{\frac{1}{4}\pi + 6\pi + 4\pi}{25\pi} = 0.41$$

18. (B)

$$\text{Side length of A \& B} = \frac{36\text{cms}}{3} = 12\text{cms}$$

Each edge of C is  $\left(\frac{1}{3}\right)^{\text{rd}}$  of edge of A  $\therefore$  edge of C = 4

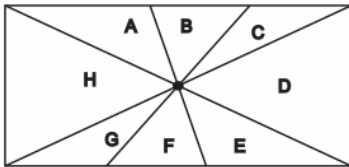
$$\therefore \text{perimeter of C} = 12 \times 4 = 48\text{cms}$$

19. (C)

$$\frac{1000-1}{36-3} = \frac{333}{11}$$

$\therefore$  x coordinates should increased by 11 units & y coordinates by 333 units

20. (D)



$$A = E, B = F, C = G \text{ and } A + B + C = D = H$$

21. (B)

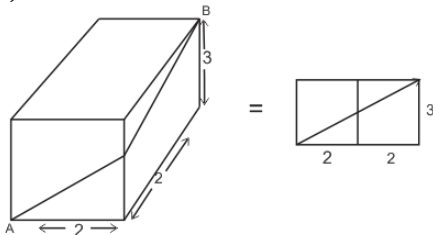
$$\frac{x}{4-x} = \frac{6}{4} \Rightarrow 4x = 24 - 6x$$

$$\Rightarrow x = 2.4$$

22. (D)

$$\begin{aligned} \text{Perimeter of 5 squares} &= 5 \times 4r = 20r \\ \text{Perimeter of 6 equilateral triangle} &= 6 \times 3r = 18r \\ \text{Perimeter of 2 circles with radius } r &= 2 \times 2\pi r = 12.56r \\ \text{Perimeter of 2 semicircle with radius } 2r &= 2 \times (\pi \times 2r + 4r) \\ &= 20.56 r \end{aligned}$$

23. (A)



$$\therefore \sqrt{3^2 + 4^2} = 5$$

24. (D)

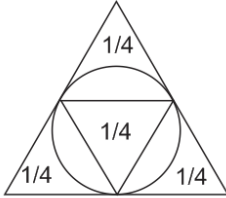
25. (A)

$$25, 49, 89, 145, 217, ? \quad 217 + 88 = 305$$

$\underbrace{\quad\quad}_{24} \quad \underbrace{\quad\quad}_{40} \quad \underbrace{\quad\quad}_{56} \quad \underbrace{\quad\quad}_{72} \quad \underbrace{\quad\quad}_{88}$   
 $4 \times 6 \quad 4 \times 10 \quad 4 \times 14 \quad 4 \times 18 \quad 4 \times 22$

26. (B)  
 $(0 + 2 + 6 + 4) - 3 = 10$   
 and  $(6 + 2 + 10 + 8) - 3 = 24$   
 Therefore,  $(4 + 14 + 12 + 10) - 3 = 37$

27. (C)  
 given figures is equivalent to



- 28 (D)

29. (B)  
 Take it from the box labeled “ gold & Silver” since you know all 3 boxes are mislabeled , the box contains either 2 golds or 2 silvers. Put correct label on that box after inspecting one of the coins from the box. Then simply switch the remaining 2 labels

30. (C)  
 (A)  $15 \times 0.6 + 30 \times 0.4 = 9 + 12 = 21, \frac{21}{45} < 0.5$   
 (B)  $20 \times 0.6 + 25 \times 0.4 = 12 + 10 = 22, \frac{22}{45} < 0.5$   
 (C)  $25 \times 0.6 + 20 \times 0.4 = 15 + 8 = 23, \frac{23}{45} > 0.5$   
 (D)  $10 \times 0.6 + 35 \times 0.4 = 6 + 14 = 20, \frac{20}{45} < 0.5$