

PACE-IIT & MEDICAL

MUMBAI / AKOLA / DELHI / KOLKATA / LUCKNOW / NASHIK / GOA / BOKARO / PUNE / NAGPUR

ACE OF PACE

MAIN (CODE - 11)

ANSWERS KEY

DATE: 23/12/2018

Question	Answer	Question	Answer
1	A	21	C
2	B	22	B
3	A	23	C
4	C	24	D
5	D	25	B
6	D	26	C
7	C	27	C
8	D	28	D
9	B	29	D
10	D	30	B
11	B	31	A
12	D	32	A
13	C	33	B
14	A	34	A
15	B	35	A
16	A		
17	A		
18	A		
19	A		
20	B		

**ACE OF PACE OBJECTIVE SECTION
(SOLUTION)**

1. (A)

$$B \cup C = \{1, 2, 3, 5, 6, 7\}$$

$$A - (B \cup C) = \{9\}$$

2. (B)

3. (A)

$$6 + 3 + 5 + 1 + 2 + 4 + 7 = 28$$

4. (C)

5. (D)

$$\sqrt[3]{\sqrt{64}} = \left((64)^{\frac{1}{2}} \right)^{\frac{1}{3}} = (64)^{\frac{1}{6}}$$

6. (D)

$$(x+3)(x-2) = 0 \quad \Rightarrow x = -3 \text{ or } x = 2$$

7. (C)

$$\begin{aligned} x = 3 \quad \Rightarrow \quad & 4(3^4) + 12(3)^3 - 11(3)^2 - 15(3) - 5 \\ & = 324 + 324 - 99 - 45 - 5 \\ & = 499 \end{aligned}$$

$$\begin{aligned} x = -2 \quad \Rightarrow \quad & 4(-2)^4 + 12(-2)^3 - 11(-2)^2 - 15(-2) - 5 \\ & = 64 - 96 - 44 + 30 - 5 \\ & = -51 \end{aligned}$$

$$\begin{aligned} x = 2 \quad \Rightarrow \quad & 4(2)^4 + 12(2)^3 - 11(2)^2 - 15(2) - 5 \\ & = 64 + 96 - 44 - 30 - 5 \\ & = 81 \end{aligned}$$

Which is a perfect square

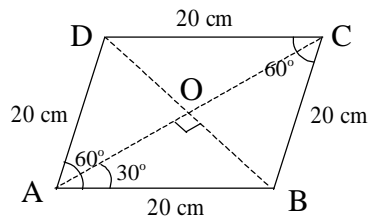
8. (D)

$$\text{If } m + n + p = 0$$

$$m^3 + n^3 + p^3 - 3mnp = 0$$

\therefore (D)

9. (B)



$$AO = 20 \cos 30 = 10\sqrt{3}$$

$$BO = 20 \sin 30 = 10$$

$$\therefore AC = 20\sqrt{3}$$

$$BD = 20$$

10. (D)

$$\angle ECD = 35^\circ + 25^\circ = 60^\circ$$

11. (B)

$$\text{Sum of angles of pentagon } (5-2) \times 180^\circ = 540^\circ$$

$$\therefore a + a + 20 + a + 40 + a + 60 + a + 80 = 540$$

$$5a + 200 = 540$$

$$a = 68^\circ$$

12. (D)

$$\angle B = \angle DEB = \angle DAE + \angle ADE = 70^\circ$$

$$x = 70^\circ + 20^\circ = 90^\circ$$

13. (C)

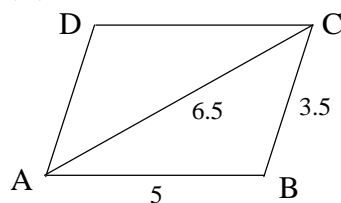
14. (A)

$$\angle POD = 5x$$

$$\therefore 5x + 3x + 2x = 10x = 180^\circ$$

$$\Rightarrow x = 18^\circ$$

15. (B)



$$S = \frac{6.5 + 3.5 + 5}{2} = \frac{15}{2}$$

$$\begin{aligned} \text{Ar}(\triangle ABC) &= \sqrt{7.5 \times 2.5 \times 4} \\ &= 0.2\sqrt{25 \times 25 \times 3} \\ &= 5\sqrt{3} \end{aligned}$$

$$\text{Ar}(\Delta ABCD) = 2 \times 5\sqrt{3} = 10\sqrt{3}$$

16. (A)

$$4a = 20 \quad \Rightarrow \quad a = 5 \text{ cm}$$

$$\frac{d_2}{2} = \sqrt{5^2 - \left(\frac{8}{2}\right)^2} = 3 \quad \Rightarrow \quad d_2 = 6$$

$$\therefore \text{Ar}(\text{Rhombus}) = \frac{1}{2} \times 8 \times 6 = 24$$

17. (A)

$$h = a \sin 60^\circ$$

\therefore If a is increased by 5% h will also increase by 5%

18. (A)

19. (A)

$$x^2 - 2px + 8p - 15 = 0$$

$$D = 0 \quad \Rightarrow \quad 4P^2 - 4(8P - 15) = 0$$

$$P^2 - 8P + 15 = 0$$

$$(P - 5)(P - 3) = 0$$

$$\Rightarrow \quad P = 5 \text{ or } 3$$

20. (B)

$$x = 0.\overline{163}$$

$$10x = 1.\overline{63} \quad \dots(i)$$

$$1000x = 163.\overline{63} \quad \dots(ii)$$

$$(ii) - (i)$$

$$990x = 162$$

$$x = \frac{162}{990} = \frac{9}{55}$$

21. (C)

If is not necessary that product of 2 irrational number is irrational.

$$\text{e.g. } \sqrt{3} \times \sqrt{3} = 3$$

22. (B)

$$(98.5)^2 - (1.5)^2 = 100 \times 97 = 9700$$

23. (C)

Let no. of

$$1 \text{ Rs. Coin} = 3x$$

$$50 \text{ Paise Coin} = 4x$$

$$25 \text{ Paise Coin} = 5x$$

$$\therefore 3x + 0.5 \times 4x + 0.25 \times 5x = 225$$

$$\therefore 6.25x = 225$$

$$5x = \frac{225}{1.25} = 180$$

24. (D)

25. (B)

Let initial price be Rs. 100

Price after 10% discount = Rs 90

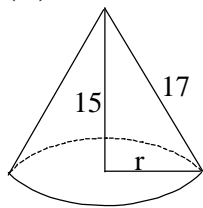
Price after 20% 2nd discount = Rs. 72

\therefore Net discount = Rs. 28

26. (C)

27. (C)

28. (D)



$$r^2 = 17^2 - 15^2 = 289 - 225 = 64$$

$$\therefore r = 8$$

29. (D)

30. (B)

$$\alpha + \beta = \frac{-b}{a} = 0$$

31. (A)

$$\frac{a}{b} + \frac{b}{a} - 2 = \left(\sqrt{\frac{a}{b}} - \sqrt{\frac{b}{a}} \right)^2$$

32. (A)

33. (B)

$$\tan \theta + \cot \theta = 3$$

$$\therefore \tan^2 \theta + \cot^2 \theta + 2 = 9$$

$$\Rightarrow \tan^2 \theta + \cot^2 \theta = 7$$

$$\Rightarrow (\tan \theta - \cot \theta)^2 + 2 = 7$$

$$\Rightarrow \tan \theta - \cot \theta = \sqrt{5}$$

Option (C) divide by $\cos \theta$

$$3 \tan \theta = 2 + 2 \tan^2 \theta$$

$$2 \tan^2 \theta - 3 \tan \theta + 2 = 0$$

Which is not possible

Option (D) divide by $\sin \theta$ $2 \cot \theta = 1 + \cot^2 \theta$

$$\Rightarrow \cot \theta = 1$$

Which doesn't satisfy equation.

34. (A)

$$m(a + (m-1)d) = n(a + (n-1)d)$$

$$(m-n)a + d(m^2 - m - n^2 + n) = 0$$

$$(m-n)a + (m-n)(m+n-1)d = 0$$

$$\Rightarrow a + (m+n-1)d = 0$$

Hence, $(m+n)^{\text{th}}$ term = 0

35. (A)

We rationalize the denominator of x :

$$x = \frac{11}{4-\sqrt{5}} \times \frac{4+\sqrt{5}}{4+\sqrt{5}} = \frac{11(4+\sqrt{5})}{16-5}$$

$$= 4 + \sqrt{5}$$

$$\Rightarrow x - 4 = \sqrt{5}$$

Now, we square both the sides of this relation we have obtained:

$$(x-4)^2 = 5 \Rightarrow x^2 - 8x + 16 = 5$$

$$\Rightarrow x^2 - 8x + 11 = 0$$