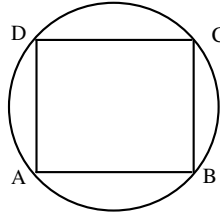


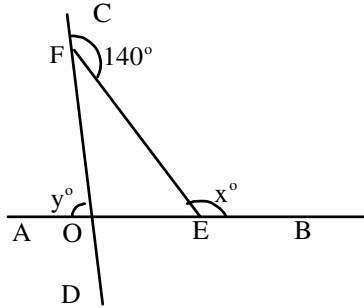
1. The farthest distance between 2 points on a cylinder of height 8 and radius 8 is  
 (A) 16 (B)  $8\sqrt{5}$  (C)  $8\sqrt{2}$  (D)  $8(2\pi+1)$
2. The area of region inside the circle but outside the square ABCD (all vertices on the circle) and radius of circle is 4 is



- (A)  $16(\pi-2)$  (B)  $16(\pi-4)$  (C)  $16\left(\pi-\frac{1}{2}\right)$  (D)  $16\pi$
3. If the radius of the sphere is reduced by 50%, then its volume is reduced by  
 (A) 50% (B)  $12\frac{1}{2}\%$  (C)  $87\frac{1}{2}\%$  (D) 25%
4. 
$$\frac{6.73 \times 6.73 \times 6.73 + 3.27 \times 3.27 \times 3.27}{6.73 \times 6.73 + 3.27 \times 3.27 - 6.73 \times 3.27} =$$
  
 (A) 1 (B) 4.46 (C) 10 (D) 11
5. Four equal circles are described about the four corners of a square so that each touches two of the others. The area enclosed between the circles is  $24/7$  sq. cm, find the radius of the circles.  $\left(\pi = \frac{22}{7}\right)$   
 (A) 1cm (B) 2cm (C) 3cm (D) 4 cm
6. The length of a rectangle is decreased by 1% and then breadth is increased by 1% then the area of the rectangle will  
 (A) remain the same (B) decreases by 1%  
 (C) decreases by 0.01% (D) increases by 1%
7. If  $x - \frac{1}{x} = 3$ , then the value of  $x^4 + \frac{1}{x^4}$  is  
 (A) 121 (B) 120 (C) 119 (D) 117
8. The distance between (1,2) and (-3,4) is  
 (A)  $2\sqrt{5}$  (B)  $2\sqrt{3}$  (C) 4 (D) None of these

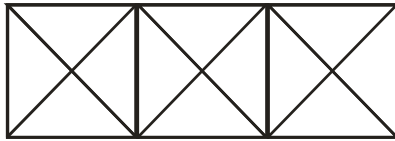
SPACE FOR ROUGH WORK

9. Consider the following figure The value of  $x + y$  is (in degrees)



- (A) 210                      (B) 220                      (C) 230                      (D) None of these

- 10.



How many triangles are there in the above figure?

- (A) 28                      (B) 24                      (C) 20                      (D) 16

11. If  $A + B = 90^\circ$  and  $A = 2B$ , then  $\cos^2 A + \sin^2 B =$

- (A) 1                      (B)  $\frac{1}{2}$                       (C) 0                      (D) 2

12. The value of  $\cos 1^\circ \cdot \cos 2^\circ \cdot \cos 3^\circ \dots \cos 90^\circ =$

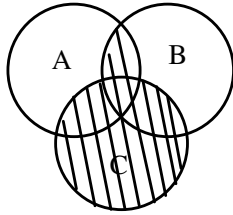
- (A) 1                      (B) 0                      (C) Infinity                      (D) None of these

13.  $(\sqrt{2}x + \sqrt{3}y) \div \frac{1}{(\sqrt{3}x + \sqrt{5}y)} =$

- (A)  $6x^2 + 13xy + 15y^2$                       (B)  $\sqrt{6}x^2 + \sqrt{10}xy + 3xy + 15y^2$   
 (C)  $\sqrt{6}x^2 + \sqrt{10}xy + 3xy + \sqrt{15}y^2$                       (D)  $6x^2 + 10xy + \sqrt{3}xy + \sqrt{15}y^2$

SPACE FOR ROUGH WORK

14. The shaded region represents



- (A)  $(A \cup B) \cap C$       (B)  $A \cap (B \cap C)$       (C)  $(A \cup B) \cup C$       (D)  $(A \cap B) \cup C$

15. The numerator of a fraction is 3 less than denominator. If numerator is added to the denominator then the fraction becomes  $\frac{2}{7}$ . The fraction is

- (A)  $\frac{3}{5}$       (B)  $\frac{1}{5}$       (C)  $\frac{2}{5}$       (D)  $\frac{4}{5}$

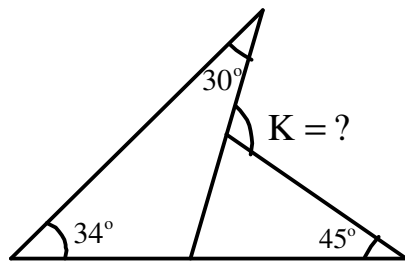
16. Find the roots of equation  $3^{x^2-1} + 3^{3-x^2} = 6$

- (A) 3, 0      (B) 2, -2      (C)  $\sqrt{2}, -\sqrt{2}$       (D)  $\sqrt{2}, 0$

17. Flower in a basket doubles every 10 minutes. The basket becomes full in 60 minutes. When was it  $\frac{1}{4}$  th full.

- (A) 40 min      (B) 50 min      (C) 25 min      (D) 15 min

- 18.



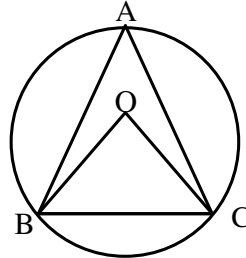
- (A)  $71^\circ$       (B)  $45^\circ$       (C)  $109^\circ$       (D) None of these

19. The value of  $\frac{2^{m+3} \times 3^{2m-n} \times 5^{m+n+3} \times 6^{n+1}}{6^{m+1} \times 10^{n+3} \times 15^m} =$

- (A) 10      (B)  $2^m$       (C) 1      (D) 2

SPACE FOR ROUGH WORK

20. Ten years ago a father was six times as old as his son. After ten years, he will be twice as old as his son. Present age of son is (in year)  
 (A) 15 (B) 30 (C) 40 (D) 35
21. The perimeter of the triangle of largest area which can be inscribed in a circle of radius 2cm is  
 (A)  $\sqrt{3}$  cm (B)  $3\sqrt{3}$  cm (C)  $6\sqrt{3}$  cm (D) none
22. Which of the following sets of numbers can be used as the lengths of the sides of the triangles?  
 (I) [5, 7, 12] (II) [2, 4, 10] (III) [5, 7, 9]  
 (A) I & II only (B) I, II & III (C) III only (D) I Only
23. The square root of  $m^2 + \frac{1}{m^2} + 2$  is (assuming m is positive);  
 (A)  $m + \frac{1}{m}$  (B)  $m - \frac{1}{m}$  (C)  $m^2 + \frac{1}{m^2}$  (D)  $m^2 - \frac{1}{m^2}$
24. The expression  $\frac{1}{\sqrt{5} - \sqrt{8} + \sqrt{3}}$  is written in a simplified form as  $a\sqrt{3} + b\sqrt{5} + c\sqrt{30}$  then value of  $6(a + b + c)$  is  
 (A) 2 (B) 3 (C) 4 (D) 5
25. In the following figure, O is the centre of circle. If  $\angle BAC = 30^\circ$  then  $\angle OBC$  is



- (A)  $30^\circ$  (B)  $40^\circ$  (C)  $50^\circ$  (D)  $60^\circ$
26. If '+' means 'x', '-' means '+', 'x' means ' $\div$ ', and ' $\div$ ' means '-', then  $16 - 9 + 18 \times 3 \div 20 =$   
 (A) 35 (B) 40 (C) 45 (D) None of these

SPACE FOR ROUGH WORK

27. The value of  $m$  for which  $y + m$  is a factor of  $y^3 + my^2 - 2y + m + 4$  is  
 (A)  $-\frac{4}{3}$                       (B) 2                      (C) -5                      (D)  $\frac{6}{7}$
28. If  $\alpha, \beta$  are zeros of  $x^2 - 3x + 2 = 0$ , then the value of  $\frac{\alpha}{\beta} + \frac{\beta}{\alpha}$  is  
 (A)  $\frac{2}{5}$                       (B)  $\frac{5}{2}$                       (C)  $\frac{3}{2}$                       (D)  $\frac{2}{3}$
29. If  $x + y + z = 0$ , then the value of  $\frac{x^2}{yz} + \frac{y^2}{zx} + \frac{z^2}{xy} = ?$   
 (A) -3                      (B) 0                      (C) 1                      (D) 3
30.  $\sec \theta + \tan \theta = \frac{1}{4}$ , then the value of  $\cos \theta = ?$   
 (A)  $\frac{8}{17}$                       (B)  $\frac{7}{17}$                       (C)  $\frac{5}{17}$                       (D)  $\frac{9}{17}$
31. An unbiased coin is tossed 5 times. The probability of getting Tail in 5<sup>th</sup> toss is equal to  
 (A)  $\frac{1}{5}$                       (B)  $\frac{1}{10}$                       (C)  $\frac{1}{2}$                       (D) None of these
32. The mean of the ungrouped data 1,1,8,3,6,1,1,8,8,1 is equal to  
 (A) 3.0                      (B) 3.3                      (C) 3.8                      (D) 3.9
33. Find the mode of the data 3,3,4,3,5,5,3,6,4,5,5,5,3,3  
 (A) 3                      (B) 4                      (C) 5                      (D) None of these
34. Find the next number in the series  $3, \frac{10}{3}, \frac{31}{9}, \frac{94}{27}, \frac{283}{81}, \text{---}$   
 (A)  $\frac{800}{283}$                       (B)  $\frac{840}{243}$                       (C)  $\frac{800}{243}$                       (D)  $\frac{850}{243}$

**SPACE FOR ROUGH WORK**

35. Given three lines in a plane which are not concurrent the total number of such circles which touch all the three circle is  
(A) 1 (B) 2 (C) 3 (D) 4
36. You are in a room with your 7 sisters. Each of your 7 sisters have 7 bags which consists of 7 adult cats each. Now each of the adult cat has seven little cats as well along with them. We know that each cat has four legs, can you find out the total number of legs in the room?  
(A) 10990 (B) 10992 (C) 12558 (D) 12560
37. A number when divided by 7 leaves a remainder of 5, when divided by 6 leaves a remainder of 4, when divided by 5 leaves a remainder of 3, when divided by 4 leaves a remainder of 2, when divided by 3 leaves a remainder of 1. The smallest natural number which satisfies the above condition is represented by x. find the sum of digits of x  $\rightarrow$ .  
(A) 9 (B) 11 (C) 12 (D) 13
38. A quadratic equation:  $x^2 + (-2a + 9)x + (a^2 - 11a + 10) = 0$  has distinct negative real roots. How many integral values does 'a' take?  
(A) 4 (B) 5 (C) 6 (D) 7
39. What is the values of  $\tan 7.5^\circ$ ?  
(A)  $2 - \sqrt{3}$  (B)  $\sqrt{6} - \sqrt{3} + \sqrt{2} - 2$   
(C)  $\sqrt{6} + \sqrt{3} - \sqrt{2} - 2$  (D)  $\sqrt{6} - \sqrt{3} - \sqrt{2} + 2$
40. What is the circumcentre of the triangle with vertices  $(-2, -3), (-1, 0), (7, -6)$ ?  
(A)  $(3, -3)$  (B)  $\left(\frac{7}{2}, \frac{-5}{2}\right)$  (C)  $\left(\frac{7}{2}, \frac{-7}{2}\right)$  (D)  $\left(\frac{5}{2}, \frac{-5}{2}\right)$
41. The circumference of the front wheel of a cart is 30ft long & that of the back wheel is 36 ft long. What is the distance travelled by the cart, when the front wheel has done five more revolution's than the rear wheel?  
(A) 750 ft (B) 900 ft (C) 1000 ft (D) 1200 ft
42. Two dice are thrown. What is the probability of obtaining a total of greater than 7?  
(A)  $\frac{1}{3}$  (B)  $\frac{7}{18}$  (C)  $\frac{5}{12}$  (D)  $\frac{1}{2}$

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SPACE FOR ROUGH WORK

43. The median of the observations (arranged in the ascending order). 11,12,14,18,  $-x^2 + 2x + 23, 2x^2 - 3x + 21, 33, 37, 41, 50$  is 25  
Find the value of x.  
(A) -2 (B) 3 (C) -3 (D) 2
44. Which of the following numbers is irrational?  
(A)  $0.\bar{3}$  (B)  $0.12341\bar{2}$  (C)  $\frac{22}{7}$  (D) none of these
45. The difference between compound & simple interest compounded annually on a certain sum of money for 2 years at 4% per annum is Re. 1. The sum (in Rs.) is  
(A) 625 (B) 650 (C) 600 (D) 575
46.  $\frac{(\sqrt{6} - \sqrt{5})}{(\sqrt{3} + 1)} \sqrt{(11 + 2\sqrt{30})} \cdot \sqrt{(4 + 2\sqrt{3})} \cdot 2^5 = 2^x$   
x = ?  
(A) 2 (B) 3 (C) 4 (D) 5
47. Which number comes next in the series.  
5      12      24      36      \_\_\_\_\_?  
(A) 48 (B) 52 (C) 56 (D) 64
48. If A = x% of y and B = y % of x, then which of the following is true?  
(A) If x is smaller than y, then A is greater than B  
(B) If x is smaller than y, then B is greater than A  
(C) A is equal to B  
(D) Relationship between A & B cannot be Determined.
49. Find the next number in the series 1, 0, 9, 64, 225, \_\_\_\_  
(A) 576 (B) 625 (C) 676 (D) 400
50. The units digit of the number  $(2017)^{2016}$  is  
(A) 7 (B) 9 (C) 3 (D) 1

**SPACE FOR ROUGH WORK**

# PACE IIT | MEDICAL

ANDHERI / BORIVALI / DADAR / THANE / POWAI / CHEMBUR / NERUL / KHARGHAR

## ACE OF PACE

ADVANCED (CODE - 01)

ANSWERS KEY

Question	Answer	Question	Answer
1	B	26	D
2	A	27	A
3	C	28	B
4	C	29	D
5	B	30	A
6	C	31	C
7	C	32	C
8	A	33	A
9	B	34	D
10	A	35	BONUS
11	B	36	B
12	B	37	D
13	C	38	C
14	D	39	B
15	C	40	A
16	C	41	B
17	A	42	C
18	C	43	B
19	C	44	D
20	A	45	A
21	C	46	D
22	C	47	B
23	A	48	C
24	A	49	A
25	D	50	D

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