

General Instructions:

1. This Question paper contains - Four sections A, B, C and D. Each section is compulsory.
2. Section A-Question 1 to 10 comprises of 10 questions of 1 mark each
3. Section B-Question 11 to 13 comprises of 03 Very Short Answer (VSA)-type questions of 2 marks each.
4. Section C-Question 14 to 17 comprises of 4 Short Answer (SA)-type questions of 3 marks each.
5. Section D-Question 18 to 20 comprises of 3 Long Answer (LA)-type questions of 4 marks each.

SECTION A

Q.1) The value of  $(64)^{\frac{1}{2}}$  is:

- (a) 10                      (b) 4                      (c) 8                      (d) 16

Q.2) A polynomial of degree two is called a quadratic polynomial. (True/False)

Q.3) A Linear polynomial has degree equal to:  
(a) 2                      (b) 0                      (c) 3                      (d) 1

Q.4)  $35y^2 + 13y - 12$  is a:  
(a) Linear Polynomial    (b) Not a polynomial    (c) Quadratic Polynomial    (d) Cubic Polynomial

Q.5) Two figures are congruent, if they are of the same shape and of the same size. (True/False)

Q.6) Two circles of the same radii are \_\_\_\_\_

Q.7) Each angle of an equilateral triangle is of \_\_\_\_°

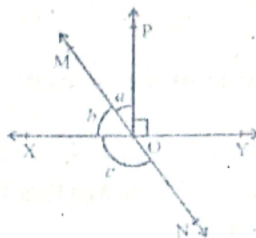
Q.8) In a parallelogram,  
(a) opposite sides are equal                      (b) opposite angles are equal  
(c) diagonals bisect each other                      (d) All of above

Q.9) Diagonals of a rectangle bisect each other and are equal. (True/False)

Q.10) Two squares of the same sides are congruent. (True/False)

### SECTION B

Q.11) In given figure, lines XY and MN intersect at O. If  $\angle POY = 90^\circ$  and  $a : b = 2 : 3$ , find c.



Q.12) ABC is an isosceles triangle with  $AB = AC$ . Draw  $AP \perp BC$  to show that  $\angle B = \angle C$ .

Q.13) If the diagonals of a quadrilateral bisect each other, then it is a parallelogram.

### SECTION C

Q.14) Find: (i)  $(64)^{\frac{1}{2}}$  (ii)  $(32)^{\frac{1}{5}}$  (iii)  $(125)^{\frac{1}{3}}$

Q.15) Factorize: (i)  $12x^2 - 7x + 1$  (ii)  $2x^2 + 7x + 3$

Q.16) If a transversal intersects two lines such that the bisectors of a pair of corresponding angles are parallel, then prove that the two lines are parallel.

Q.17) The line segment joining the mid-points of two sides of a triangle is parallel to the third side.

### SECTION D

Q.18) Find five rational numbers between  $\frac{3}{5}$  and  $\frac{4}{5}$ .

(OR)

Find five rational numbers between 1 and 2.

Q.19) Find the value of  $k$ , if  $x - 1$  is a factor of  $p(x)$  in each of the following cases:

(i)  $p(x) = x^2 + x + k$

(ii)  $p(x) = 2x^2 + kx + \sqrt{2}$

(OR)

Write  $(3a + 4b + 5c)^2$  in expanded form.

Q.20) In an isosceles triangle ABC, with  $AB = AC$ , the bisectors of  $\angle B$  and  $\angle C$  intersect each other at O. Join A to O. Show that: (i)  $OB = OC$  (ii) AO bisects  $\angle A$ .

(OR)

Show that the angles of an equilateral triangle are  $60^\circ$  each.



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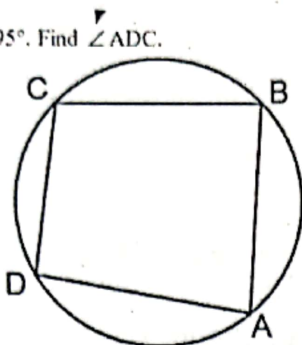
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SECTION A

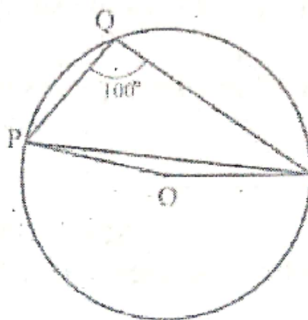
- Q.1) At what point the graph of the linear equation  $x + y = 5$  cuts the x-axis?
- Q.2) Which one of the following options is true,  $y = 3x + 5$  has  
(i) a unique solution, (ii) only two solutions, (iii) infinitely many solutions
- Q.3) The point of intersection of the axes is called the \_\_\_\_\_
- Q.4) The coordinates of a point on the x-axis are of the form  $(x, 0)$  (True/False)
- Q.5) The Centre of a circle lies in the \_\_\_\_\_ of the circle. (exterior/ interior)
- Q.6) The longest chord of a circle is a \_\_\_\_\_ of the circle.
- Q.7) If each side of an equilateral triangle is 5cm, then its perimeter is:  
(a) 10 (b) 15 (c) 5 (d) 20
- Q.8) Area of a triangle by Heron's formula is given by \_\_\_\_\_
- Q.9) Curved surface area of a cone is  
(a)  $\pi r l$  (b)  $2\pi r$  (c)  $\pi r^2$  (d)  $\pi r^2 h$
- Q.10) Class-mark = Upper limit + Lower limit (True/ False)

### SECTION B

Q.11) In the given figure,  $\angle ABC = 95^\circ$ . Find  $\angle ADC$ .



Q.12)  $\angle PQR = 100^\circ$ , where P, Q and R, are points on a circle with centre O. Find  $\angle OPR$ .



Q.13) The height and the slant height of a cone are 21 cm and 28 cm respectively. Find the volume of the cone.

### SECTION C

Q.14) Find the volume of the right circular cone with (i) radius 6 cm, height 7 cm (ii) radius 3.5 cm, height 12 cm.

Q.15) Find the area of a triangle, two sides of which are 8 cm and 11 cm and the perimeter is 32 cm.

Q.16) Find the value of k, if  $x = 2$ ,  $y = 1$  is a solution of the equation  $2x + 3y = k$ .

Q.17) Plot the following points on a graph paper: A (2, -5), B (8, 9), C (-5, 4), D (0, 0), E (-5, -3)

### SECTION D

Q.18) Find the total surface area of a cone, if its slant height is 21 m and diameter of its base is 24 m.

(OR)

Find the surface area of a sphere of radius: (i) 10.5 cm (ii) 5.6 cm (iii) 14 cm

Q.19) A random survey of the number of children of various age groups playing in a park was found as follows:

Age (in years)	Number of children
1-2	5
2-3	3
3-5	6
5-7	12
7-10	9
10-15	10
15-17	4

(OR)

Given below are the seats won by different political parties in the polling outcome of a state assembly elections:

Political Party	A	B	C	D	E	F
Seats Won	75	55	37	29	10	37

(i) Draw a bar graph to represent the polling results.

Q.20) If the non-parallel sides of a trapezium are equal, prove that it is cyclic.

(OR)

Prove that a cyclic parallelogram is a rectangle.

