

**MAX. Marks: 90**

**TIMES: 3 Hrs**

**General Instructions:**

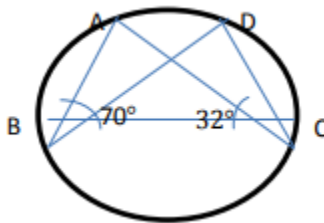
1. All questions are compulsory.
2. The question paper consists of 31 questions divided into four sections A, B, C and D. Section 'A' comprises of 4 questions of 1 mark each. Section 'B' comprises of 6 questions of 2 marks each. Section 'C' comprises of 10 questions of 3 marks each and section 'D' comprises of 11 questions of 4 marks each.
3. There is no overall choice in this question paper.
4. Use of calculator is not permitted.
5. 1 hour time is allotted to O.T.B.A

**SECTION – A**

- Q1. Write the equation of the line representing X axis  
Q2. Express  $4x - 1 = 3$  as a linear equation in two variables.  
Q3. What is name of a quadrilateral formed by joining the mid points of the sides of a rhombus?  
Q4. What is the sum of all the probabilities of an event?

**SECTION – B**

- Q5. Diagonals of a quadrilateral PQRS bisect each other. If  $\angle P = 40^\circ$  find  $\angle Q$ .  
Q6. In fig,  $\angle ABC = 70^\circ$ ,  $\angle ACB = 32^\circ$  Find  $\angle BDC$ .



- Q7. If the lateral surface area of a cylinder is  $94.2 \text{ cm}^2$  and its height is 5cm then find its radius of the base.  
take  $\pi = 22/7$   
Q8. Find the volume of a sphere whose surface area is  $154 \text{ cm}^2$ .  
Q9. Find the mean of first 5 prime numbers.  
Q10. In a throw of a die, what is the probability of getting an off prime number?

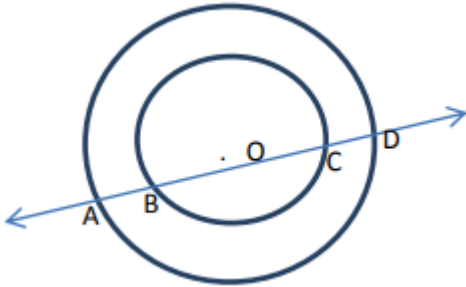
**SECTION – C**

- Q11. Find the solution of the linear equation  $3x - y = 4$  which represent a point on  
a) The x axis  
b) The y axis  
Q12. If (2,1) is a solution of the linear equation  $3x - 4y = K$  then find the value of K.

Q13. Show that the line segments joining the mid points of the opposite sides of a quadrilateral bisect each other.

Q14. In a triangle ABC, E is the mid-point of median AD. Show that  $ar\ BED = \frac{1}{4} ar\ (ABC)$

Q15. In this given fig, if a line intersects two concentric circles with center O at A, B, C and D,  
Prove that  $AB = CD$



Q16. The height of a cone is 16cm and its base diameter is 24cm. Find the curved surface area of the cone  
(use  $\pi = 3.14$ )

Q17. The capacity of a closed cylindrical vessel of height 1m is 15.4 liters. How many square meters of metal sheet would be needed to make it?

Q18. If the mean of the observations  $x, x+3, x+5, x+7, x+10$  is 9, find the mean of the last three observation.

Q19. The value of  $\pi$  upto 35 decimal places is given below  
3.14159265358979323846264338327950288  
Make a frequency distribution of the digits from 0 to 9 after the decimal point.

Q20. The blood groups of 20 students of a class are recorded as below

B, A, B, O, AB, O, A, AB, O, B, B, AB, AB, O, A, O, A, B, AB and O.

A student is selected at random. Find the probability that his blood group is

- (i) A
- (ii) B
- (iii) AB
- (iv) O

## SECTION – D

Q21. Draw the graph of the equation  $5x - 2y = 10$ .

Q22. The taxi fare in a city is as follows:- For the first kilometer, the fare is Rs20 and for the subsequent distance it is Rs.6 per km. taking  $x$  km as the distance covered and  $y$  as the total fare, write a linear equation for this information.

Q23. Construct a triangle ABC, in which  $\angle B = 60^\circ$ ,  $\angle C = 45^\circ$  and  $AB + BC + CA = 11\text{cm}$ .

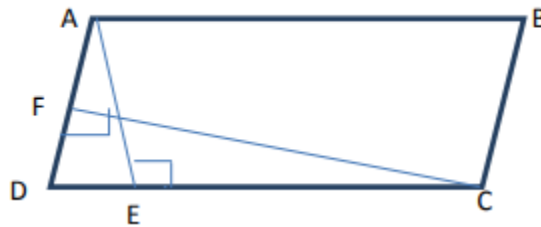
Q24. Prove that the bisector of any two consecutive angles of parallelogram intersects at right angle.

Q25. Prove that the angle subtended by an arc at the center is double the angle subtended by it at any point on the remaining part of the circle.

Q26. Prove that if the non-parallel sides of a trapezium are equal then it is a cyclic.

Q27. Prove that the parallelogram on the same base and between the same parallel are equal in area.

Q28. In fig, ABCD is a parallelogram,  $AE \perp DC$  and  $CF \perp AD$  if  $AB = 16\text{cm}$ ,  $AE = 8\text{cm}$  and  $CF = 10\text{cm}$  find AD



Q29. The lateral surface area of a cube is  $576\text{cm}^2$ . Find its volume and the total surface area.

Q30. In a city, the weekly observations made on the cost of living index are given in the following table:

Cost of living index	140-150	150-160	160-170	170-180	180-190	190-200	Total
No of weeks	5	10	20	09	06	02	52

Draw the frequency polygon for the data given above (without constructing a histogram)

## VALUE BASED QUESTION

31. The teacher asked the student to prepare project related to Diwali. Lipsa prepared 12 cylindrical candle each having radius of base 2cm and height 7cm. Himanshu prepared 14 fire crackers each of spherical shape of radius 1.5cm.

- find the volume of candles and fire crackers.
- according to you which has better project work and why?
- which message has been conveyed in above information?