

I have used the following blueprint to prepare this paper

Chapter Name	Marks	Chapter Name	Marks
Number System	6	Areas of Parallelograms and triangles	7
Polynomials	6	Circles	10
Lines and Angles	10	Surface Areas and Volumes	14
Triangles	6	Statistics	10
Quadrilaterals	11		

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MCQ - 1 mark each

1. $x + \frac{1}{x} = \text{---}$, given $x = \frac{1}{2\sqrt{2} - \sqrt{7}}$
 (a) $5\sqrt{2}$ (b) $6\sqrt{2}$ (c) $\sqrt{32}$ (d) None of these
2. $(x + y)^2 - \text{---} = 4xy$
 (a) $3xy$ (b) $(x - y)^2$ (c) $x^2 + y^2 - xy$ (d) $x^2 + y^2 + xy$
3. If one angle of a triangle is equal to the sum of the other two angles, then the triangle is
 (A) an isosceles triangle (B) an obtuse triangle (C) an equilateral triangle (D) a right triangle
4. If $\Delta ABC \cong \Delta PQR$ and ΔABC is not congruent to ΔRPQ , then which of the following is not true:
 (A) $BC = PQ$ (B) $AC = PR$ (C) $QR = BC$ (D) $AB = PQ$
5. If $AB = 12$ cm, $BC = 16$ cm and AB is perpendicular to BC , then the radius of the circle passing through the points A, B and C is :
 (A) 6 cm (B) 8 cm (C) 10 cm (D) 12 cm
6. In a cylinder, if radius is doubled and height is made one fourth, the volume will be
 (A) same (B) doubled (C) halved (D) four times
7. The length of the longest pole that can be put in a room of dimensions $(10 \text{ m} \times 8 \text{ m} \times 6 \text{ m})$ is
 (A) 15 m (B) 16 m (C) 10 m (D) none of these
8. $\text{---} - \text{lower limit} = \text{upper limit}$
 (A) class size (B) range (C) 2 range (D) 2 class mark

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MCQ - 2 marks each

9. Every parallelogram is a (A) rhombus (B) square (C) trapezium (D) none of these
10. ABCD is a quadrilateral whose diagonal AC divides it into two parts, equal in area, then ABCD (A) is a rectangle (B) is always a rhombus (C) is a parallelogram (D) need not be any of (A), (B) or (C)
11. The radius of a sphere is increased by 10%. The volume will be increased by ____% approx (A) 33.1 (B) 34.1 (C) 32.1 (d) 35.1
12. If the mean of the 8 observations is $3x$. If each observation is divided by 3. The new mean is (A) x (B) $3x$ (C) $24x$ (D) None of these

Answer with reasoning- 2 marks each

13. Let x be rational and y be irrational. Is $x - y$ necessarily irrational? Justify your answer by an example.
14. A polynomial of degree n has atmost n zeros. State true/ false and justify your answer.
15. Two lines l and m are perpendicular to the same line n . Are l and m perpendicular to each other? Give reason for your answer.
16. In $\triangle ABC$ and $\triangle DEF$, $\angle A = \angle D$, $\angle B = \angle E$ and $AB = EF$. Will the two triangles be congruent? Give reasons for your answer.
17. Diagonals AC and BD of a quadrilateral ABCD intersect each other at O such that $OA : OC = 1 : 1$. Is ABCD a parallelogram? Why or why not?
18. ABC and BDE are two equilateral triangles such that D is the mid-point of BC. Then $4 \text{ ar } (BDE) = \text{ ar } (ABC)$.
19. Through three collinear points a circle can be drawn.

3 marks each

20. Represent $\sqrt{2.9}$ on number line. Prove your construction.
21. Factorise by using factor theorem. $X^3 - 10x^2 - 36x + 360$
22. A triangle ABC is right angled at A. L is a point on BC such that $AL \perp BC$. Prove that $\angle BAL = \angle ACB$
23. In $\triangle ADB$, $\angle ADB = 90^\circ$ and $\angle ABD = 2 \angle BAD$. Show that hypotenuse $AB = 2 BD$
24. P is the mid-point of side BC of a parallelogram ABCD such that $\angle BAP = \angle DAP$. Prove that $AD = 2CD$.

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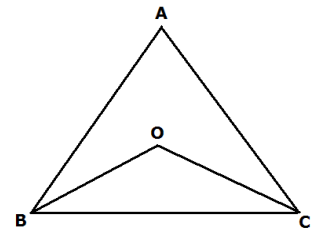
25. If two equal chords of a circle intersect, prove that the parts of one chord are separately equal to the parts of the other chord.
26. A cylindrical tube opened at both the ends is made of iron sheet which is 2 cm thick. If the outer diameter is 16 cm and its length is 100 cm, find how many cubic centimeters of iron has been used in making the tube ?
27. A semi-circular sheet of metal of diameter 28cm is bent to form an open conical cup. Find the capacity of the cup.
28. Prepare a continuous grouped frequency distribution from the following data

mid value	5	15	25	35	45
frequency	4	8	13	12	6

29. Prove that parallelograms on same base and between same parallel lines are equal in area.

4 marks each

30. In fig BO and CO are bisectors of angles ABC and ACB respectively. Prove $\angle BOC = 90^\circ + \angle A/2$
31. Prove quadrilateral formed by joining midpoints of sides of a rectangle is a rhombus
32. AB is diameter of a circle with centre O. C is a point in the exterior of circle. AC intersects circle at D and BC intersects it at E. DE is Equal to radius of circle Prove angle ACB = 60° .
33. Find cost of painting a square pipe of inner and outer sides 7cm and 8cm and length 7m at Rs. 5 per square cm.
34. Draw histogram and frequency polygon for the following data.



C.I.	10 – 19	20 – 29	30 – 39	40 – 49	50 – 59
Frequency	7	10	12	12	8

Design of the Question Paper

Type	Marks per Question	No. of Questions	Total Marks
MCQ	1	8	8
MCQ	2	4	8
Short Answer Type 1	2	7	14
Short Answer Type 2	3	10	30
Long Answer Type	4	5	20
Total		34	80

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