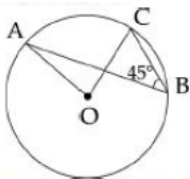


SECTION – B

Question numbers 9 to 14 carry 2 marks each.

9. In the figure, if O is the centre of the circle and $\angle ABC = 45^\circ$, then prove that $OA \perp OC$.



10. Two opposite angles of a parallelogram are $(3x - 2)^\circ$ and $(50 - x)^\circ$. Find the measure of each angle of the parallelogram.
11. Find the curved surface area of a hemisphere of diameter 7 cm.
12. Find the median of the following data: 95, 65, 75, 70, 75, 100, 50, 40
13. Find the mean of the data:

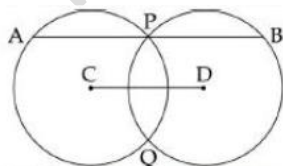
x	20	25	32	40	50	100
f	5	4	10	2	1	3

14. A survey of 500 families was conducted to know their opinion about a particular detergent powder. If 375 families liked the detergent powder and the remaining families disliked it, find the probability that a family chosen at random
- Likes the detergent powder
 - Does not like it.

SECTION – C

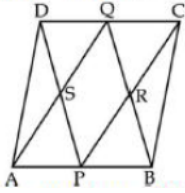
Question numbers 15 to 24 carry three marks each.

15. If the points $(-1, a)$, $(b, 15)$ and $(c, -20)$ lie on the graph of linear equation $5x - y = 0$. Find the value of a, b and c .
16. Find any two linear equations passing through the point $(-1, -\frac{1}{2})$. How many such equations are possible?
17. In a ΔABC , $\angle B$ is a right angle. D and E are the mid – points of the sides AB and AC respectively. If $AB = 6$ cm and $AC = 10$ cm, then find the length of DE.
18. In figure circles with centres C and D intersect at points P and Q. If $AB \parallel CD$, then prove that $AB = 2 CD$.



19. In the given figure ABCD is a parallelogram. P, Q are mid points of AB and DC. Show that
- APCQ is a parallelogram.
 - DPBQ is a parallelogram.

- c. PSQR is a parallelogram.



20. Construct a ΔABC in which base $AB = 5$ cm, $AC - BC = 2.5$ cm and $\angle B = 45^\circ$.
21. The base radii of two right circular cones of the same height are in the ratio 3:5. Find the ratio of their volumes.
22. Curved surface area of cylinder is 4400 cm^2 and circumference of its base is 110 cm. Find the height and volume of the cylinder.
23. The mean marks of a class of 40 students are 50. If the mean marks of first 20 students is 56 and the last 20 is 48, find the marks of the 20th student.
24. Given below are the seats won by different political parties in the polling outcome of a state assembly election.

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

Represent the data in the form of a bar graph.

SECTION – D

Question numbers 25 to 34 carry four marks each.

25. The auto fare in a city is charged as per the rates stated below:
Rate for the first km of journey is Rs. 8 and for the subsequent distance it is Rs. 5 per km. Taking the distance covered as x km and total fare as Rs. y , write a linear equation for the above and draw its graph.
26. A book lending library, lends books on the following charges. For the first two days rent is Rs. 20, and for every subsequent day, Rs. 5 is charged. Taking x as number of days and y as rent paid, write a linear equation for this information and draw its graph.
27. If two equal chords of a circle intersect within the circle, prove that the segments of one chord are equal to corresponding segments of the other chord.
28. In triangle ABC, D is a point on BC such that it divides BC in the ratio 3:5 i.e. $BD:DC = 3:5$. Find $\text{ar}(\Delta ADC):\text{ar}(\Delta ABC)$.
29. Construct a parallelogram whose adjacent sides are 3 cm and 4 cm and one base angle is 105° .
30. AC and BD are two chords of a circle which bisect each other. Prove that
- AC and BD are diameters.
 - ABCD is a rectangle.
31. A farmer has a plot of land in the shape of an equilateral triangle of side 300 m. He decides to give a part of his land which also is in the shape of an equilateral triangle of

side 100 m to his friend who is poor. But his friend refuses. So he takes a small amount as rent for the land but lets his friend take the produce.

Answer the following questions:

- a. How could this be done? Explain with figure. Calculate the area of equilateral field with side 300 m.
 - b. What part of the field has the farmer given to his friend in respect of area?
 - c. Why did the friend refused but agreed afterwards?
32. A cuboid has total surface area of 40 m^2 and lateral surface area 26 m^2 . Find the area of its base. Also find its volume if its height is 7 cm.
33. Find the mass of 300 steel spherical ball bearings each of which has radius 0.7 cm gives the density of steel is 8 g/cm^3 .
34. The following table gives the performance of 90 students in a mathematics test of 100 marks.

Marks	Number of students
0 – 20	07
20 – 30	10
30 – 40	10
40 – 50	20
50 – 60	20
60 – 70	15
70 – above	08
Total	90