

MATHEMATICS

TEST_220726

CHAPTER-05 I'M UP AND DOWN AND ROUND AND ROUND

SUBJECT: MATHEMATICS

MAX. MARKS : 40

CLASS : IX

DURATION : 1½ hrs

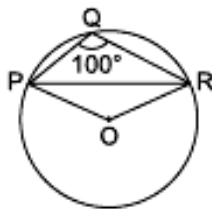
General Instructions:

- (i). All questions are compulsory.
- (ii). This question paper contains 20 questions divided into five Sections A, B, C, D and E.
- (iii). Section A comprises of 10 MCQs of 1 mark each. Section B comprises of 4 questions of 2 marks each. Section C comprises of 3 questions of 3 marks each. Section D comprises of 1 question of 5 marks each and Section E comprises of 2 Case Study Based Questions of 4 marks each.
- (iv). There is no overall choice.
- (v). Use of Calculators is not permitted

SECTION – A

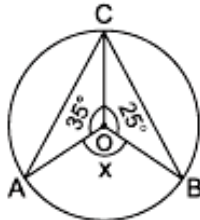
Questions 1 to 10 carry 1 mark each.

1. Given a chord AB of length 5 cm, of a circle with centre O. OL is perpendicular to chord AB and OL = 4 cm. OM is perpendicular to chord CD such that OM = 4 cm. Then CM is equal to
(a) 4 cm (b) 5 cm (c) 2.5 cm (d) 3 cm
2. In a circle with centre O, chords AB and CD are of lengths 5 cm and 6 cm respectively and subtend angles x° and y° at the centre of the circle respectively. Then
(a) $x = y$ (b) $x < y$ (c) $x > y$ (d) cannot say
3. Given a circle of radius r and with centre O. A point P lies in a plane such that $OP > r$, then point P lies
(a) in the interior of the circle (b) on the circle
(c) in the exterior of the circle (d) cannot say
4. A chord of a circle is equal to the radius of the circle. Then the angle subtended by the chord at the point of major arc is
(a) 90° (b) 30° (c) 150° (d) 60°
5. Diagonals of a cyclic quadrilateral are the diameters of that circle, then quadrilateral is a
(a) parallelogram (b) square (c) rectangle (d) trapezium
6. In the given figure, the value of $\angle OPR$ is



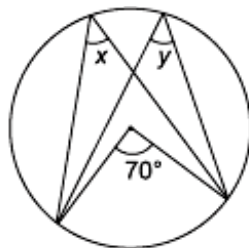
- (a) 65° (b) 10° (c) 20° (d) 50°

7. In figure, O is the centre of the circle. The value of x is



- (a) 140° (b) 60° (c) 120° (d) 300°

8. In the given figure, value of y is

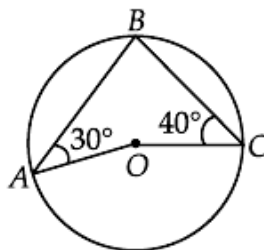


- (a) 35° (b) 140° (c) $70^\circ + x$ (d) 70°

In the following questions 9 and 10, a statement of assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices.

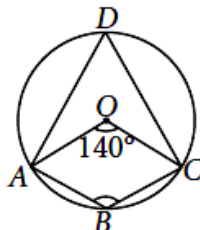
- (a) Both A and R are true and R is the correct explanation of A.
 (b) Both A and R are true but R is not the correct explanation of A.
 (c) A is true but R is false.
 (d) A is false but R is true.

9. **Assertion (A):** In the given figure, $\angle BAO = 30^\circ$ and $\angle BCO = 40^\circ$. Then the measure of $\angle AOC = 70^\circ$.



Reason (R): Angle subtended by an arc of a circle at the centre of the circle is twice the angle subtended by that arc on the remaining part of the circle.

10. **Assertion (A):** In the given figure, O is the centre of circle. If $\angle AOC = 140^\circ$, then $\angle ABC = 110^\circ$.

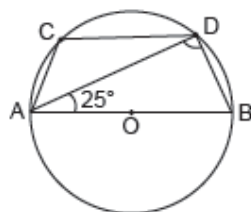


Reason (R): In cyclic quadrilateral, opposite angles are supplementary.

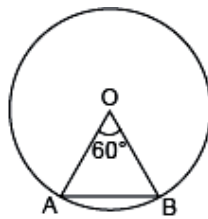
SECTION – B

Questions 11 to 14 carry 2 marks each.

11. In the given figure, AB is diameter of the circle with centre O and $CD \parallel AB$. If $\angle DAB = 25^\circ$, then find the measure of $\angle CAD$.



12. In the given figure, chord AB subtends $\angle AOB$ equal to 60° at the centre O of the circle. If $OA = 5$ cm. then find the length of AB.

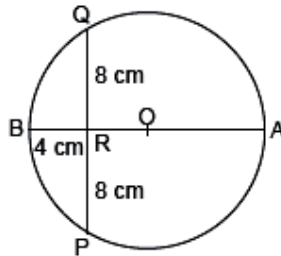


13. If BC is a diameter of a circle of centre O and OD is perpendicular to the chord AB of a circle, show that $CA = 2OD$.
14. In a circle of radius 5 cm having centre O, OL is drawn perpendicular to the chord AB. If $OL = 3$ cm, find the length of AB.

SECTION – C

Questions 15 to 17 carry 3 marks each.

15. Prove that the line drawn through the centre of a circle to the mid point of a chord is perpendicular to the chord.
16. Distance of a chord AB of a circle from the centre is 12 cm and length of the chord AB is 10 cm. Find the diameter of the circle.
17. In the given figure, diameter AB of circle with centre O bisects the chord PQ. If $PR = QR = 8$ cm and $RB = 4$ cm, find the radius of the circle.



SECTION – D

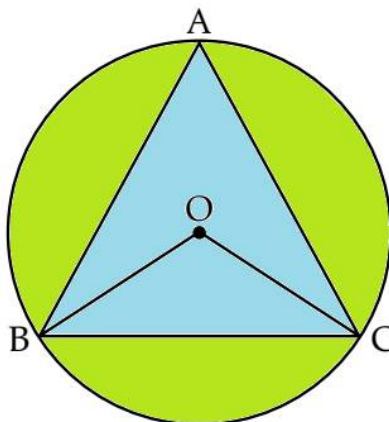
Questions 18 carry 5 marks.

18. Prove that the quadrilateral formed (if possible) by the internal angle bisectors of any quadrilateral is cyclic.

SECTION – E (Case Study Based Questions)

Questions 19 to 20 carry 4 marks each.

19. One triangular shaped pond is there in a park marked by ABC. Three friends are sitting positions at A, B and C. They are studying in Class IX in an International. A, B and C are equidistant from each other as shown in figure given below.



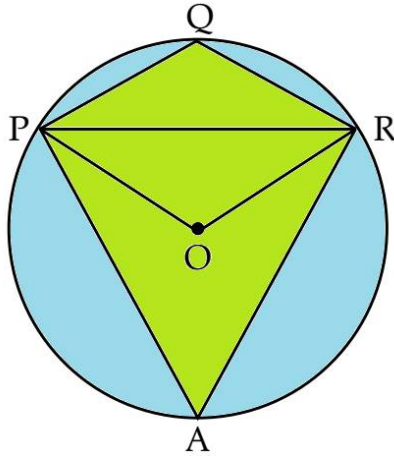
- (i) What is the value of $\angle BAC$? (1)
- (ii) What will be the value of $\angle BOC$? (2)

OR

- (ii) What will be the value of $\angle OBC$? (2)
- (iii) Which angle will be equal to $\angle OBC$?

20. Four Friends Rima, Mohan, Sohan and Sita are sitting on the circumference of a circular park full of water. Their locations are marked by points A, P, Q and R such that the APQR is a quadrilateral with greenery.

Rohit joins them and sits at the centre of the circular park, so he is equidistant from all the other friends. His position is marked as O. They are sitting in such a way that $\angle PQR = 110^\circ$.



- (i) What is measure of reflex $\angle POR$? (1)
- (ii) What is the measure of $\angle PAR$? (2)

OR

- (ii) Find $\angle OPR$? (2)
- (iii) What is measure of $\angle POR$? (1)

.....