PRACTICE PAPER

ICSE CLASS 10 – MATHEMATICS

Chapter 17 : Circles

(Geometry : Circles and Cyclic Properties)

Maximum Marks: 40 Time allowed: One and a half hours

1. *Answers to this Paper must be written on the paper provided separately.*
2. *You will not be allowed to write during the first 10 minutes. This time is to be spent in reading the question paper.*
3. ***The time given at the head of this Paper is the time allowed for writing the answers.***
4. *Attempt **all** questions from **Section A** and **any two** questions from **Section B**.*
5. ***All working, including rough work, must be clearly shown, and must be done on the same sheet as the rest of the answer.***
6. ***Omission of essential working will result in loss of marks.***
7. *The intended marks for questions or parts of questions are given in brackets [ ].*
8. *Figures given in the questions are rough sketches and are not drawn to scale. Give reasons for the steps where required.*

Question 1

Choose the correct answers to the questions from the given options. [8]

(Do not copy the question, write the correct answers only.)

(i) O is the centre of a circle and an arc AB subtends 130° at O. The angle subtended by this arc at a point on the remaining part of the circumference is:

(a) 50°
(b) 65°
(c) 130°
(d) 260°

(ii) ABCD is a cyclic quadrilateral in which ∠A = 105°. Then ∠C is equal to:

(a) 105°
(b) 85°
(c) 75°
(d) 90°

(iii) AB is a diameter of a circle and C is a point on the circle. If ∠BAC = 38°, then ∠ABC is equal to:

(a) 52°
(b) 38°
(c) 90°
(d) 142°

(iv) A chord 10 cm long is at a distance of 12 cm from the centre of a circle. The radius of the circle is:

(a) 11 cm
(b) 17 cm
(c) 7 cm
(d) 13 cm

(v) ABCD is a cyclic quadrilateral and its side AB is produced to E. If $\angle ADC = 82°$, then $\angle CBE$ is equal to:

(a) 98°
(b) 82°
(c) 41°
(d) 164°

(vi) Which one of the following statements is **not** true?

(a) Angles in the same segment of a circle are equal.
(b) Opposite angles of a cyclic quadrilateral are supplementary.
(c) The angle in a major segment of a circle is obtuse.
(d) The perpendicular from the centre of a circle to a chord bisects the chord.

(vii) **Assertion (A):** The angle in a minor segment of a circle is obtuse.

Reason (R): The angle in a semicircle is a right angle.

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

(viii) **Assertion (A):** Exactly one circle can be drawn through three collinear points.

Reason (R): Exactly one circle can be drawn through three non-collinear points.

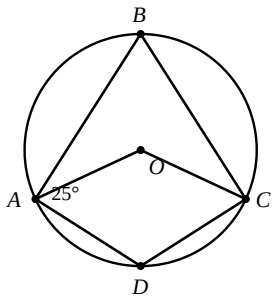
(a) (A) is true and (R) is false.
(b) (A) is false and (R) is true.
(c) Both (A) and (R) are true, and (R) is the correct explanation for (A).
(d) Both (A) and (R) are true, but (R) is not the correct explanation for (A).

Question 2

(i) ABCD is a cyclic quadrilateral in which $\angle A = (2x + 10)°$, $\angle C = (3x - 20)°$, $\angle B = (y + 50)°$ and $\angle D = (2y - 5)°$. Find the values of x and y and hence the four angles of the quadrilateral. [4]

(ii) A chord AB of length 24 cm is drawn in a circle of radius 13 cm. (a) Find the distance of AB from the centre. (b) A chord CD parallel to AB is at a distance of 12 cm from the centre; find the length of CD. (c) Find the distance between AB and CD if they lie on opposite sides of the centre. [4]

(iii) In the figure, O is the centre of the circle and ∠OAC = 25°. Find: (a) ∠AOC (b) ∠ABC (c) ∠ADC. [4]

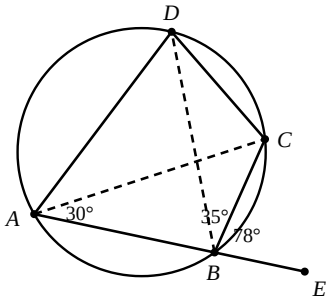


SECTION B (20 Marks)

*(Attempt **any two** questions from this Section.)*

Question 3

In the figure, ABCD is a cyclic quadrilateral. The side AB is produced to E. ∠CBE = 78°, ∠DBC = 35° and ∠BAC = 30°.



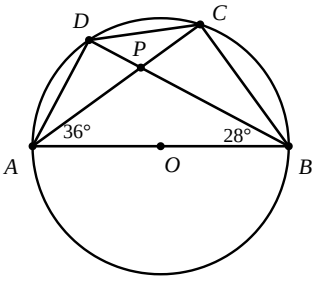
(i) Find ∠ADC, giving a reason. [3]

(ii) Find ∠DAC and hence ∠ACD. [3]

(iii) Find ∠ACB, ∠BCD and ∠BAD. [4]

Question 4

In the figure, AB is a diameter of the circle with centre O. The chords AC and BD intersect at P. ∠CAB = 36° and ∠DBA = 28°.



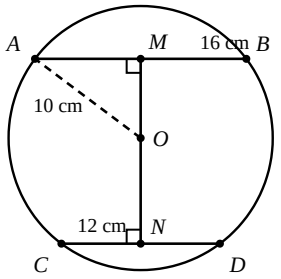
(i) Find ∠ACB and ∠ABC. [3]

(ii) Find ∠ADB and ∠DAB. [3]

(iii) Find ∠BCD and ∠APB. [4]

Question 5

In the figure, AB and CD are parallel chords of a circle with centre O and radius 10 cm, on opposite sides of O. AB = 16 cm and CD = 12 cm. OM ⊥ AB and ON ⊥ CD, so that M, O and N are in a straight line.



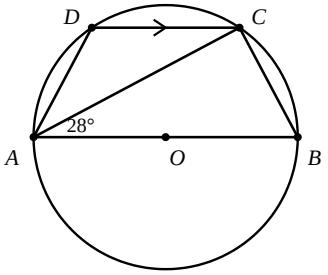
(i) Find the length OM. [3]

(ii) Find the length ON. [3]

(iii) Find the distance between the chords and the area of the trapezium ABDC. [4]

Question 6

In the figure, AB is a diameter of a circle with centre O and CD is a chord parallel to AB. ∠CAB = 28°.



(i) Find ∠ACB and ∠ABC. [3]

(ii) Find ∠ACD and hence ∠BCD. [3]

(iii) Find ∠ADC and ∠DBC. [4]

— End of Question Paper —