$m\overline{OC}^2 = \overline{OF}^2 + \overline{FC}^2$

$5^2 = \overline{OF}^2 + 4^2$

$\Rightarrow \overline{OF}^2 = 25 - 16 = 9$

$\overline{OF} = \sqrt{9} = 3cm$

In $\Delta OAE$

$\overline{OA}^2 = \overline{OE}^2 + \overline{EA}^2$

$5^2 = \overline{OE}^2 + 3^2$

$\Rightarrow \overline{OE}^2 = 25 - 9 = 16$

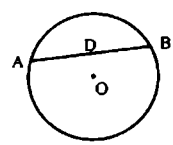
$\overline{OE} = \sqrt{16} = 4$

$\therefore \overline{EF} = \overline{OE} + \overline{OF} = 4 + 3 = 7cm.$

## SOLVED MISCELLANEOUS EXERCISE 9

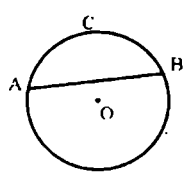
**Q1. Multiple Choice Questions:**
**Four possible answers are given for the following questions.**
**Tick (✓) the correct answer.**

**(i) In the circular figure, ADS is called**




(a) an arc (b) a secant
(c) a chord (d) a diameter

**(ii) In the circular figure, $A\bar{B}C$ is called**

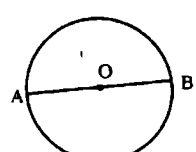



(a) an arc (b) a secant (c) a chord
(d) a diameter

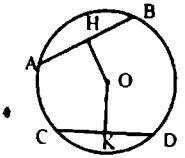
**(iii) In the circular figure, AOB is called**

(a) an arc (b) a secant
(c) a chord (d) a diameter:

**(iv) In a circular figure, two chords AB and CD are equidistant from the centre. They will be:**




(a) parallel (b) non congruent
(c) congruent (c) perpendicular




**(v) Radii of a circle are:**

(a) all equal (b) double of the diameter
(c) all unequal (d) half of any chord

**(vi) A chord passing through the centre of a circle is called:**

(a) radius (b) diameter
(c) circumference (d) secant

**(vii) Right bisector of the chord of a circle always passes through the**

(a) radius (b) circumference (c) centre (d) diameter

**(viii) The circular region bounded by two radii and the corresponding arc is called**

(a) circumference of a circle (b) sector of a circle
(c) diameter of a circle (d) segment of a circle

**(ix) The distance of any point of the circle to its centre is called**

(a) radius (b) diameter
(c) a chord (d) an arc

**(x) Line segment joining any point of the circle to the centre is called**

(a) circumference (b) diameter
(c) radial segment (d) perimeter

**(xi) Locus of a point in a plane equidistant from a fixed point is called**

(a) radius (b) circle
(c) circumference (d) diameter

**(xii) The symbol form triangle is denoted by**

(a) $\angle$ (b) $\Lambda$ (c) $\perp$ (d) .

**(xiii) A complete circle is divided into**

(a) 90 degrees (b) 180 degrees (c) 270 degrees (d) 360 degrees

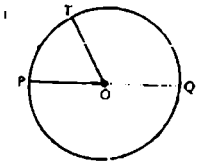
**(xiv) Through how many non collinear points, a circle can pass?**

(a) one (b) two (c) three (d) four

**Answers:**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **(i)** | c | **(ii)** | a | **(iii)** | d | **(iv)** | c | **(v)** | a |
| **(vi)** | b | **(vii)** | c | **(viii)** | b | **(ix)** | a | **(x)** | c |
| **(xi)** | b | **(xii)** | b | **(xiii)** | d | **(xiv)** | c | | |

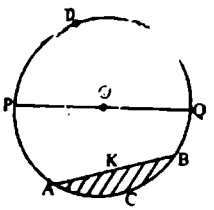
**Q2. Differentiate between the following terms and illustrate them by diagrams.**




**(i) A circle and a circumference.**

Ans: **Circle and circumference**

A circle is the locus of a moving point P in a plane which is always equidistance from some fixe point O. The fixed point O not lying on the circle is called the centre, the constant distance is its radius where as the boundary traced by moving point P is called circumference of the circle.



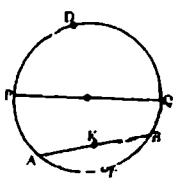

**(ii) A chord and the diameter of a circle.**

Ans: **Chord and the diameter of a circle**

A chord AKB of a circle is a straight line joining any two points on the circumference of a circle. Whereas diameter POQ is the chord passing through the centre a circle.

**(iii) A chord and an arc of a circle.**

Ans: An arc ACB of a circle is any portion of its circumference. A chord AKB of a circle is a straight line joining any two points on the circumference of a circle.

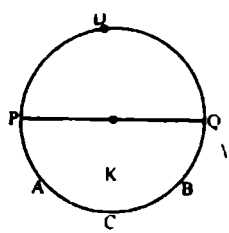



**(iv) Minor arc and major arc of a circle.**

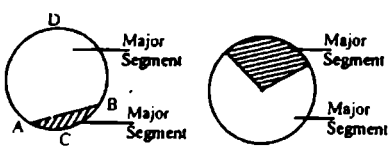
Ans: If the above figure, the smaller arc $\overset{\frown}{ACB}$ is minor arc, the $\overset{\frown}{ADB}$ is major arc of a circle.

**(v) Interior and exterior of a circle.**

Ans: The internal area or part of a circle is called interior and external part or area circle is called exterior of a circle.




**(vi) A sector and a segment of a circle.**




Ans: A sector of a circle is the centre in the plane figure bounded by two radii and the intercepted between them. Any pair of radii divided a circle into two sector segment is the portion of a circle bounded by an arc and a corresponding chord any chord divides a circle into two segments.

## SUMMARY

- ✔ $2\pi r$ is the circumference of a circle with radius r.
- ✔ $\pi r^2$ is the area of a circle with radius r.
- ✔ Three or more points lying on the same line are called collinear points otherwise they are non-collinear points.
- ✔ The circle passing through the vertices of a triangle is called its circumcircle whereas $\perp$ bisectors of sides of the triangle provides the centre.
- ✔ One and only one circle can pass through three non-collinear points.
- ✔ A straight line, drawn from the centre of a circle to bisect a chord (which is not a diameter) is perpendicular to the chord.
- ✔ Perpendicular from the centre of a circle on a chord bisects it.
- ✔ If two chords of a circle are congruent, then they will be equidistant from the centre.
- ✔ Two chords of a circle which are equidistant from the centre are congruent.