**Grade: X MATHEMATICS-CIRCLES Date: 11.01.2022**

**Answer the following: Marks: 25**

**1. A tangent PQ at a point P of a circle of radius 5 cm meets a line through the centre O at a point Q so that OQ = 12 cm. Find the length PQ. (2)**

**2. In a quadrilateral ABCD is drawn to circumscribe a circle such that its sides AB, BC, CD, DA touch the circle at P,Q,R,S respectively. If AB = x cm, BC = 7cm, CR = 3 cm, and AS = 5 cm, find the value of ‘x’. (4)**

**3. Two tangents TP and TQ are drawn to a circle with centre O from the external point T. Prove that . (4)**

**4. Prove that parallelogram circumscribing a circle is a rhombus. (4)**

**5. Two concentric circles are of radii 5 cm and 3 cm. Find the length of the chord of the larger circle which touches the smaller circle. (3)**

**6. A point P is 13 cm from the centre of the circle. The length of the tangent drawn from P to the circle is 12 cm. Find the radius of the circle. (2)**

**7. If two tangents inclined at an angle  are drawn to a circle of radius 3 cm , then find the length of each tangent . (4)**

**8. If the angle between two radii of a circle is 130 degrees, then what is the angle between the tangents at the end points of radii at their point of intersection? (2)**