AllCanMath

CLASS 10 MATH TEST PAPER 19
Class 10 - Mathematics

Time Allowed: 45 minutes   **Maximum Marks: 25**

Section A

1. A car has two wipers which do not overlap. Each wiper has a blade of length 42 cm sweeping through an angle **[1]** of 120º. Find the total area cleaned at each sweep of the blades.

   a) 5544 cm^2

   b) 3696 cm^2

   c) 4224 cm^2

   d) 1848 cm^2

2. Area of a segment of a circle of radius r and central angle 90º is: **[1]**

   a) $\frac{2\pi r}{4} - \frac{1}{2}r^2$

   b) $\frac{\pi r^2}{4} - \frac{1}{2}r^2$

   c) $\frac{\pi r^2}{2} - \frac{1}{2}r^2$

   d) $\frac{2\pi r}{4} - r^2 \sin 90º$

3. Pankaj has a motorcycle with wheels of diameter 91 cm. There are 22 spokes in the wheel. Find the length of arc **[1]** between two adjoining spokes.

   a) 13 cm

   b) 26 cm

   c) 15 cm

   d) 18 cm

4. For some data x_1, x_2, ... x_n with respective frequencies f_1, f_2, ... f_n, the value of $\sum_{1}^{n} f_i (x_i - \bar{x})$ is equal to: **[1]**

   a) $n\bar{x}$

   b) 1

   c) $\sum f_i$

   d) 0

5. The median group in the following frequency distribution is: **[1]**

Class	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60
Frequency	5	8	20	15	7	5

   a) 20 - 30

   b) 30 - 40

   c) 10 - 20

   d) 40 - 50

6. If value of each observation in a data is increased by 2, then median of the new data **[1]**

   a) increases by 2

   b) decreases by 2

   c) increases by 2n

   d) remains same

7. AB and CD are two parallel tangents to a circle of radius 5 cm. The distance between the tangents is **[1]**

   a) 5 cm

   b) $\sqrt{50}$ cm

   c) $2\sqrt{5}$ cm

   d) 10 cm

8. In the given figure, BC and BD are tangents to the circle with centre O and radius 9 cm. If OB = 15 cm, then the **[1]** length (BC + BD) is:

a) 24 cm

b) 12 cm

c) 18 cm

d) 36 cm

9. If the tangents PA and PB from an external point P to a circle with centre O are inclined to each other at an angle of 80°, then ∠POA equals: **[1]**

a) 60°

b) 80°

c) 50°

d) 70°

10. **Assertion (A):** Area of a quadrant of a circle of radius 2r is equal to πr^2. **[1]**

Reason (R): Area of a sector is with central angle θ is given by $\frac{\theta}{360} \times \pi r^2$ or $\frac{1}{2} \times l \times r$ where l is length of an arc.

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.

Section B

11. Find the diameter of the circle whose area is equal to the sum of the areas of two circles having radii 4 cm and 3 cm. **[2]**

12. In the following cumulative frequency table, find the values of a, b, c and d. **[2]**

Class	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50
Frequency	5	7	a	5	b
Cumulative Frequency	5	c	18	d	30

13. A circle with centre O and radius 8 cm is inscribed in a quadrilateral ABCD in which P, Q, R, S are the points of contact as shown. If AD is perpendicular to DC, BC = 30 cm and BS = 24 cm, then find the length DC. **[2]**
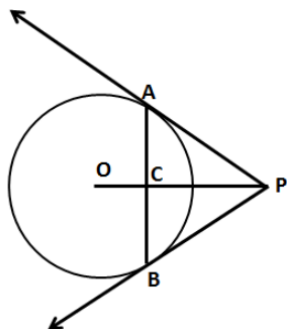

Section C

14. The perimeter of the quadrant of a circle is 25 cm. Find its area. **[3]**

15. Find the mean of the following data and hence, find the mode , given that median of the data is 42.5. **[3]**

Class Interval	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	4	8	10	12	10	4	2

16. A point P is 26 cm from the centre of the circle. The length of the tangent drawn from P to the circle is 24 cm. **[3]** Find the radius of the circle.

<center>OR</center>

From a point P outside a circle with centre O, tangents PA and PB are drawn to the circle. Prove that OP is the right bisector of the line segment AB.