Term Test 2022-23

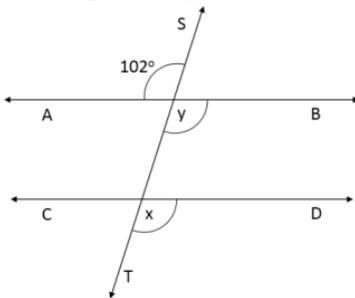**Std: X MHB** **Subject: Geometry** **Marks: 40**

Duration: 2hrs

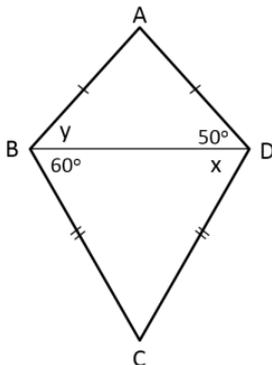**Topics Covered:** Similarity, Pythagoras Theorem, Circles, Geometric Constructions, Coordinate

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Q. 1. (A) Solve the following questions: (Any four) **(4 × 1 = 4)**

1. If the co-ordinate of A is 2 and that of B is 4, find d (A, B).

2. In the figure AB || CD and ST is the transversal. Find the value of x and y.

3. Find the values of x and y using the information shown in the figure.

4. In $\triangle$XYZ, XY = 4 cm, YZ = 6 cm, XZ = 5 cm. If $\triangle$XYZ $\sim$ $\triangle$PQR and PQ = 8 cm, then find the lengths of remaining sides of $\triangle$PQR.

5. The length of a chord of a circle is 24 cm. If the distance of the chord from the center is 5 cm, then the radius of that circle is

6. Find the value of $2\tan 45° + \cos 30° - \sin 60°$.

(B) Solve the following questions: (Any two)   **(2 × 2 = 4)**

1. The sides of a triangle are 12, 35 and 37. Determine whether the triangle is a right-angled triangle. Justify.

2. Find the length of a tangent segment drawn to a circle with radius 5 cm from a point 13 cm from the centre of the circle.

3. Draw a tangent at any point 'A' on the circle of radius 3 cm and centre 'O'.

Q. 2. (A) Choose the correct alternatives: **(4 × 1 = 4)**

1. If $\triangle ABC \sim \triangle DEF$, then $\dfrac{AB}{DE} = \dfrac{?}{EF}$

     A. AC

     B. DF

     C. BC

     D. DE

2. The number of circles that can be drawn through three non-collinear points is

     A. 1

     B. 0

   **C.** 2

     D. 3

3. $\cot x \times \sin x =$

     A. 1

     B. tanx

     C. cosx

     D. secx

4. The curved surface area of a right circular cone of height 15 cm and base diameter 16 cm is
   A. 160π cm²
   B. 168π cm²
   C. 120π cm²
   D. 136π cm²

(B) Solve the following questions: (Any two)   **(2 × 2 = 4)**

1. Perimeter of a parallelogram is 150 cm. One of its sides is greater than the other side by 25 cm. Find the lengths of all sides.

2. In the figure, line RS is a tangent at the point Q. If$\angle$ PQS = 65º, find m(arc PMQ) and m(arc PNQ).
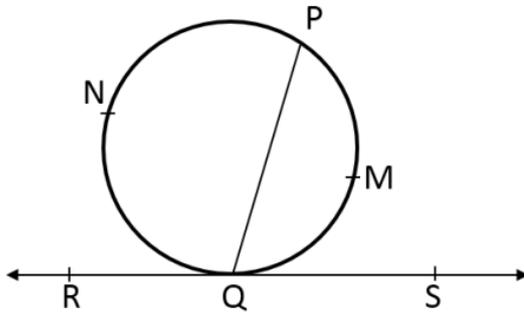
3. Draw a circle of radius 4 cm and a tangent to the circle from a point on it without using the centre.

Q. 3. (A) Complete the following activities: (Any two)   **(2 × 2 = 4)**

1. In ΔPQR, ray PS is the bisector of ∠QPR. Q-S-R. If QS = 4.8 cm and SR = 3.6 cm, then find PQ:PR.

2. Find the distance between points P (-7, -4) and Q (-2, 8).

3. ΔABC is isosceles in which AB = AC. Seg BD and seg CE are medians. Show that
   BD = CE.

(B) Solve the following questions: (Any two)   **(2 × 2 = 4)**

1. If $\sin x = \dfrac{60}{61}$, then find cos x and tan x.

2. □ABCD is a parallelogram. If ∠ A = (4x +13)° and ∠ D = (5x – 22)°, then find the measures of ∠ B and ∠ C.

3. The heights of ΔABC and ΔDBC are 4 cm and 6 cm, respectively. Find $\dfrac{A(\Delta ABC)}{A(\Delta DBC)}$

Q. 4. Solve the following questions: (Any three)   **(3 × 3 = 9)**

1. In a trapezium PQRS, side PQ || side SR. Diagonals PR and QS intersect each other at point M. PQ = 2RS. Prove that PM = 2RM and QM = 2SM.

2. Find the co-ordinates of the points on the Y-axis which is equidistant from the points P (6, 5) and J (-4, 3).

3. Prove that $\dfrac{\sin x}{1-\cos x} = \operatorname{cosec} x + \cot x$

4. If the diameter of a sphere is d and the curved surface area is S, then show that S = πd². Hence, find the surface area of a sphere whose diameter is 4.2 cm.

Q. 5. Solve the following questions: (Any one)   **(4 × 1 = 4)**
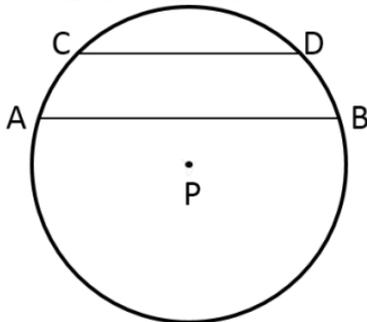
1. Δ RST ~ Δ USY. In Δ RST, RS = 6 cm, ∠S = 50º, ST = 7.5 cm, RS/US = 5/4. Construct Δ RST and Δ UAY.

2. A test tube has a diameter 20 mm and a height 15 cm. The lower part is a hemisphere. Find the capacity of the test tube. (π = 3.14)

Q. 6. Solve the following questions: (Any one)   **(3 × 1 = 3)**

1. In the figure, P is the centre of the circle. Two chords AB and CD are parallel to each other.
    Prove ∠CPA = ∠ DPB

2. Show that the point (0, 9) is equidistant from the point (-4, 1) and (4, 1).