Kamini Learning Skills R & D Centre, LLP, Pune
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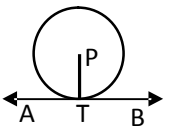
Subject : Maths II | **Preliminary Exam : 1** | **Marks : 40**

Std : 10th | **Time : 2 Hrs**

Q. 1. Attempt any FIVE sub-questions from the following. **05**

i) In Δ DEF, ∠ D = 90^0, ∠ E = 60^0. If EF = 8 cm, find the length of side DE.

ii) In the adjoining figure, line AB is tangent at T, seg PT is radius. PT = 4 cm. What is the distance of line AB from centre of the circle.



iii) Draw line PQ. Take a point M on it. Draw a line n perpendicular to the line PQ passing through point M.

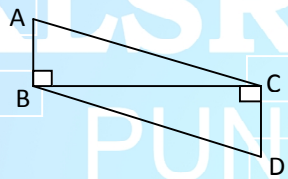
iv) Find the slope of the line AB passing through the points A(3,4) and B(- 2, - 3)

v) Find y- intercept of the line 2y = 3x – 6.

vi) The radius of a cone is 3 cm and its perpendicular height is 4 cm. Find its slant height.

Q. 2. Attempt any FOUR sub-questions from the following.

i) In the adjoining figure, Δ ABC and Δ DCB are right angled triangles.



— = – Find $\frac{\Delta}{\Delta}$ —.

ii) Draw a circle with centre P and radius 3.5 cm. Take any point Q on the circle. Draw a tangent to the circle passing through Q.

iii) If the terminal arm is in quadrant III, what are the possible angles?

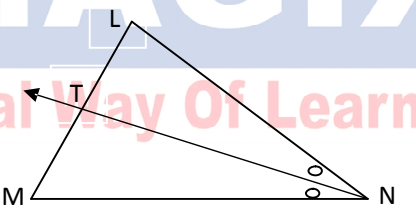
iv) The measure of an arc of a circle of radius 21 cm is 60^0. Find the length of the arc.

v) Δ PQR ~ Δ XYZ. PQ = 6 cm, QR = 8 cm, XY = 12 cm. Find YZ.

vi) The slant height of the frustum of a cone is 4 cm and the circumference of its circular bases are 18 cm and 6 cm respectively. Find the curved surface area of the frustum.

Q. 3. Attempt any THREE sub-questions from the following. **09**

i) In Δ LMN, ray NT is bisector of ∠ MNL.
MT = 4 cm, TL = 6 cm, MN = 10 cm.
Find (i) Length of LN and
(ii) Perimeter of Δ LMN.



ii) Find the value of *k*, if the points A(2, 1) , B(*k*, 3) and C (- 3, - 4) are collinear.

ii) Δ ABC ~ Δ APQ. In Δ ABC, AB = 4.2 cm, BC = 4.5 cm and AC = 4.8 cm. — = –. Construct Δ APQ.

iv) If cos θ = –, evaluate ————— .

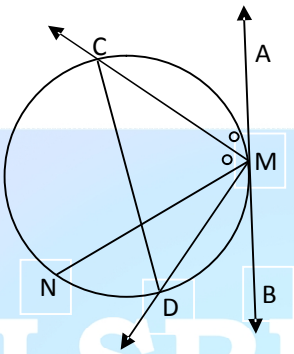
v) A(3, 7); B(5, 11), C(- 2, - 5) are the vertices of Δ ABC. Seg AD is one of the medians of the Δ ABC. Find the equation of the median AD.

Q. 4. Attempt any TWO sub-questions from the following. **08**

i) Prove that : If areas of two similar triangles are equal then the triangles are congruent.

ii) Draw Δ PQR with PQ = 6.2 cm, QR = 8.5 cm, PR = 7.7 cm. Draw incircle of Δ PQR.

iii)



In the adjoining figure, line AB is tangent at M. A – M – B. Seg MN is a chord of the circle. Ray MC , bisector of ∠AMN, intersects the circle in point C. Ray MD , bisector of ∠BMN, intersects the circle in point D.

Prove that: Chord CD of the circle is diameter of the circle.

Q. 5. Attempt any TWO sub-questions from the following. **10**

i) A hemispherical bowl of internal diameter 36 cm is full of some liquid. This liquids to be filled in cylindrical bottles of radius 3 cm and height 6 cm. Find the number of bottles needed to empty the bowl.

ii) From the top of a building 100 m high, the angle of depression of the top and bottom of a tower are observed to be 45^0 and 60^0 respectively. Find the height of the tower. Also find the distance between the foot of the building and bottom of the tower.

iii) In the adjoining figure, Δ ABC is a right angled triangle at C. Point 'O' is on the hypotenuse AB. A semicircle is drawn taking centre O and touching the sides AC and BC of triangle in points Q and P respectively. AO = 15 cm and BO = 20 cm. Then find the radius of the circle.