P P SAVANI UNIVERSITY

Second Semester of B. Tech. Examination

May 2022

SEME1040 Concept of Engineering Drawing

01.06.2022, Wednesday **Time: 10:00 a.m. To 12:30 p.m.** **Maximum Marks: 60**

Instructions:

1. The question paper comprises of two sections.
2. Section I and II must be attempted in same answer sheet.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

SECTION – I

Q - 1 Answer the Following: **[05]**

(i) The representative factor is 4. The actual length is 20 mm. Find the length of the drawing.
a) 5 cm b) 5 mm c) 0.2 mm d) 8 cm

(ii) In unidirectional system the dimensions are _____
a) Placed above dimension lines b) Placed below dimension lines
c) Placed by breaking dimension line in the middle d) Placed left side of dimension line

(iii) While cutting, if the plane is at an angle and it cuts all the generators, then the conic formed is called as _____
a) Circle b) Ellipse c) Parabola d) Hyperbola

(iv) Dashed lines are used to show
a) Outer Edge b) Projection c) Center & Center Axis d) Hidden Faces

(v) If the distance from the focus is 2 mm and the distance from the directrix is 0.5 mm then what is the name of the conic section?
a) Circle b) Ellipse c) Parabola d) Hyperbola

(vi) The locus of a point P about another point O such that its distance from O is constant is _____
a) a line passing through O b) two parallel lines equidistant from O
c) a circle with center O d) a curve with O in it

(vii) In 1st angle projection the _____ lies between _____ and _____
a) object, projection plane, observer b) projection plane, object, observer
c) reference line, side view, front view d) reference line, left side view, right side view

Q - 2 (a) Construct the involute of circle of 30 mm diameter for one turn. Draw tangent and normal to the involute at any point on it. **[06]**

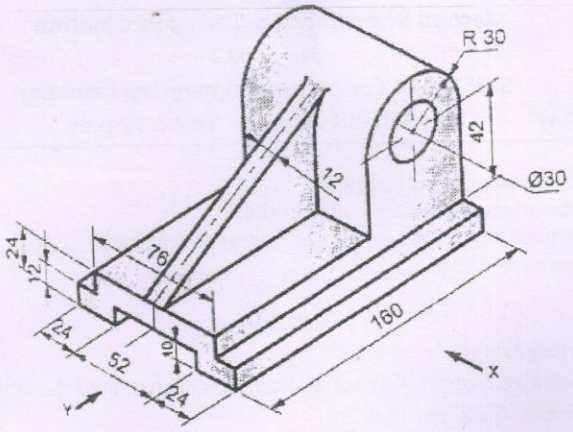
Q - 2 (b) Construct an ellipse by rectangle method, given major and minor axes as 65 mm and 40 mm respectively. **[04]**

OR

Q - 2 (a) Draw epicycloid of a 40 mm diameter circle, which rolls outside on another circle of 150 mm diameter for one revolution clockwise. **[06]**

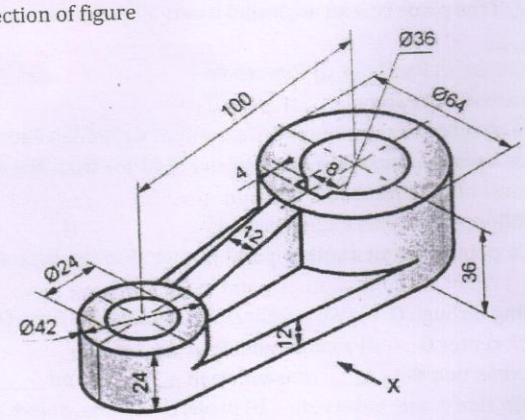
Q - 2 (b) Explain in short: (I) Ellipse (II) Hyperbola. **[04]**

Q - 3 (a) Using First angle projection method draw Front View, Top View and Left hand Side view looking from X direction of figure **[10]**



OR

Q - 3 (a) Using First angle projection method draw Front View, Top View and Right hand Side view looking from X direction of figure **[10]**



Q - 4 Attempt the following: **[05]**

(i) Differentiate between First angle and Third angle projection method.

(ii) Draw the figure to explain the aligned and unidirectional system of dimensioning

SECTION – II

Q - 1 State the position of each of the following points with respect to the HP and the VP as well as the quadrant in which the point is located, if their projections are as follows. **[05]**

Point	Front View	Top View
A	15 mm above XY	20 mm above XY
B	20 mm below XY	15 mm above XY
C	10 mm above XY	15 mm below XY
D	20 mm below XY	15 mm below XY
E	on XY	30 mm above XY

Q - 2 (a) A line AB 80 mm long is inclined at 300 to HP and 450 to V.P. Its end 'A' is 20 mm above H.P. and 20 mm in front of V.P. Draw its projections. **[03]**

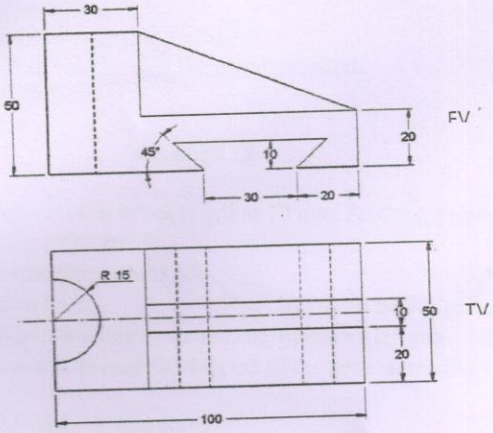
Q - 2 (b) A semicircular plate of 50 mm diameter rests on its diameter on the HP with the surface inclined at 30° to the HP and the diameter edge AB inclined at 45° to the VP. Draw the projections of the plate. **[07]**

OR

Q - 2 (a) A line PQ is 80 mm long, having its end P 22 mm above H.P. and 33 mm in front of V.P. The end Q is 42 mm above H.P. and 70 mm in front of V.P. Draw all the projections **[03]**

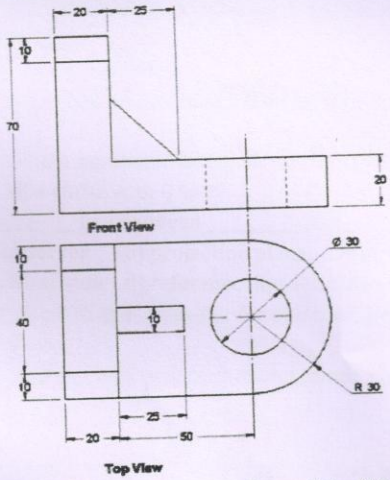
Q - 2 (b) ABCD is a rhombus of diagonals AC =100 mm and BD=70 mm. Its corner A is in the H.P. and the plane is inclined to the H.P. such that its plan appears to be a square and the plan of the diagonal AC makes an angle of 20° to the V.P. Draw the projections of the plane and find its inclination with the H. P. **[07]**

Q - 3 (a) Draw the isometric view from the orthographic projections shown in following figures. **[10]**



OR

Q - 3 (a) Draw the isometric view from the orthographic projections shown in following figures. **[10]**



Q - 4 A point P is 15 mm above the H.P. and 20 mm in front of the V.P. Another point Q is 25 mm behind the V.P. and 40 mm below the H.P. Draw projections of P and Q keeping the distance between their projectors equal to 90 mm. Draw straight lines joining (i) their top views and (ii) their front views. **[05]**

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