Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE SEMESTER 1st / 2nd (NEW) EXAMINATION WINTER 2016

Subject Code: 2110013 Date: 01/02/2017

Subject Name: Engineering Graphics

Time:10:30 AM TO 1:30 PM Total Marks: 70

Instructions:

1. **Question No. 1 is compulsory. Attempt any four out of remaining Six questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 Objective Question

(a) Select the correct options for the following **07**

1. A French curve is used to draw
a) Circles , b) orthographic projections, c) Right circular cone , d) Smooth freeform curve

2. When the drawing are drawn smaller than the actual size of object then scale is known as
a) Enlarged Scale ,b) Reduced Scale, c) Full Scale, d) Standard scale

3. A curved traced out by a point which moves uniformly both about the Centre and at the same time away or towards the Centre is known as
a) Involute, b) Cycloid, c) Arche median spiral, d) Ellipse

4. If the object lies in the fourth quadrant, its position with respect to reference plane will be
a)In front of V.P. and above H.P. , b) Behind V.P. and below H.P.
c) In front of V.P. and below H.P., d) Behind V.P. and above H.P.

5. 10 mm Length of line in Isometric projection will be equal to
a) 10 mm , b) 8.15 mm , c) 12.26 mm , d) 7.07 mm

6. When a right regular cone is cut by a plane parallel to base the shape of section obtained is.
a) Ellipse , b) Parabola, c) Triangle , d) Circle

7. A line having length of L is resting on HP on one end and other end is in VP and parallel to profile plan then summation of angle made by line with HP and VP is
a) 60^o b) 90^o c) 30^o d) 45^o

(b) Answer the following **07**

1. A circular plane with negligible thickness is inclined to HP & perpendicular to VP its plan appears as

2. Why second and fourth angle method of projection is not used in orthographic projections?

3. What is representative factor ?

4. A sphere having radius R mm is lying on the table top at height H mm then sphere Centre is marked at ____ mm above the table top Centre in isometric projection.

5. The curve traced by a point keeping its distance fixed from a fixed point in a plane is --------

6. What is the difference between the Isometric drawing and Isometric projection ?

7. A pentagonal pyramid is resting on HP on one of its edge of the base and inclined to HP by 30^o and cut by the plane parallel to HP and bisecting the axis then its true shape can be obtain in -------- view.

Q.2 (a) Construct the plain scale of R.F. 1:50 to show metres and decimeters and long enough to measure the length of 4 metres and 9 decimeters. Mark on the scale following distances 1) 2.5 metres 2) 4 metres and 2 decimeters. **03**

(b) A line PQ 60 mm long its end P on VP and end Q on HP.Line is inclined to HP by 60^o and VP by 30^o and it is 20 mm away from the profile plane. Draw the projections of the line. **04**

	(c)	Draw the inferior epitrochoid generated by the moving point P which is 25 mm from the Centre of the rolling circle. Take the rolling circle radius as 30 mm and the directing circle radius as 90 mm. The rolling circle rolls for one rotation without slippage. Draw tangent and normal to the curve at any point on the curve.	**07**
Q.3	**(a)**	Explain the reason why for first angle method of orthographic projection the sequence is observer – object- plane and third angle is observer –-plane- object.	**03**
	(b)	Construct the parabola if the base is 80 mm and the axis length is 50 mm.	**04**
	(c)	A circular plane having the diameter 75 mm is resting with point A of its periphery on HP. The surface of the plane is inclined to HP such that the plan of the plane becomes an ellipse with minor axis 30 mm. Draw the projection of the plane when the plan of the diameter through point A is inclined at 30º to VP and the Centre of the plane is 50 mm from VP. Find the inclination of the plane with HP.	**07**
Q.4	**(a)**	A cylinder of base diameter 50 mm and axis 70 mm rest in the VP , has its inclination to 30º to the VP and front view of the axis is inclined at 30º to the ground line XY .Draw the projection of the cylinder.	**07**
	(B)	A cube of 50 mm long edges has its vertical faces equally inclined to VP. It is cut by a section plane perpendicular to VP so that the true shape of the section is a regular hexagon. Determine the inclination of the cutting plane with the HP and draw the sectional top view and true shape of the section.	**07**
Q.5	**(a)**	A line CD has its end C is 15 mm above HP and 10 mm in front of VP. The end D is 60 mm above HP. The distance between the end projectors is 50 mm. The line is inclined to HP by 25 º. Draw the projections and find its inclination with VP and true length of line CD.	**07**
	(b)	Construct the involute of a hexagon of side 20 mm. Draw the tangent and normal to the involute at any point.	**07**
Q.6	**(a)**	Refer the figure no.1.Draw the isometric view for the same.	**07**
	(b)	1) Give difference between the first and third angle method of orthographic projections.	**04**
		2) Draw the figure to explain the aligned and unidirectional system of dimensioning.	**03**
Q.7	**(a)**	Draw the orthographic projections 1) Plan ,2) Elevation and 3) any side view according to first angle method of projection.	**07**
	(b)	1) Construct the isometric scale to measure 100 mm.	**04**
		2) Explain the importance of the dotted line and Centre line.	**03**

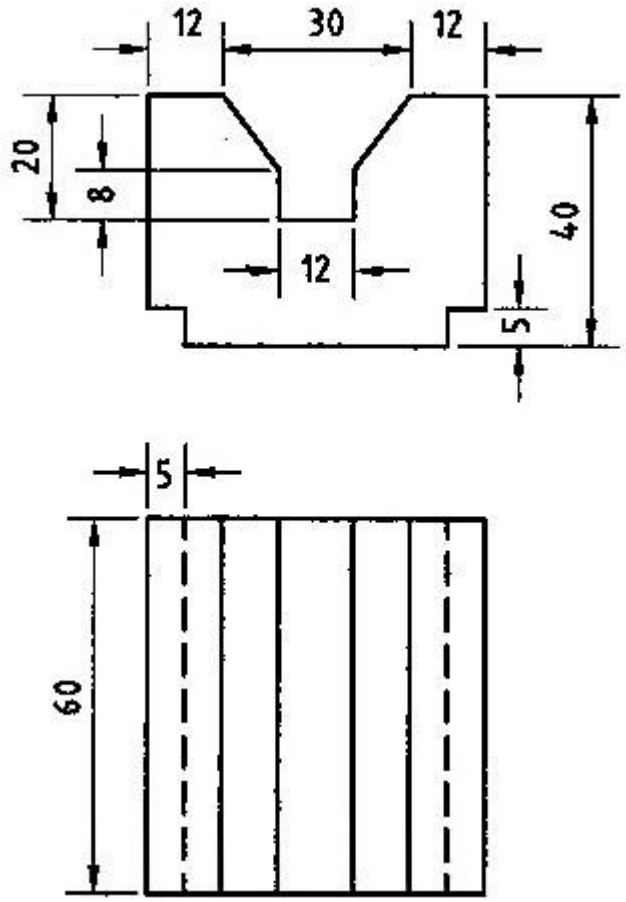

Figure no1

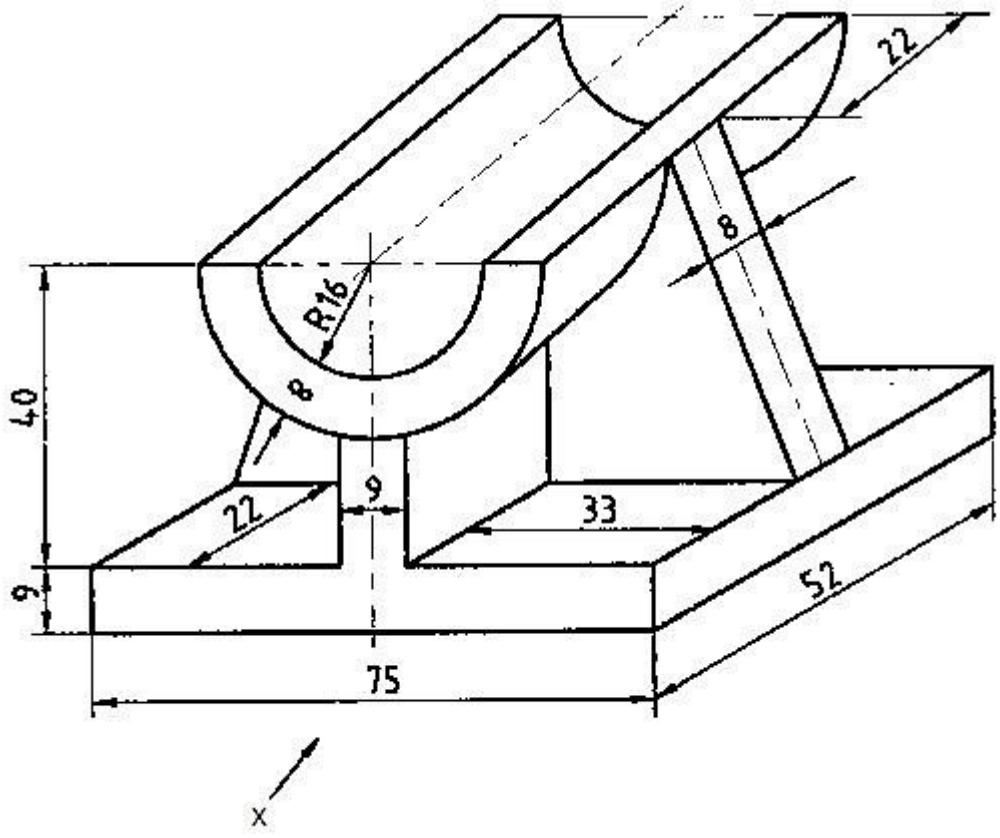

Figure No 2

****