Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code: ENG002 Date: 18/01/2017

Subject Name: Engineering Graphics

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

Instructions:

1. **Attempt any five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Figure No.1 shows the Pictorial view of an object. Draw the following view using first angle projection method (a) Sectional Front elevation at Arrow X (b) Top view (c) LHSV.	**14**
Q.2	**(a)**	The circular disc of dia. AB=80mm rotates about its centre O for one revolution the point P which is initially at A moves to the center , when the disc completes half revolution and then comes back to A in the remaining half revolution. Trace the locus of the point P, assuming the rotation of the disc and movement of the point P to be uniform.	**07**
	(b)	Draw an Archemedian spiral of 1.5 convolutions, the greatest and least radii being 125 mm and 35 mm respectively. Draw tangent and normal to the spiral at any point on the curve.	**07**
Q.3	**(a)**	A Pendulum OC, pivoted at O, is 120mm long. Its swing 30^o to the right of vertical and also 30^o to the left of the vertical. Insect, initially at O reaches the point C, when the pendulum completes two oscillations. Draw the path of insect, assuming the motion of insect and of pendulum as uniform.	**07**
	(b)	Draw an ellipse if the distance of focus from the directrix is 70mm and the eccentricity is 3 / 4.	**07**
Q.4	**(a)**	A straight line AB 80 mm long is inclined at 30° to the HP and at 45° to the VP. Its midpoint C is in the VP and 18 mm above the HP, while its end A is in the third quadrant, and the end B is in the first quadrant. Draw its projections.	**07**
	(b)	Draw the projection of a cone, base 44 mm diameter and axis 50 mm long, when it is resting on the H.P. on a point of its base circle with the axis making an angle of 45^0 with H.P. and 30^0 with V.P.	**07**
Q.5	**(a)**	A line AB 90 mm long is inclined at 30^o to the HP. Its end A is 12 mm above the HP and 20 mm in front of VP. Its front view measures 65 mm. Draw the top view of AB and state its length. Determine the inclination of top view and line AB with VP.	**07**
	(b)	ABCD is a rhombus of diagonals AC = 110 mm and BD =70 mm. Its corner A is in the H.P. and the plane is inclined to H.P. such that the plan appears to be a square. The plan of diagonal AC makes an angle of 20^0 to the V.P. Draw the projections of the plane and find its inclination with H.P.	**07**
Q.6	**(a)**	A tetrahedron of 50 mm long edges is lying on HP on one of its faces with one of its edges perpendicular to VP so that the true shape of its section is an isosceles triangle of base 40mm and altitude 28mm. find the inclination of the section plane HP. Draw the front view sectional top view and true shape of the section.	**07**

(b) A pentagonal pyramid of base edge 30 mm and height 60 mm rests on the HP such that one of its edges of base is parallel to and nearer to the VP. The pyramid is cut by a plane inclined 40º to the HP at 35 mm on axis from base of the pyramid. Draw the lateral development of the truncated pyramid. **07**

Q.7 **(a)** Draw the projections of the following points on the same X– Y line. 04 **04**
(1) A point 'A' 40 mm below H.P. and 40 mm in front of V.P.
(2) A point 'B' 35 mm above H.P. and 45 mm in front of V.P.
(3) A point 'C' on V.P. and 30 mm above H.P.
(4) A point 'D on H.P. and V.P. both.

(b) Front view and Top view of an object are given in first angle system of projection in Fig-2. Draw Isometric drawing. **10**

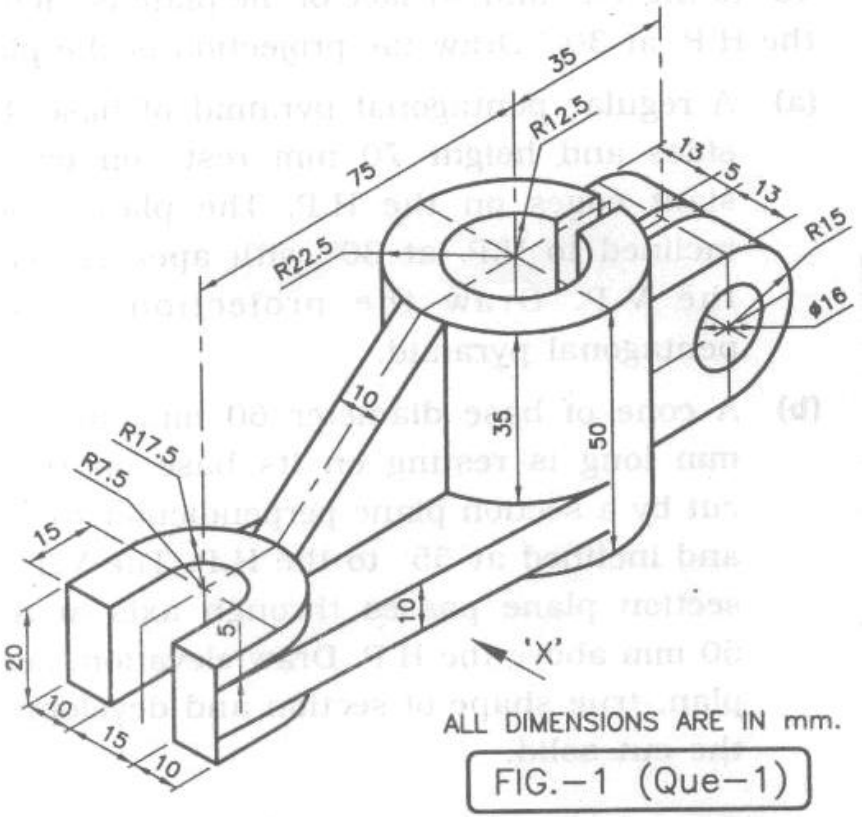

FIG.–1 (Que–1)

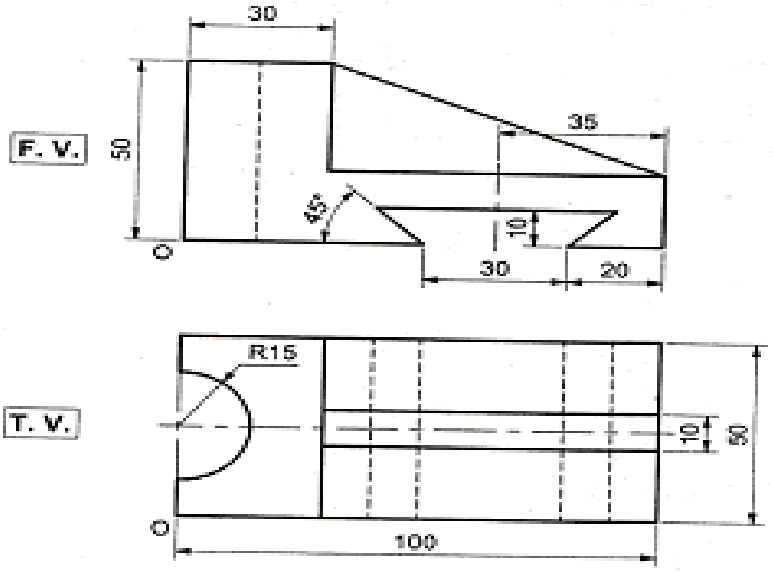

Fig-2(Que-7-b)

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