

GUJARAT TECHNOLOGICAL UNIVERSITY
BE- SEMESTER 1st / 2nd EXAMINATION (NEW SYLLABUS) – SUMMER - 2017

Subject Code: 2110013

Date:08/06/2017

Subject Name: Engineering Graphics

Time: 2:30 PM to 05:30 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 (MCQ)	Mark
	<p>(a)</p> <ol style="list-style-type: none">1. A short break line is used to indicate a (a) Broken part (b) part to be broken (c) long part of uniform cross section (d) short part of non-uniform cross section2. The type of line used to indicate a cutting plane is (a) Dashed (b) long dashed dotted (c) long dashed double dotted (d) continuous freehand3. The size of the drawing drawn to scale 2:1 will be _____ the actual size. (a) Same as (b) twice of (c) half of (d) none of a,b, and c4. If an area of Y^2 is represented by an area of X^2 on a drawing, then the RF is equal to (a) X/Y (b) X^2/Y^2 (c) \sqrt{X} / \sqrt{Y} (d) $\sqrt{X^2} / \sqrt{Y^2}$5. Boyle's law, $PV = \text{constant}$ generates a curve which is a (a) Hyperbola (b) rectangular hyperbola (c) parabola (d) rectangular parabola6. The gear tooth profile is in the form of (a) parabola (b) involute (c) spiral (d) helix7. The line joining any point on an Archimedean spiral with the pole is called the (a) shortest radius (b) radius vector (c) vectorial angle (d) convolution	07
	<p>(b)</p> <ol style="list-style-type: none">1. In the orthographic projections, F.V. is projected on (a) H.P. (b) V.P. (c) XY (d) GL2. The top view of a rectangular shaped room will show (a) length and height (b) length and width (c) width and height (d) height only3. If $\theta + \phi = 90^\circ$, then which of the following statements is CORRECT? (a) $\alpha = \beta = 90^\circ$ (b) side view = TL (c) FV is perpendicular to XY (d) All of the above4. To obtain the true shape of the section of a solid, the auxiliary plane is set (a) inclined at 45° to cutting plane (b) perpendicular to the cutting plane (c) parallel to cutting plane (d) parallel to XY5. Compare to actual diameter, the isometric diameter of the sphere is (a) equal (b) smaller (c) greater (d) none6. The height of the tetrahedron of 40 mm sides will be _____ 40 mm. (a) equal to (b) less than (c) greater than (d) half of	07

7. In Isometric projection, the length or width of the object is drawn at _____ to the horizontal reference line.
(a) 30° (b) 45° (c) 90° (d) 120°

- Q.2** (a) Define the following curves. **03**
(1) Involute
(2) Hyperbola
- (b) Construct an Ellipse by rectangle method, given the major and minor axes as 65 mm and 40 mm respectively. **04**
- (c) A line AB, 60 mm long, is inclined to H.P. at 35° and also inclined to V.P. at 45° . The end A of the line is 20 mm above H.P. and 15 mm in front of V.P. The end B is in third quadrant. Draw the projections of line AB. **07**
- Q.3** (a) Define the following curves. **03**
(1) Archimedean Spiral
(2) Ellipse
- (b) Construct a parabola with distance between focus and directrix is 40 mm. **04**
- (c) A pentagonal prism of 30 mm sides and 60 mm height is resting on one of its corners of its base on H.P. such that the axis is inclined at 45° to H.P. Draw the projection of the prism. Now, the prism is cut by a sectional plane inclined at 60° to V.P. and bisecting the axis. Draw the sectional front view of the prism. **07**
- Q.4** (a) Differentiate between Epitrochoid and Hypotrochoid. **03**
- (b) Construct an Involute of a regular pentagon of 25 mm sides. **04**
- (c) The end projectors of a line PQ are 35 mm apart. The end P of the line is 10 mm above H.P. and 15 mm in front of V.P. The front view and top view of the line measure 50 mm and 60 mm respectively. Draw the projection of the line assuming end Q is in first quadrant. Also find the true length and true inclinations of the line with H.P. and V.P. **07**
- Q.5** (a) Give complete classification of solids. **03**
- (b) The frustum of a cone of 30 mm base diameter, 50 mm top diameter and 50 mm height is resting on V.P. on a point of its base circumference such that the axis is inclined at 50° to V.P. and parallel to H.P. Draw the projections of the solid. **04**
- (c) A regular hexagonal plate of 30 mm sides is resting on one of its edges on V.P. such that the surface is inclined at 45° to V.P. and the edge on which it is resting is inclined at 30° to H.P. Draw the projections of the hexagonal surface. **07**
- Q.6** (a) Draw F.V. and T.V. of the following points on a common XY line. **03**
(1) Point P is 20 mm behind H.P. and 15 mm below H.P.
(2) Point Q is 10 mm below H.P. and 20 mm in front of V.P.
(3) Point R is 20 mm behind V.P. and 10 mm above H.P.

Isometric view of an object is given in Figure 1.

- (b) Draw the left hand view of the object. (Use first angle projection) **04**
- (c) Draw the sectional front view along with A-A using first angle projection. **07**

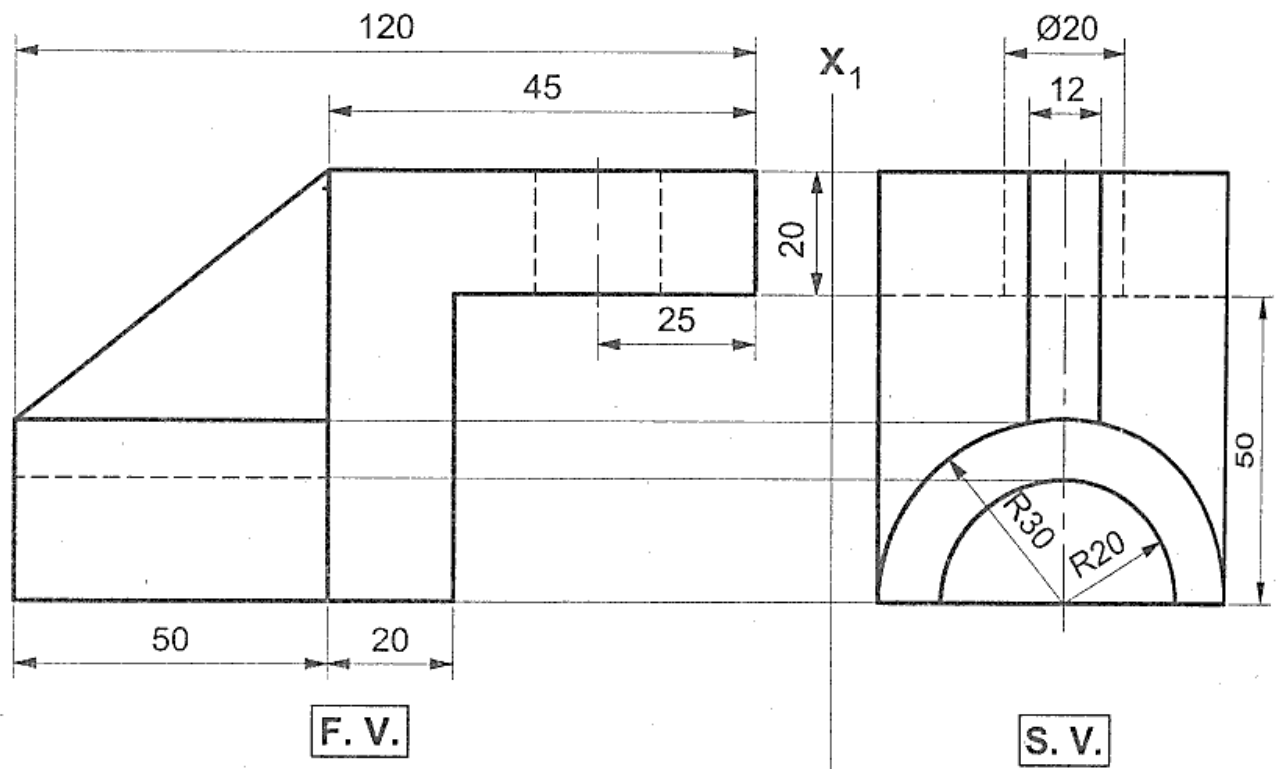


Figure 2.
