

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-1st / 2nd EXAMINATION (New Syllabus) – WINTER 2015

Subject Code: 2110013

Date: 04/01/2016

Subject Name: Engineering Graphics

Time: 10:30am to 01:30pm

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(a) Chose appropriate answer from the given options for the following:

7

- 1 When a cone is cut by a plane perpendicular to base passing through the apex “the shape of section obtained is.
(a) ellipse (b) parabola (c) hyperbola (d) triangle

- 2 In the third angle projection method, the view seen from left is placed on
(a) Left of the Front View (b) Right of Front View
(c) Right of Top View (d) Below Front View

- 3 A French curve is used to draw
(a) Circles (b) Ellipses (c) Smooth curves (d) Polygon

- 4 When the diameter of the directing circle is twice the diameter of rolling circle the hypo cycloid obtained is a
(a) Circle (b) Straight line (c) Parabola (d) Hyperbola

- 5 To obtain the true shape of the section of solid, an auxiliary plane is set
(a) Inclined at an angle of 45° to a cutting plane (b) parallel to XY
(c) Parallel to a cutting plane (d) perpendicular to a cutting plane

- 6 A square plate of negligible thickness is inclined to HP and parallel to V.P. The front view will appear as
(a) rhombus (b) square (c) line (d) rectangle
- 7 Length of a line 'L' in isometric drawing or view will be
(a) 0.707 L (b) 0.815 L (c) 0.866 L (d) equal to length L

(b) Choose appropriate answer from the given options for the following: 7

- 1 The angle between isometric axis is
(a) 30° (b) 90° (c) 120° (d) 180°
- 2 Which one of the following is not a reduction scale ?
(a) 1:1 (b) 1:200 (c) 5/320 (d) 5:6
- 3 When a line is inclined to VP and parallel to HP, the front view will be _____ to xy.
(a) parallel (b) perpendicular (c) inclined at angle ϕ (d) none of the above
- 4 While drawing the isometric view of the sphere, its diameter is taken as
(a) Equal to actual diameter (b) 11/9 times of the actual diameter
(c) 21/9 times of the actual diameter (d) none of the above
- 5 The isometric view of a vertical line is represented at an angle of ____ in front view and having a length _____ the original length of line.
(a) 30°, Same as (b) 30°, Less than
(c) 90°, Same as (d) 90°, Less than
- 6 When the cone, resting on base on V.P., is cut by section plane parallel to V.P. then the true shape is _____ and can be seen in _____ view.
(a) Circle, Front (b) Ellipse, Front
(c) Ellipse, Top (d) Circle, Top
- 7 For the third angle projection method, Which of the following is correct?
(a) Observer - Object - Plane (b) Observer - Plane - Object
(c) (a) and (b) both (d) None of above

Q2(a) Draw an ellipse having major axis 120 mm and minor axis 80 mm by using half ellipse by rectangle method and other half by concentric circle method. **7**

(b) The front view of a line AB, 90mm long, measures 65mm. Front view is inclined to XY line by 45°. Point A is 20mm below H.P. and on V.P. Point B is in third quadrant. Draw the projections and find inclinations of line with H.P. and V.P **7**

Q3(a) A string is kept tight while unwinding it from a pentagonal prism which is resting with its base on HP. If 125mm long string can be unwound in one turn, name the path traced by the end point of the string. **7**

(b) A square prism, base 45 mm side and axis 70 mm long has its base in H.P. and all edges of the base are equally inclined to V.P. It is cut by a section plane perpendicular to V.P. and inclined at 45 degree to the H.P. such that it bisects the axis. Draw its sectional top view, sectional side view and the true shape of the section. **7**

Q4(a) The distance between end projectors of the straight line KL is 48 mm. The end K is 20 mm below H.P and 25 mm behind V.P. The end L is 12 mm above H.P. and 40 mm in front of V.P. Draw the projections and find the true length of the line. **7**

(b) A circle of 50 mm diameter rolls along a straight line without slipping. Draw the curve traced out by point P on the periphery of the circle. Take the initial position of the point at the bottom on the vertical center line of the circle. Name the curve and also draw the normal and the tangent to the curve at suitable point on curve. **7**

Q5(a) A regular pentagonal plate is resting in V.P. on one of its sides with surface making an angle 45° with V.P. The side on which it rests on V.P. makes 60° with H.P. Draw the projections of pentagonal plate having the side 30mm. **7**

(b) A cone diameter of base 60 mm and height 90 mm is resting on H.P. on the point of periphery of the base. Axis of the cone makes 60 degree with the H.P. and 30 degree with the V. P. Draw the projections of the cone, when the apex is nearer to observer. **7**

Q6(a) Write down the difference between first angle and third angle projection methods. **4**

(b) Using the first angle projection method, draw the following view for the figure:-1. Give the dimensions using the Aligned dimensioning method. **10**
(i) Full Sectional front view
(ii) Top view
(iii) Left Hand Side View.

- Q7(a)** Construct a diagonal scale of representative fraction = $(1/36)$ showing yard, foot and inch. Scale should be long enough to measure 5 yard.. Measure 3 yard, 2 foot, and 9 inch. **4**
- (b)** The orthographic views of an object using the third angle projection method are shown in the FIGURE-2. Draw the isometric projection. **10**

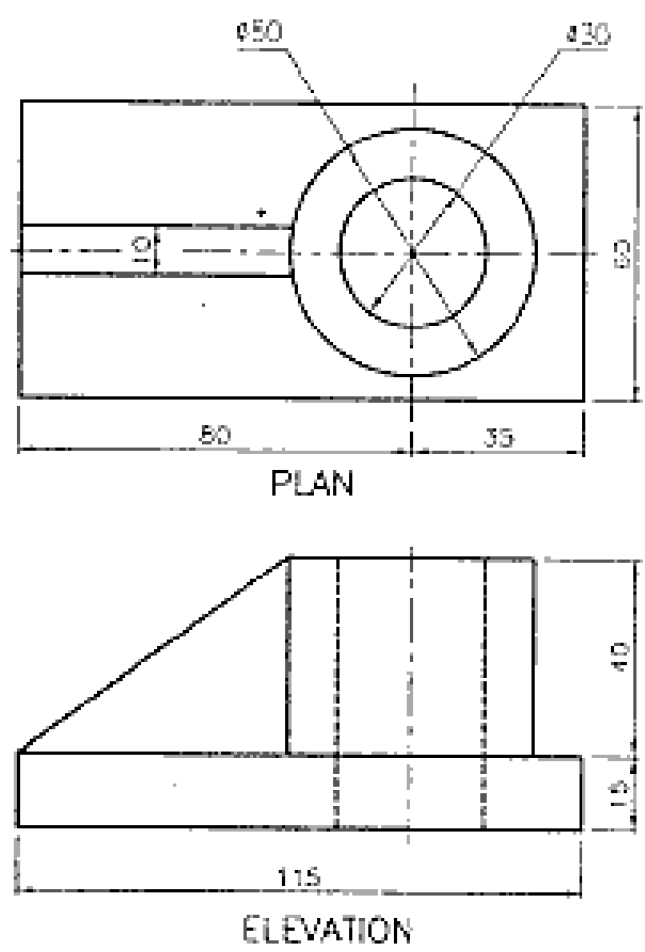


FIGURE-2 Q 7 (b)

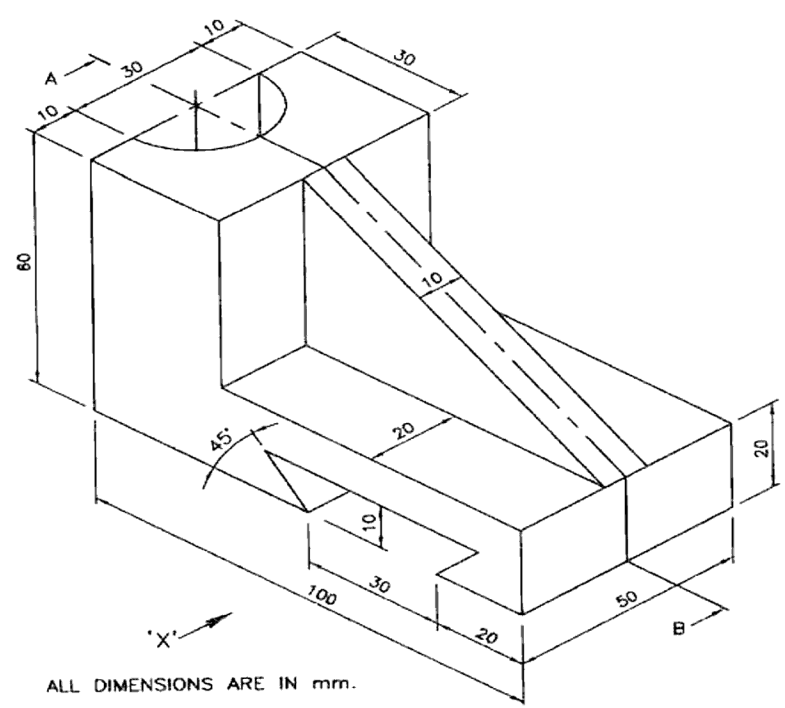


FIG :1 Q 6 (b)