Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– I &II NEW- EXAMINATION – WINTER 2017

Subject Code: 2110013 Date:10/01/2018

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 Objective Question (MCQ) **Mark**

(a) **07**

1. Which type of line is used to indicate a cutting plane?

2. What is the shape of section obtained, When a right regular cone is cut by a plane perpendicular to base and passing through apex?

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

4. When a line is inclined to VP and parallel to HP, the front view will be _____ to xy. (Parallel / Perpendicular/ Inclined)

5. In which view the true shape of the base reveals, When the axis of the solid is parallel to both HP and VP?

6. By which method the ellipse is normally drawn in isometric projection/drawing?

7. Define "Representative Fraction".

(b) **07**

1. Which of the following represent full scale?
a) 10:1 b) 20:1 c) 1:1 d) 1:10

2. Which is the line used for visible outlines?
a) Continuous thin b) Continuous thick
c) Chain thin line d) Short zigzag thin

3. When the line is parallel to VP and perpendicular to HP, we can get its true length in _____.
a) Top view b) Front view c) Side view d) Front view & Side view

4. Which of the following position is not possible for a plane?
a) Parallel to both HP and VP
b) Perpendicular to HP and parallel to VP
c) Perpendicular to VP and parallel to HP
d) Perpendicular to both HP and VP

5. A tetrahedron has ____equal rectangular faces.
a) 0 b) 2 c) 3 d) 4

6. If the value of Eccentricity is not equal to 1 curve will be_____
a) Ellipse or Circle b) Parabola or Ellipse
c) Parabola or Hyperbola d) Ellipse or Hyperbola

7. The side view of an object is drawn in _____.
a) Side plane b) Horizontal plane
c) Profile plane d) Vertical plane

Q.2 **(a)** Construct a plain scale of R.F. = 1:40 to show meters and decimeters and long enough up to 10 meter. Indicate 7.4 m distance on scale. **03**

(b) Use arc of circle method, draw an ellipse having major axis 120 mm and minor axis 80 mm. **04**

(c) Draw the Epy cycloid having circle of 40 mm diameter rolls on another circle of 150 mm diameter **07**

Q.3 **(a)** Draw the projections of the following points on the same X– Y line. **03**
(1) A point 'A' 20 mm below H.P. and 20 mm in front of V.P.
(2) A point 'B' 30 mm above H.P. and 40 mm in front of V.P.
(3) A point 'C' on V.P. and 30 mm above H.P.

(b) A line PQ 100 mm long is inclined at an angle of 40º to HP and 30º to VP. One of its end point 'P' is in HP as well as VP. Determine its apparent inclination with VP. **04**

(c) A line AB contains a point C on it such that the ratio of the distance of the CB:AC is 2:1. The end A is 20 mm above H.P. and it is in 1st quadrant. And the other end B is in V.P. The point C is 35 mm above H.P. The line is inclined with the H.P. at an angle 30°. The elevation length of the line AB is 70 mm. Draw the projections of the line AB. **07**

Q.4 **(a)** Explain "Solid of revolution". **03**

(b) A semi-circular thin plate of 50 mm diameter rests on H.P. on edge opposite to its diameter which is perpendicular to V.P. and inclined at 60º to H.P. Draw the projections of the plate. **04**

(c) A regular pentagonal plate PQRST of 30 mm sides, has its corner P on the V.P. the plate is inclined at 30° to the V.P. such that the side RS is parallel to both the reference planes. Draw the projection of plate. **07**

Q.5 **(a)** Explain Importance of Sections of solids. **03**

(b) A cube with a 25 mm side resting on one of its corners on the VP making equal angle to HP. Draw the projections when the base is inclined at 45º to VP and axis parallel to HP. **04**

(c) A cone diameter of base 60 mm and height 70 mm is lying on the ground with one of the generators its axis parallel to V.P. It is cut by a vertical section plane inclined at 40^0 to the V.P. Draw the sectional front view, top view and true shape of section. **07**

Q.6 **(a)** Draw the symbol of 1^{st} angle projection and 3^{rd} angle projection methods. **03**

(b) Using the first angle projection method. **04**
Draw the Front view (From direction of Arrow X) for fig.1. Consider missing dimension of diameter as 40.

(c) Draw the Top view and Left hand side view for fig.1. **07**

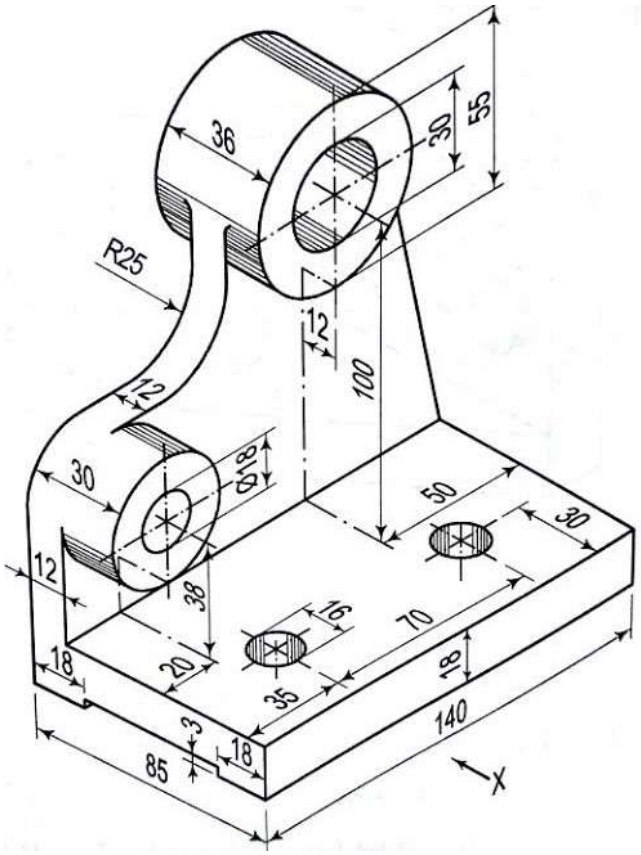

Fig.1

Q.7 **(a)** Write any three main difference between first and third angle projection. **03**

(b) Draw an isometric scale of 120 mm length and show 55 mm length on the scale. **04**

(c) Fig.2 shows two views of an object. Using isometric scale, draw the Isometric Projection indication dimensions on it. Consider total length in F.V as 80. **07**

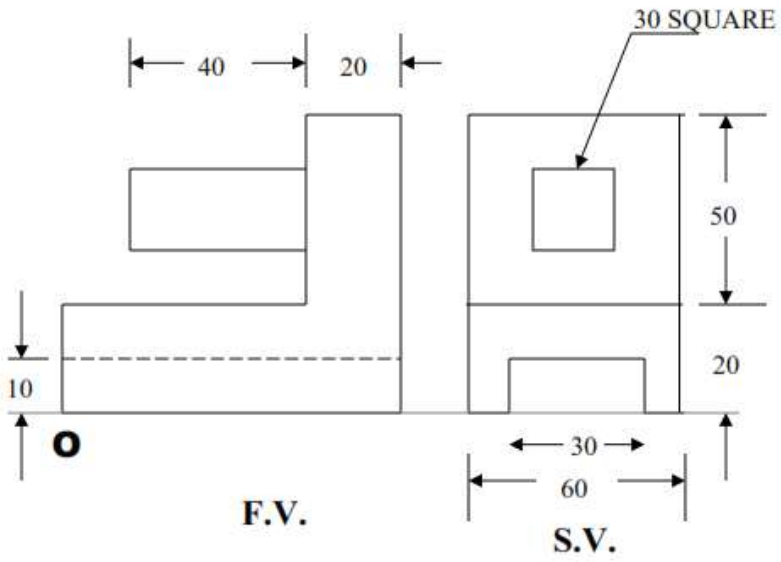

Fig.2

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