

Roll No. ....

Total Pages : 03

BT-2/M-23

42039

ENGINEERING GRAPHICS AND DESIGN  
ES-109A

Time : Three Hours]

[Maximum Marks : 75

**Note :** Attempt any *Five* questions.

1. (a) Describe the significance of Engineering graphics. 5  
(b) Draw a scale of 1 : 50 or of R.F. 1/50 to show metres and decimetres and long enough to measure up to 6 metres. 5  
(c) Explain the usage of Drawing Instruments in Engineering Graphics and Design. 5
2. (a) What is the difference between first angle projection and third angle projection ? 4  
(b) Discuss the general methods for generating ellipse. 5  
(c) Brief the following with drawing : 3×2=6  
(i) Involute  
(ii) Cycloid.
3. Draw the projections of the following points on a common XY line keeping the distance between their projectors 20 mm apart : 15  
(a) Point A is 30 mm above HP and 40 mm in front of VP.

- (b) Point B is 80 mm above HP and 40 mm behind the VP.
  - (c) Point C is 30 mm below HP and 40 mm behind the VP.
  - (d) Point D is 30 mm below the HP and 40 mm in front of VP.
  - (e) Point E is in both HP and VP.
4. A square pyramid, base 40 mm side and axis 65 mm long has its base in the V.P. One edge of the base is inclined at  $30^\circ$  to the H.P. and a corner contained by that edge is on the H.P. Draw its projections. 15
5. A triangular prism, base 30 cm side and axis 50 cm long, is lying on the H.P. on one of its rectangular faces with its axis inclined at  $30^\circ$  to the V.P. It is cut by a horizontal section plane, at a distance of 12 mm above the ground. Draw its front view and sectional top view. 15
6. A cylinder of base diameter 60 mm and axis 80 mm is resting on ground with its axis vertical. It is cut by a section plane perpendicular to the V.P. inclined at  $45^\circ$  to the H.P. passing through the top of a generator and cuts all the other generators. Draw the development of its lateral surface. 15

7. (a) What is an isometric scale ? Describe its constructional details.
- (b) Explain the principles of isometric projection in detail.
- (c) Explain the importance of Development of Surfaces.

5×3=15

8. Draw the front view, top view and side view in first angle projections of figure given below : 15

