

BT-2/M-24

42038

ENGINEERING GRAPHICS AND DESIGN
ES-109A

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Section.

Section A

1. Explain the following : 3×5=15
 - (a) The importance of Engineering Drawing
 - (b) The construction of Vernier scale with example
 - (c) The main requirements of Lettering.
2. (a) Discuss in detail the general methods for generating hyperbola. 7
(b) Write short notes on the following : 4×2=8
 - (i) Involute
 - (ii) Cycloid.

Section B

3. Draw the projections of the following points on a common reference (XY) line. Keep the distance between two projectors as 20 mm : 5×3=15

- (a) 30 mm above the HP and 40 mm front of VP.
- (b) 30 mm above the HP and 40 mm behind the VP.
- (c) 30 mm below the HP and 40 mm behind the VP.
- (d) 30 mm below the HP and 40 mm front of VP.
- (e) in the HP and 40 mm behind the VP.
4. End A of line AB is 20 mm above HP and 35 mm front of VP and end B 15 mm behind the VP and 25 mm below the HP. The end projectors are 40 mm apart. Draw projections of line and find its TL, ϕ , HT, and VT. 15

Section C

5. A pentagonal pyramid of base side 25 mm and axis 50 mm is resting on its base in the H.P. with an edge of the base parallel to the V.P. A horizontal section plane cuts the pyramid bisecting the axis. Draw its front view and sectional top view. 15
6. A cylinder of base diameter 70 mm and axis 90 mm is resting on ground with its axis vertical. It is cut by a section plane perpendicular to the V.P. inclined at 45° 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

Section D

7. Describe the construction of an isometric scale and also explain the principle of isometric projection with suitable diagrams. 15
8. A right circular cone of ϕ 30 mm base and height 36 mm rests centrally on top of a square block of 48 mm side and 22 mm thick. Draw the isometric projection of the two solids. 15