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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 in 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