Roll No. ..... Total Pages : 3

BT–1/D-23 **41042**

ENGINEERING GRAPHICS & DESIGN

Paper–ES–109A

Time Allowed : 3 Hours] [Maximum Marks : 75

Note : Attempt **five** questions in all, selecting at least **one** question from each Unit. All questions carry equal marks. Assume any missing data.

UNIT–I

1. A map is to be drawn with R.F. 1:40. Construct a scale to read metres, decimetres and centimetres and long enough to measure up to 6 m. Show on it a distance of 3.84m. 15

2. Construct a cycloid having a rolling circle of 50 mm diameter. Draw a normal and a tangent to the curve at a point 35 mm above the base line. 15

UNIT–II

3. Draw the projections of following Points on a common reference line, taking a gap of 25 mm between two consecutive vertical projectors : 15

   (a) Point P 30 mm above H.P. and 35 mm in front of V.P.

(b) Point Q 40 mm above H.P. and 20 mm behind V.P.

(c) Point R 25 mm HP and in V.P.

(d) Point T 35 mm below HP and 40 mm behind V.P.

4. A Line PQ 108 mm long has its plan and elevation lengths 60 mm and 90 mm respectively. One end of the line P is in HP while the other end is in VP. Draw its projections. 15

UNIT–III

5. A cube of 30 mm sides is held on one of its corners on HP such that the bottom square face containing that corner is inclined at 30° to HP. Two of its adjacent base edges containing the corner on which it rests are equally inclined to VP. Draw the top and front views of the cube. 15

6. A hexagonal pyramid of side 30 mm and altitude 60 mm is resting on HP on its base with two of the base sides perpendicular to VP. The pyramid is cut by a plane inclined at 30° to HP and perpendicular to VP. The pyramid is cut by a plane inclined at 30° to HP and perpendicular to VP and is bisecting the axis. Draw the development of the remaining portion of the pyramid. 15

UNIT–IV

7. Draw the three orthographic views of Hexagonal Nut. 15

8. Draw the front view, top view and side view of the following object : 15