**Code No: 181AG** **R22**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**
**B. Tech I Year I Semester Examinations, January/February - 2024**
**COMPUTER AIDED ENGINEERING GRAPHICS**
**(Computer Science and Engineering)**

**Time: 3 Hours** **Max. Marks: 60**

**Note:** This question paper contains two parts A and B.
i) **Part- A** for 10 marks, ii) **Part - B** for 50 marks.
- Part-A is a compulsory question which consists of ten sub-questions from all units carrying equal marks.
- Part-B consists of **ten questions** (numbered from 2 to 11) **carrying 10 marks each**. From each unit, there are two questions and the student should answer one of them. Hence, the student should answer five questions from Part-B.

## PART- A

**(10 Marks)**

| | | |
|---|---|---|
| 1.a) | What is the eccentricity of a hyperbola? | [1] |
| b) | Define cycloid. | [1] |
| c) | What are orthographic projections? | [1] |
| d) | Draw the projection of point P 30 mm below HP and and 10 mm behind VP. | [1] |
| e) | What is polyhedral? | [1] |
| f) | Give the specifications of a prism. | [1] |
| g) | What is the shape of the development of the full cylinder? | [1] |
| h) | What shape is obtained for the full development of the prism? | [1] |
| i) | Differentiate isometric projection and isometric view. | [1] |
| j) | What are simple solids? | [1] |

## PART - B

**(50 Marks)**

2. An area of 50 sq. km of a field is represented by an area of 150 sq.cm on a map. Determine the RF of the scale used in the map. Also construct a diagonal scale to show kilometers, hectometers and decameters. The maximum length to be indicated on the scale is 10 km. show a distance of 6.48 km on the scale. [10]

**OR**

3. A carriage wheel having a diameter of 48 cm is rolled on a rail. The wheel has a flange of 60 cm diameter. Draw the path of a point on the flange for one complete rotation of the wheel. Also draw tangent and normal at a point located 46 cm high above the rail top. Use suitable scale. [10]

4. A line PQ 85 mm long has its end P 10 mm above the HP and 15 mm in front of the VP. The top view and front view of line PQ are 75 mm and 80 mm respectively. Draw its projections also determine the true and apparent inclinations of the line. [10]

**OR**

5. An isosceles triangular lamina has base 25 mm long and altitude 35 mm. It is so placed on HP such that in the front view it is seen as an equilateral triangle of 25 mm sides with the side that is parallel to VP is inclined at 45° to HP. Draw its top and front views. Also determine the inclination of the lamina with reference plane. [10]

6. A cube of 40 mm sides rests on HP on an edge which is inclined to VP at 30º. Draw the projections when the lateral square face containing the edge on which it rests makes an angle of 50º to HP. [10]

**OR**

7. A right regular square pyramid side of base 55 mm and height 66 mm lies on one of its triangular faces upon ground such that its axis is parallel to VP. A section plane parallel to HP cuts the axis at its midpoint. Draw its front view and sectional top view. [10]

8. A square prism of base side 30 mm and axis length 60 mm is resting on HP on its base with all the vertical faces being equally inclined to VP. It is cut by an inclined plane 60º to HP and perpendicular to VP and is passing through a point on the axis at a distance 15 mm from the top face. Draw the development of the lower portion of the prism. [10]

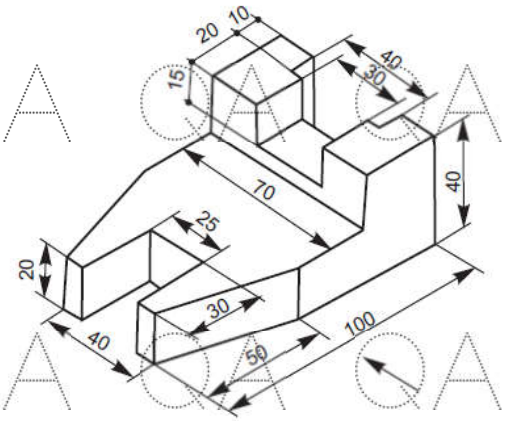
**OR**

9. A vertical cylinder of base diameter 45 mm and axis length 60 mm is cut by a plane perpendicular to VP and inclined at 50º to HP, is passing through the centre point of the top face. Draw the development of the lateral surface of the cylinder. [10]

10. A frustum of cone base diameter 50mm, top diameter 25mm and height 50mm is placed centrally on a cylindrical slab of diameter 100mm and thickness 30mm. Draw the isometric projection of combined solid. [10]

**OR**

11. Draw the front and top view of the following block. [10]
(All dimensions are in mm)

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