6/4/23 - AN

Code No: 181AG

R22

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech I Year I Semester Examinations, March/April - 2023
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 diagonal scale?	[1]
b)	What is a rectangular hyperbola?	[1]
c)	What is a profile plane?	[1]
d)	What is the difference between regular plane and irregular plane?	[1]
e)	When do we get the true shape of a solid in side view?	[1]
f)	What is meant by platonic solid?	[1]
g)	In development of surfaces, we have to take all dimensions as true lengths – why?	[1]
h)	What type of solids can be accurately developed?	[1]
i)	What is non-isometric plane?	[1]
j)	Distinguish between isometric view and isometric projection.	[1]

PART - B

(50 Marks)

2.a) Construct a diagonal scale 1/50, showing meters, decimeters and centimeters, to measure up to 5 meters. Mark a length 4. 68 m on it.

b) A coin of 40 mm diameter rolls over a horizontal table without slipping. A point on the circumference of the coin is in contact with the table surface in the beginning and after one complete revolution. Draw the path traced by the point. Draw a tangent and normal at a point 25 mm from the table. [5+5]

OR

3.a) Draw A parabola with the distance between directrix and focus as 60 mm. Draw normal and tangent at any point on the curve.

b) Construct a diagonal scale of RF = 1/6250 to read up to 1 km and to read meters on it. Show a length of 653 meters on it. [5+5]

4. A line AB inclined at 30^0 to the HP has its ends A and B, 25 mm and 60 mm behind the VP, respectively. The length of the top view is 65 mm and its VT is 15 mm below the HP. Draw the projections of the line and locate its HT. Also, determine the true length of the line AB and true inclination of the line with VP. [10]

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OR

5. The end A of diameter AB of a circle is in HP and the end B is in VP. The diameter AB, 50 mm long is inclined at 30^0 to HP and at 60^0 to VP respectively. Draw the projections of the circle. [10]

6. A cube of 70 mm long edges has its vertical faces equally inclined to the VP. It is cut by an auxiliary inclined plane in such a way that the true shape of the cut part is a regular hexagon. Determine the inclination of the cutting plane with the HP. Draw front view, sectional top view, and true shape of the section. [10]

OR

7. A hexagonal prism of side of base 35 mm and axis length 55 mm rests with its base on the HP such that two of the vertical surfaces are perpendicular to VP. It is cut by a plane inclined at 50^0 to HP and perpendicular to VP, and passing through a point on the axis at a distance of 15 mm from the top. Draw its front view, sectional top view, and the true shape of section. [10]

8. A cone of base diameter 40 mm and slant height 60 mm is kept on the ground on its base. An AIP inclined at 45° to the HP cuts the cone through the midpoint of the axis, and the top portion is removed. Draw the development of the remaining portion of cone. [10]

OR

9. A cylinder of 50 mm base diameter and axis 70 mm long rests on its base in the HP. A square cutout of 35 mm side is drilled through the cylinder such that the axis of cutout is perpendicular to the axis of the cylinder. The center of the cutout is 35 mm above HP and 15 mm away from the axis of cylinder. Two faces of the cutout are equally inclined to HP. Develop the lateral surfaces. [10]

10. Draw the front view, top view, and side view of the object shown in Figure.1. [10]

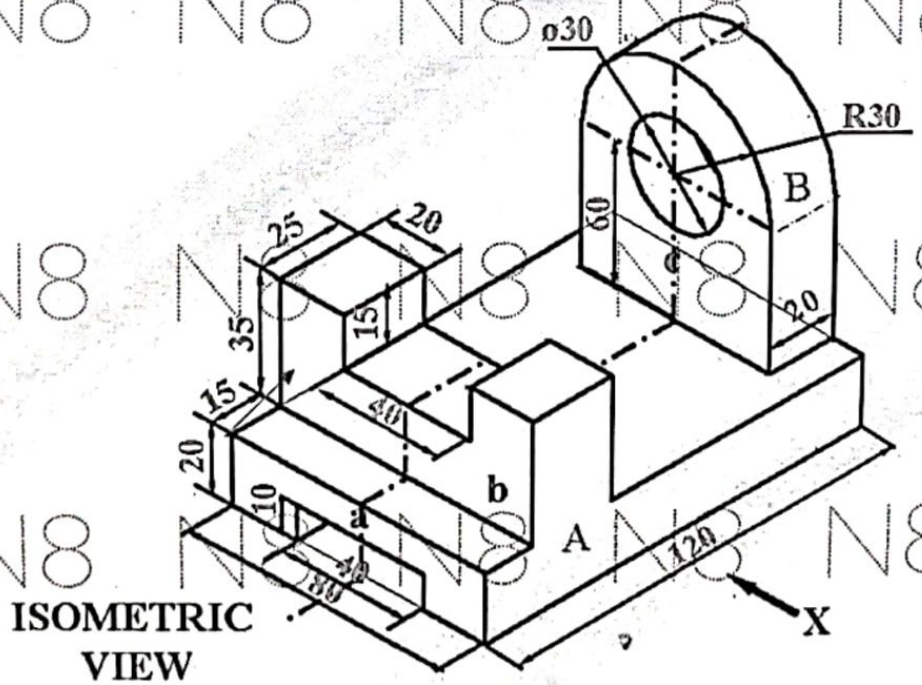

Figure.1

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OR

11. The front and top views of an object are shown in Figure.2. Draw its isometric projection. [10]

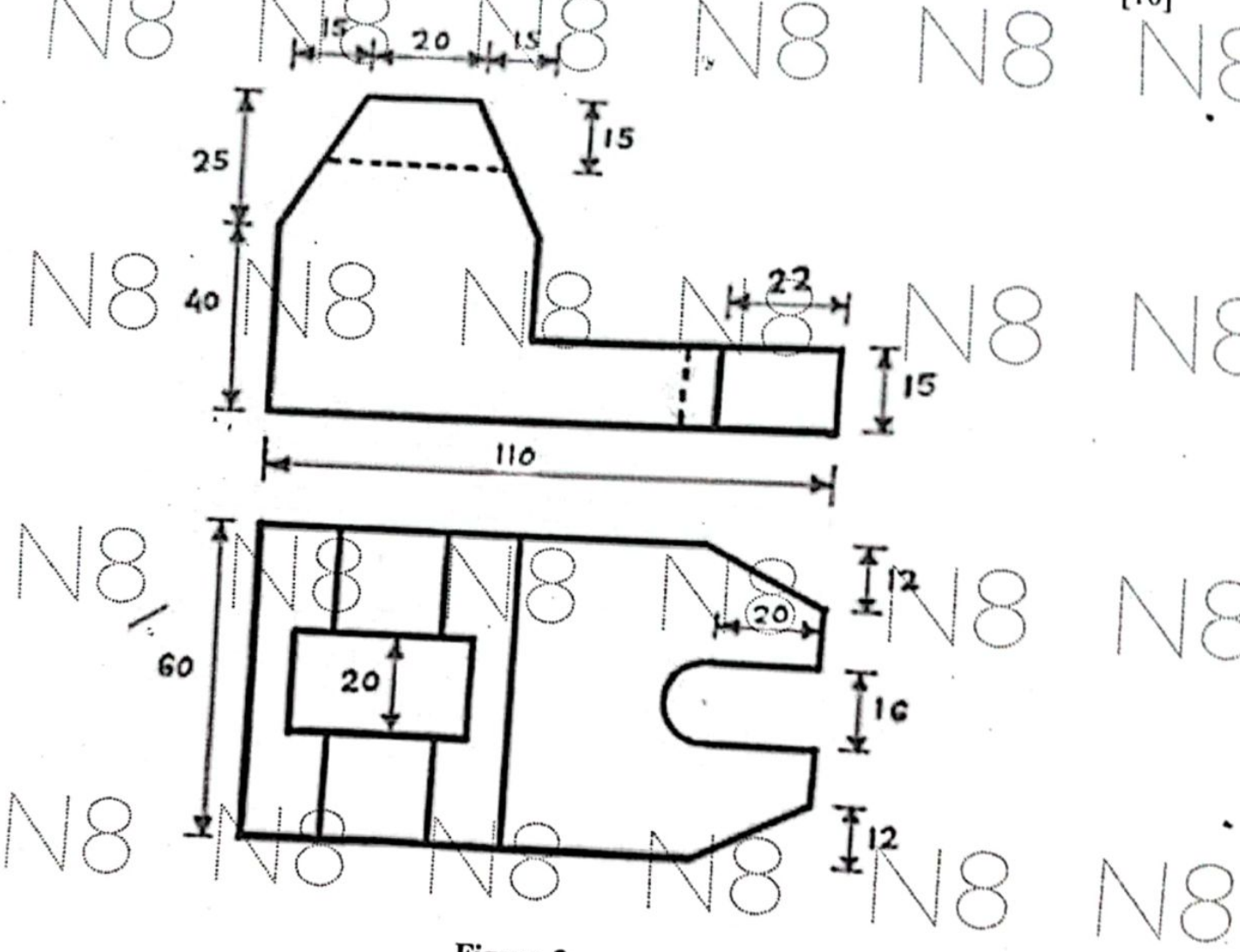

Figure.2

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