



## TECHNICAL UNIVERSITY OF MOMBASA

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FACULTY OF ENGINEERING AND TECHNOLOGY  
DEPARTMENT OF BUILDING & CIVIL ENGINEERING

**UNIVERSITY EXAMINATION FOR:**  
**BACHELOR OF SCIENCE IN CIVIL ENGINEERING**  
**EME 2101 : ENGINEERING DRAWING I**

SPECIAL/SUPPLEMENTARY EXAMINATION  
**SERIES: JULY 2025**  
**TIME: 3 HOURS**

### **Instructions to Candidates**

You should have the following for this examination

- Drawing paper, examination pass and student ID
- Drawing instruments

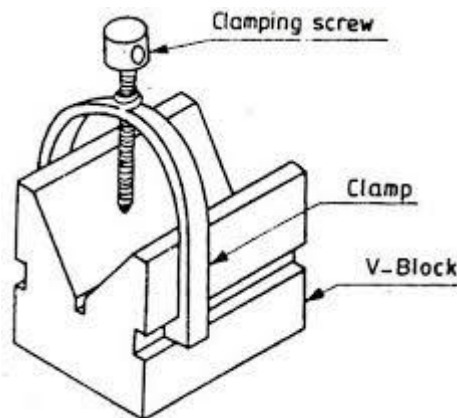
This paper consists of five questions.

Attempt question ONE (Compulsory) and any other TWO questions

**Do not write on the question paper.**

### **QUESTION ONE (COMPULSORY) 30 Marks**

- a) A triangular lamina with sides of 50 mm, 40 mm, and 30 mm lies on the ground plane. One of its corners, where the 50 mm and 40 mm sides meet, is touching the Picture Plane (PP). The 50 mm side is inclined at  $30^\circ$  to the PP. The station point is 35 mm in front of the PP, 50 mm above the Ground Plane (GP), and lies directly above the midpoint of the 50 mm side. Draw the perspective projection of the lamina. (20 Marks)
- b) Create freehand sketch of the v-block shown in Figure 1 below (10 Marks)



**Figure 1**

## ATTEMPT ANY TWO QUESTIONS

### QUESTION TWO

Construct the following plane figures:

- Regular hexagon 80mm across flats (5 Marks)
- Regular octagon 96mm across corners (5 Marks)
- Regular pentagon with sides 32mm long (5 Marks)
- Regular heptagon of sides 45mm long (5 Marks)

### QUESTION THREE

A circle of 70 mm diameter rolls along the outside of a straight line for one complete revolution. Trace the locus of a point on the circumference of the rolling circle. Name the curve. Draw a tangent and a normal to the curve at a point 80 mm from the starting point on the directing line. (20 Marks)

### QUESTION FOUR

Figure 2 shows the isometric projection of a casting. It is lying on the ground with its front face parallel to and 10mm behind the picture plane. The station point is located 50 mm in front of the picture plane and 70 mm above the ground plane. The central plane is 90mm away from the axis of the casting towards the right. Draw the perspective view of the casting. The arrow points in the direction of the front. (20 Marks)

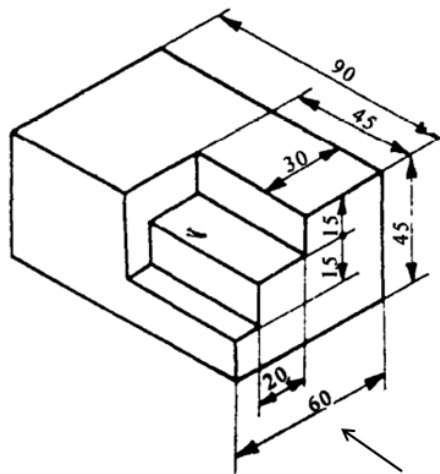
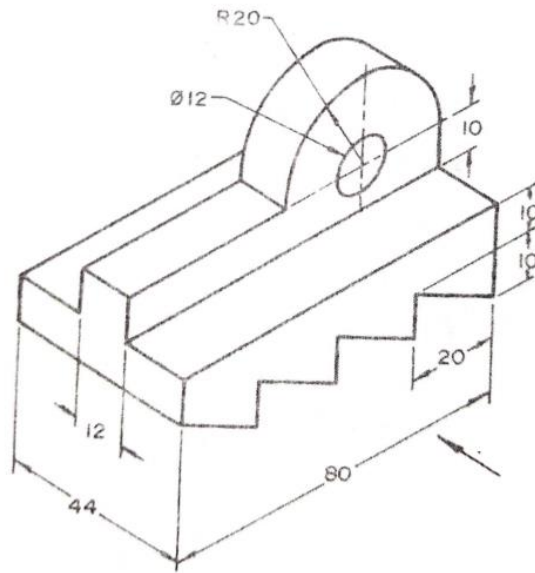


Figure 2

### QUESTION FIVE

Draw the Oblique Projection of the casting shown in Figure 3. Dimension the drawings as required. The arrow points in the direction of the front face. (20 Marks)



**Figure 3**