Mechanical and Automotive Engineering Department

UNIVERSITY EXAMINATIONS
FOR:
THE DEGREE OF BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING (Y1 S1)

EMG 2105: ENGINEERING DRAWING II

END OF SEMESTER SUPPLEMENTARY EXAMINATION

TIME: 3 HOURS

INSTRUCTIONS TO THE CANDIDATE:

1. This paper consists of **FIVE** questions. Answer question **ONE** in section **A** and **ONE** question in **B** and **ONE** question in section **C**.

2. Allow 1½ hours for question one and 45 minutes for each of the other questions.

3. Question one carries 40 marks. Each of the other questions carries 15 marks.

4. Construction lines should be faint and should not be erased.

SECTION A

Question One

Figure Q1 shows various parts of a pipe vice. To assemble the vice, the screw rod 4 is screwed into the base 1 from above. When the circular groove at the end of the screw rod is in-line with the 6mm diameter transverse hole in the housing, the movable jaw 2 is inserted from below.
After alignment, two set screws 3 are inserted into the jaw. This arrangement allows the jaw to move vertically without rotation when the handle is operated and the screw is turning.

Required

Assemble the parts of the pipe vice and draw the following views:
(i) Sectional view from the front (30marks)
(ii) View from above (10 marks)

SECTION B

Question Two

A vertical cylinder of 60mm diameter is penetrated by a horizontal cylinder of 40mm diameter. The axis of the penetrating cylinder is parallel to vertical plane and 6mm in front of the axis of the vertical cylinder.
Draw the projections and show the intersection curves. (15 marks).

Question Three

A vertical cylinder of 50mm diameter and 80mm height is penetrated by a cone of base 60mm diameter and axis 70mm long, the axes of the two solids bisecting each other at right angles.
Draw the projections showing the curves of intersection (15 marks)

SECTION C

Question Four

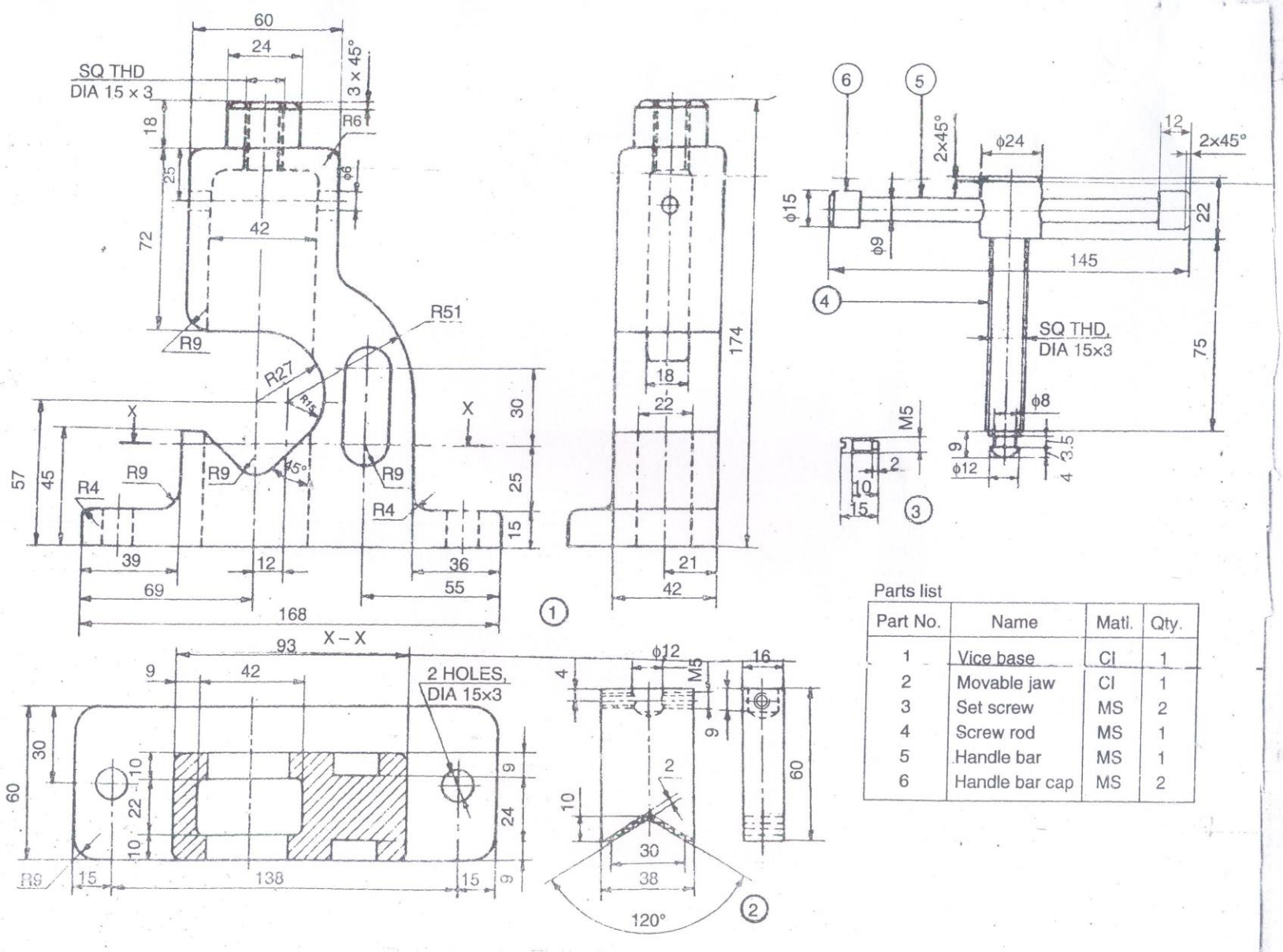
Figure Q1 shows a cylinder of
diameter 40mm, height 75mm is cut by a plane perpendicular to vertical plane and inclined at 55° to horizontal plane meeting the axis at top face.
Draw the internal development of the solid.

(15 marks)

Question Five

A single mild steel sheet is to be cut to fabricate a sheet metal tray shown in figure Q5.
Draw the true shape of the cut sheet.

(15 marks)



Parts list

Part No.	Name	Matl.	Qty.
1	Vice base	CI	1
2	Movable jaw	CI	1
3	Set screw	MS	2
4	Screw rod	MS	1
5	Handle bar	MS	1
6	Handle bar cap	MS	2

FIG. Q1- PIPE VICE

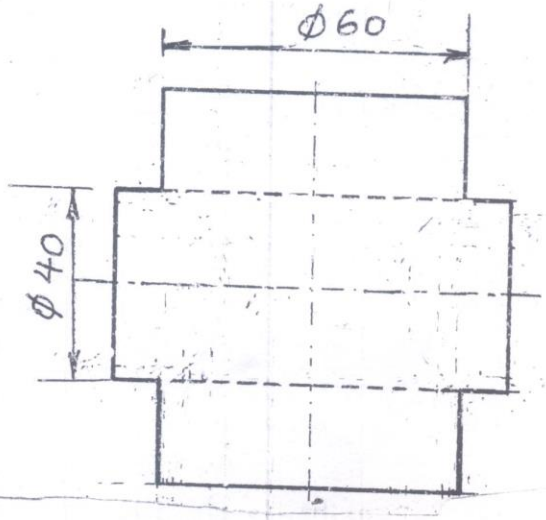


FIG. Q2

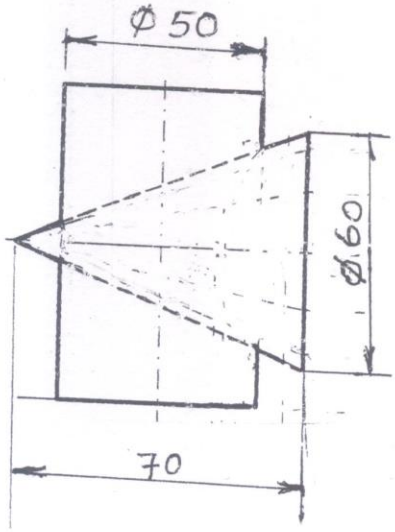


FIG. Q3

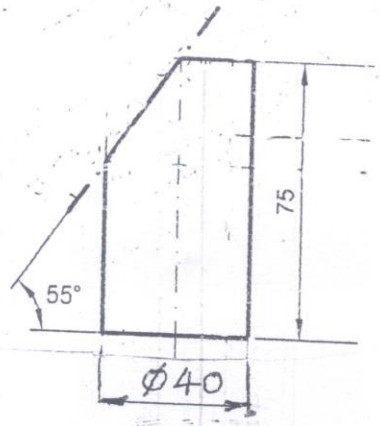


FIG. Q4

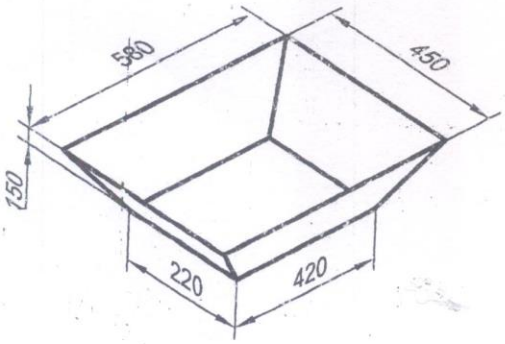


FIG. Q5