



TECHNICAL UNIVERSITY OF MOMBASA
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 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

Screw jacks are used for raising heavy loads through very small heights. Figure Q1 shows the details of one type of screw jack.

In the figure, the screw 3 works in the nut 2 which is press fitted into the main body 1. The Tommy bar 7 is inserted into a hole through the enlarged head of the screw and when this is turned, the screw will move up or down, thereby raising or lowering the load.

Required

Assemble all parts of the screw jack, shown in Fig Q1 and draw the following views:

- (i) Half sectional view from the front and (30 marks)
- (ii) View from above (10 marks)

SECTION B

Question Two

A cylinder of 50mm diameter stands vertically with its base on horizontal plane. It is completely penetrated by another cylinder of 35mm diameter. The axis of the penetrating cylinder is parallel to vertical plane, indicated at 30° to vertical plane and bisects the axis of the vertical cylinder as shown in Fig. Q2.

Draw the curves of penetration

(15 marks)

Question Three

A cone of base 60mm diameter and axis 70mm long, rests with its base on horizontal Plane. It is completely penetrated by a horizontal cylinder of 30mm diameter such that both the axes intersect each other at right angles. The axis of the cylinder is parallel to vertical plane and 20mm above the base base of the cone as shown Fig Q3. Draw the projections of the solids showing the curves of intersection.

(15 marks)

SECTION C

Question Four

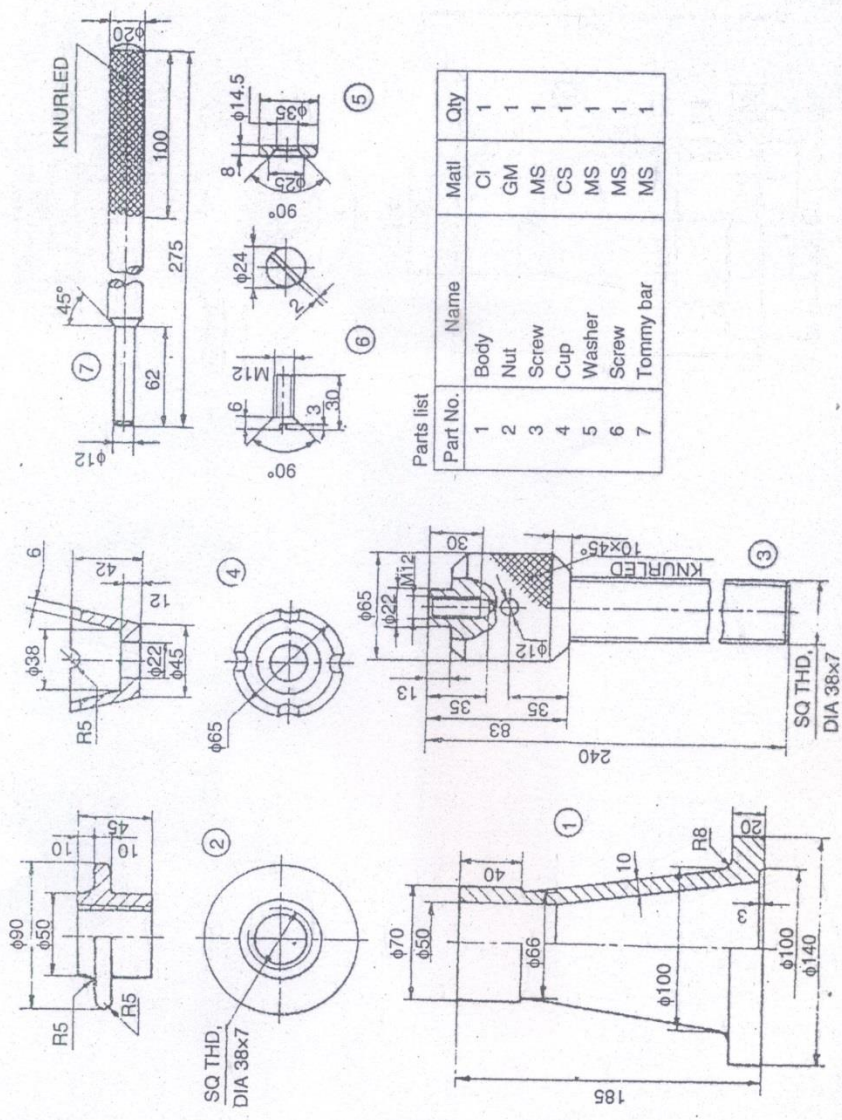
Draw the development of a two piece cylindrical 90° Elbow shown in Fig.Q4.

(15 marks)

Question Five

A lamp shade is formed by cutting a cone of base 144mm diameter and 174mm height by a horizontal plane at a distance of 72mm from the apex and another plane inclined at 30° to horizontal plane, passing through one extremity of the base. Draw the development of the lamp shade.

(15 marks)



Parts list

Part No.	Name	Matl	Qty
1	Body	CI	1
2	Nut	GM	1
3	Screw	MS	1
4	Cup	CS	1
5	Washer	MS	1
6	Screw	MS	1
7	Tommy bar	MS	1

FIG. Q1 SCREW JACK

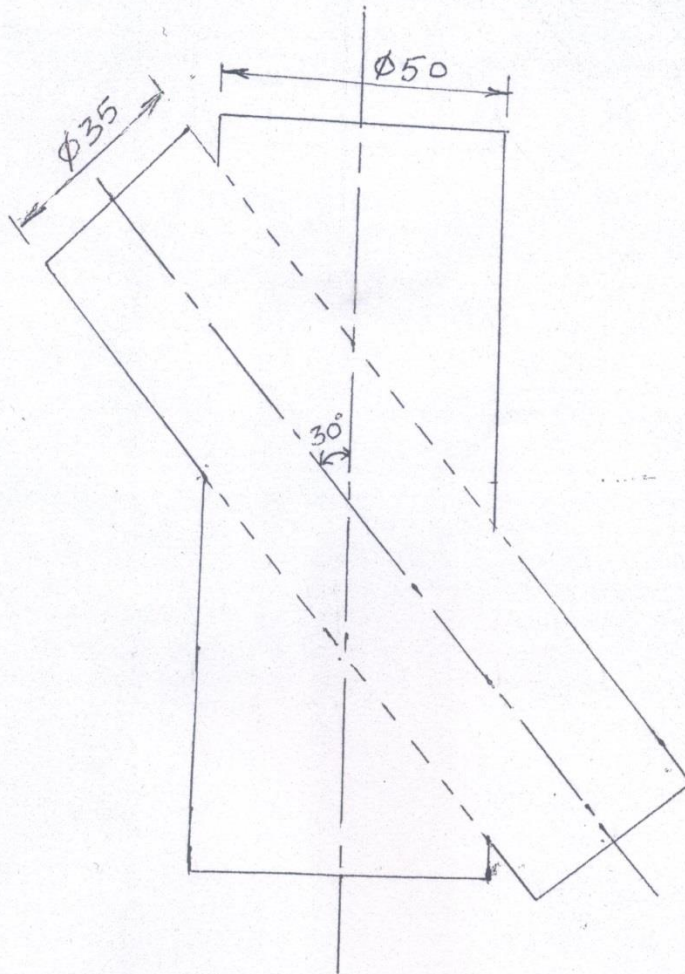


FIG. Q2

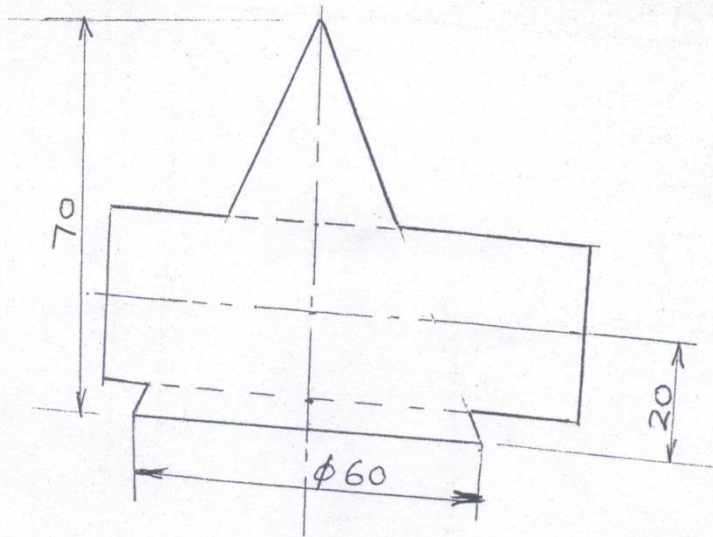


FIG. Q3

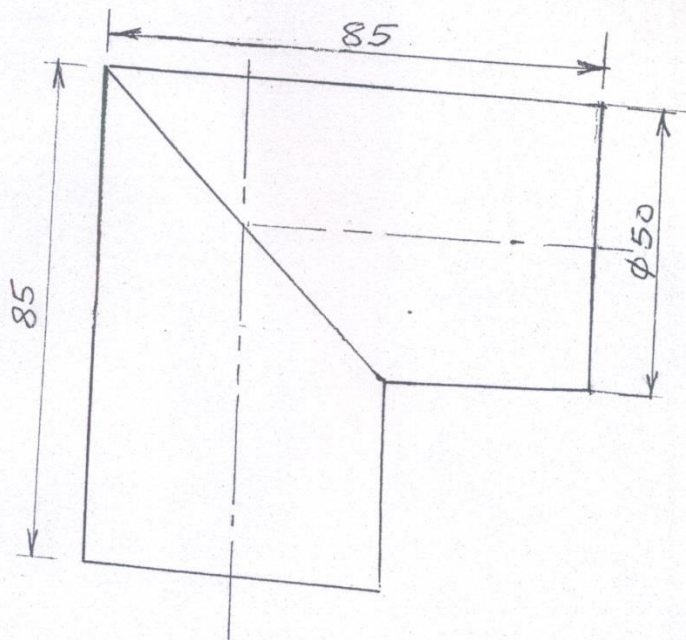


FIG. Q4

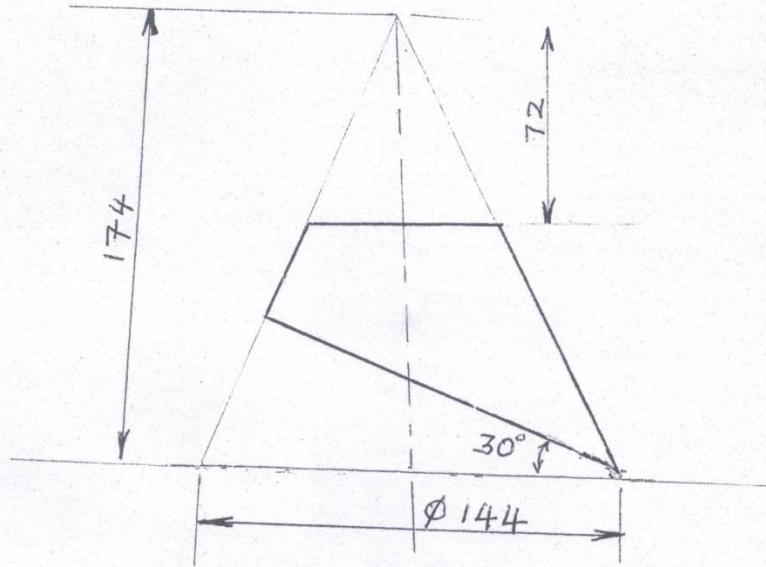


FIG. Q5

