TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering and Technology
Department of Mechanical & Automotive Engineering
UNIVERSITY EXAMINATION FOR:
Diploma in Mechanical Engineering
EME 2105: Engineering Drawing & Design I
SPECIAL/ SUPPLEMENTARY EXAMINATION
SERIES: AUGUST 2019
TIME: 3 HOURS
DATE: Pick Date **Aug 2019**

Instruction to Candidates:
You should have the following for this examination
- *Student I.D. Card & Examination Pass*
- *Answer booklet*
- *Non-Programmable scientific calculator*

This paper consists of **FIVE** questions. Attempt question **ONE** and any other **TWO** questions.
Maximum marks for each part of a question are as shown.
Do not write on the question paper.

Question ONE (Compulsory)
Figure 1 shows a Metal Casting drawn in Isometric projection. Draw the Casting in third angle orthographic projection the following views;
a) Front elevation viewed from the right hand side.
b) End elevation viewed from the left hand side.
c) Plan viewed from the top.
Dimension your drawing correctly and show the symbol of projection.

(20 marks)

Question TWO
a) Construct a diagonal scale 50 mm to represent 1 mm, 3 mm long and to read to 0.01mm. **(10 marks)**
b) Using the scale constructed in (a) above, construct quadrilateral ABCD, AB = 2.63 mm, AB is parallel to CD and 1.18 mm apart, CD = 0.76 mm, angle ABC=67 ½ º. What is the name of the quadrilateral? **(10 marks)**
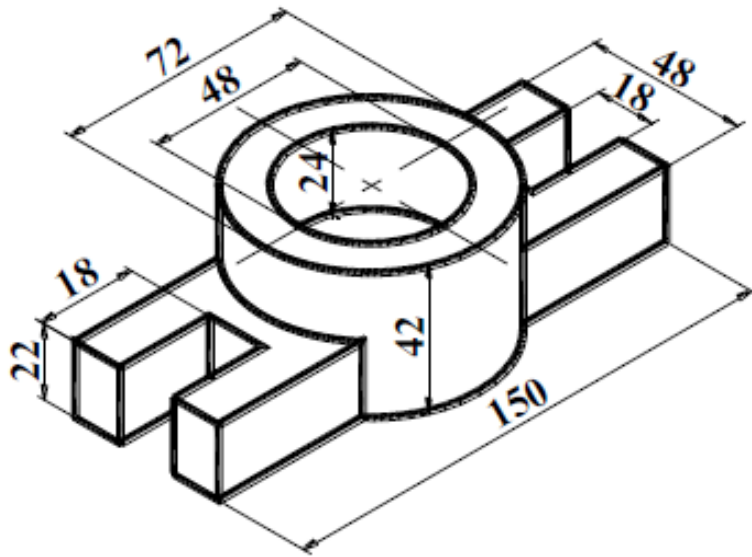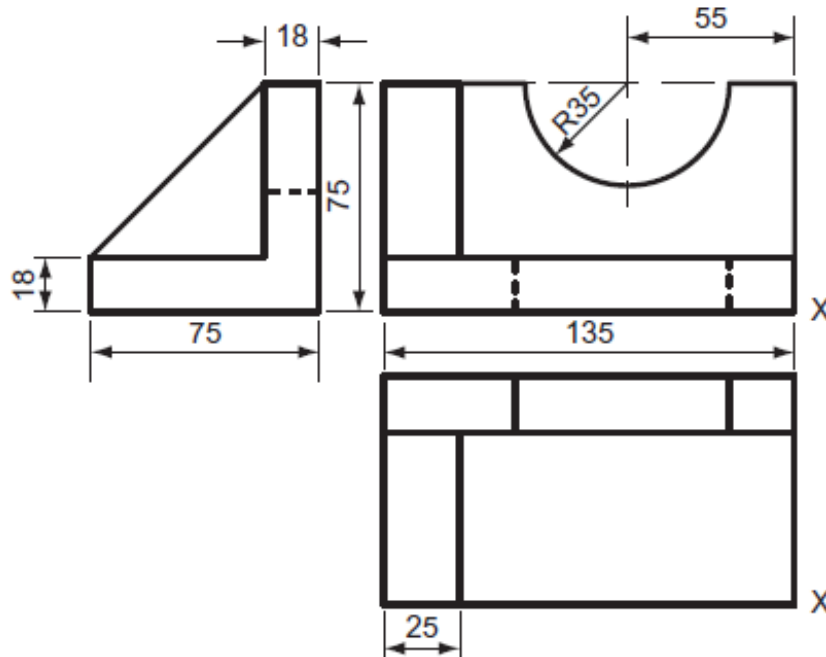
Figure 1

Question THREE

Figure 2 shows three views of a mechanical block drawn in first angle orthographic projection. From the views given, construct an Isometric view of the block.   **(20 marks)**

Dimensions in mm

Figure 2

Question FOUR

Figure 3 shows a link mechanism where crank OA rotates about a fixed centre O whilst crank CB oscillates about the fixed centre C. Lever AB is pin-jointed at both ends.

a) Construct the locus of point P, which is 60mm from B on lever AB, for one complete revolution of crank OA.

b) State the total angle of oscillation of crank CB.

(20 marks)

OA = 30mm

AB = 100mm

CB = 75mm

Figure 3

Question FIVE

A funnel is to be made as shown in **Figure 4**. Copy the given view and draw the developments of the conical and one cylindrical surfaces. (20 marks)

Figure 4