



# TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MEDICAL ENGINEERING

**UNIVERSITY EXAMINATION FOR:**

**BSC IN MEDICAL ENGINEERING**

**EME 4154: ENGINEERING DRAWING II**

**END OF SEMESTER EXAMINATION**

**SERIES: APRIL 2016**

**TIME: 2 HOURS**

**DATE: 18 May 2016**

## Instructions to Candidates

You should have the following for this examination

*-Answer Booklet, Drawing Instruments, Scientific calculator, examination pass and student ID*

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

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

## **Question ONE**

A machine support unit is shown in FIG 1. Construct in the **FIRST** angle orthographic projection on a scale of 1:1 to show

- i. A front sectional elevation on plane A - A
- ii. An end elevation on plane E
- iii. A plan elevation on plane P
- iv. Full dimensions

(30 Marks)

## **Question TWO**

A disc cam of minimum diameter 30mm is designed to impart the following motions on a knife edge follower

- Rise 60 mm with UA and R motion       $0^\circ - 180^\circ$
- Dwell       $180^\circ - 270^\circ$
- Fall 60 mm with SHM       $270^\circ - 360^\circ$

i) Construct, on an appropriate scale, the displacement graph for this cam

(20 Marks)

### **Question THREE**

Construct to show the crank mechanism shown in FIG 2. If crank A-D makes one rotation and crank B – C reciprocates about B and link P – C is pin-jointed at B and C.

i) For one rotation of crank A – D, plot the locus of point P

(20 Marks)

### **Question FOUR**

FIG 3 shows two views of an open ended pentagonal based pyramid, whose plan view is incomplete.

- i. Construct to show the two views on a full size scale
- ii. Construct to complete the plan view
- iii. Construct to show the economical sheet metal development of the pyramid

(20 Marks)

### **Question FIVE**

Two open ended cylinder system assembly is shown in FIG 4

- i. Construct to show the assembled system to include a plan view
- ii. Construct to show the interpenetration curve of the assembly on the front view
- iii. Construct to show the end view for the system in the arrow direction E

(20 Marks)

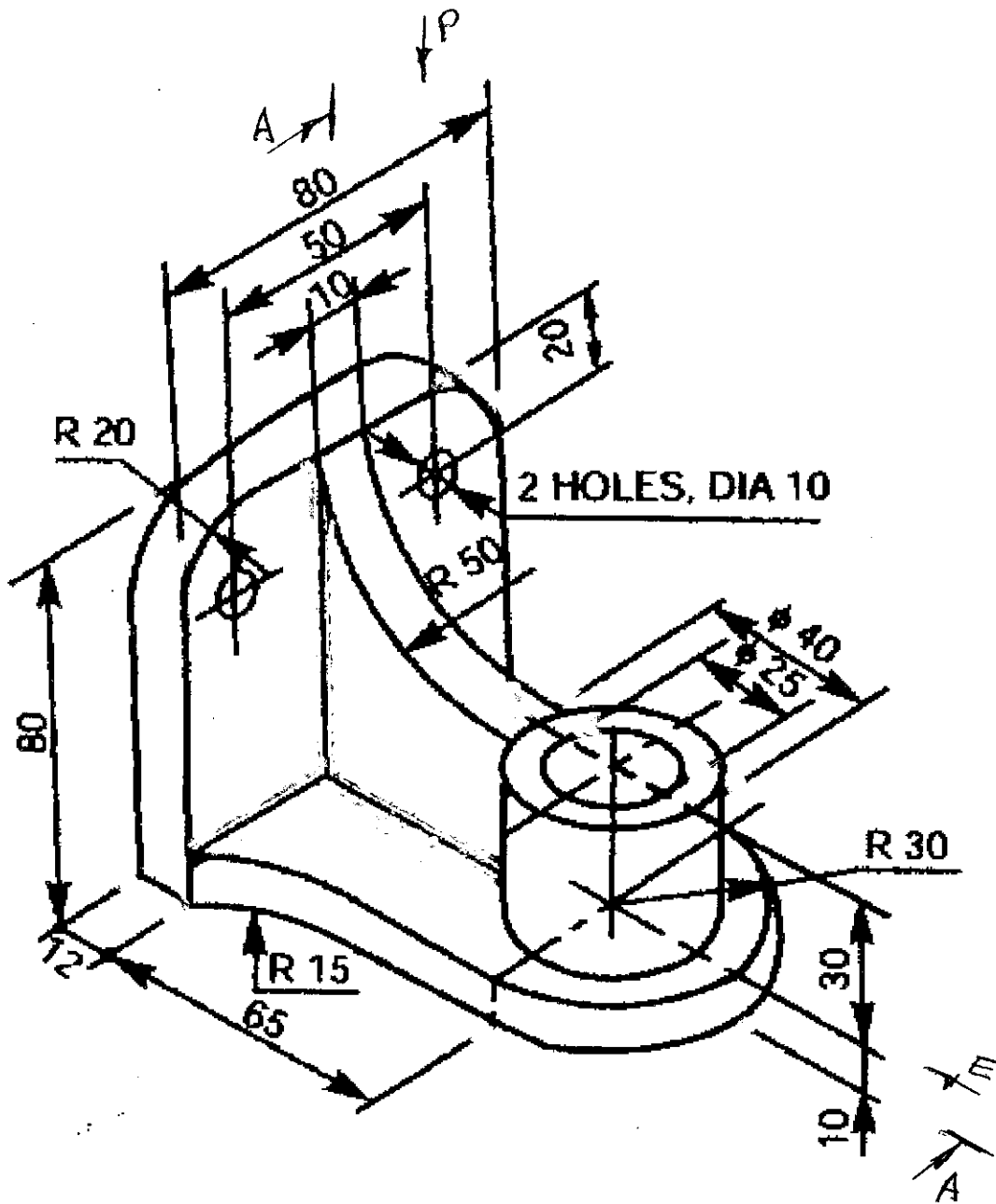
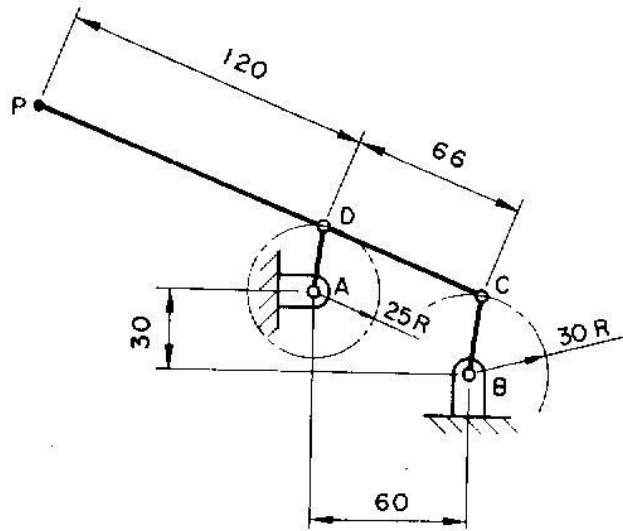
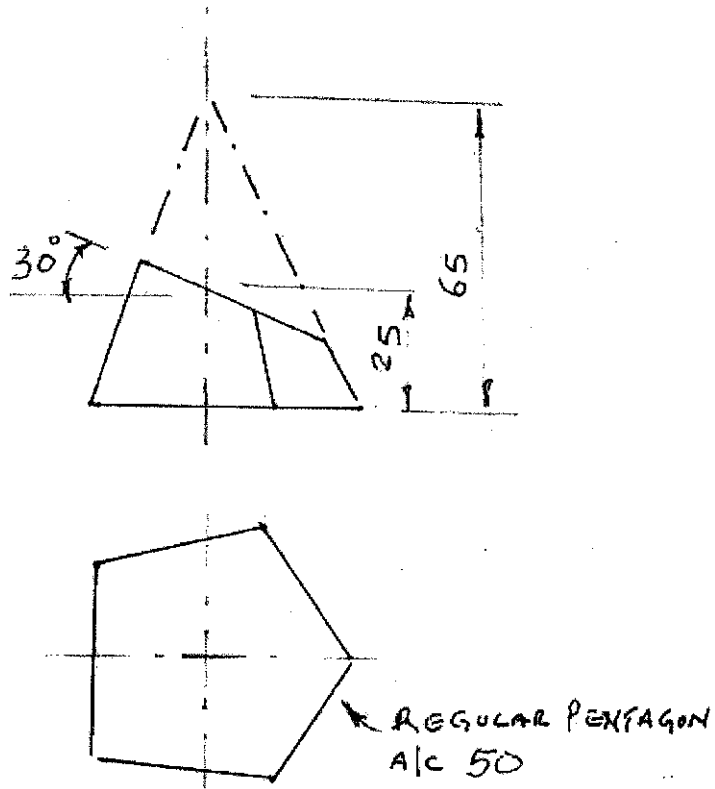


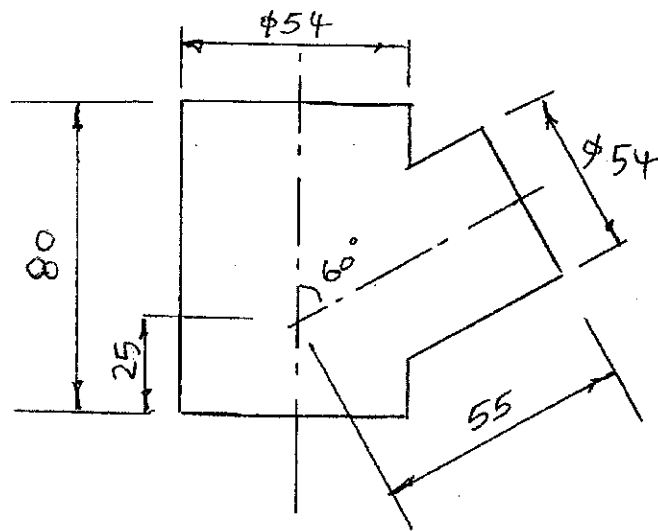
FIG 1



**FIG 2**



**FIG 3**



**FIG 4**