



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: 17 May 2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, 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

Fig 1 shows an engineering component. Draw to show the component using the FIRST angle orthographic projection on a scale of 1:1 to include:-

- i. Front sectional view on plane X-X
- ii. End elevation on plane E
- iii. Plan elevation on plane P
- iv. Full dimensions

(30 Marks)

Question TWO

Fig 2 shows a truncated hexagonal based pyramid, whose plan view is incomplete.

- i. Construct to show the views on 1st angle orthographic projection
- ii. Complete the plan view

- iii. Include an end view as seen in arrow direction E
- iv. Construct to show the auxiliary view of the top part

(20 Marks)

Question THREE

Two open ended cylinders are shown in Fig 3.

- i. Construct to show the two cylinders
- ii. Include a plan view of the cylinders
- iii. Construct to show the interpenetration curve of the two cylinders

(20 Marks)

Question FOUR

Construct to show the link mechanism set-up shown in Fig 4. Crank OA is pin-jointed and rotates about O while point B is constrained to move along path X-X. If Crank OA = 30mm and link AB = 100mm, construct to show the locus of mid-point P of link AB for one rotation of crank OA

(20 Marks)

Question FIVE

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

- 30mm rise with UV $0^\circ - 180^\circ$
- Dwell $180^\circ - 270^\circ$
- Fall with SHM $270^\circ - 360^\circ$

i) Construct to show the displacement graph for these motions.

(20 Marks)

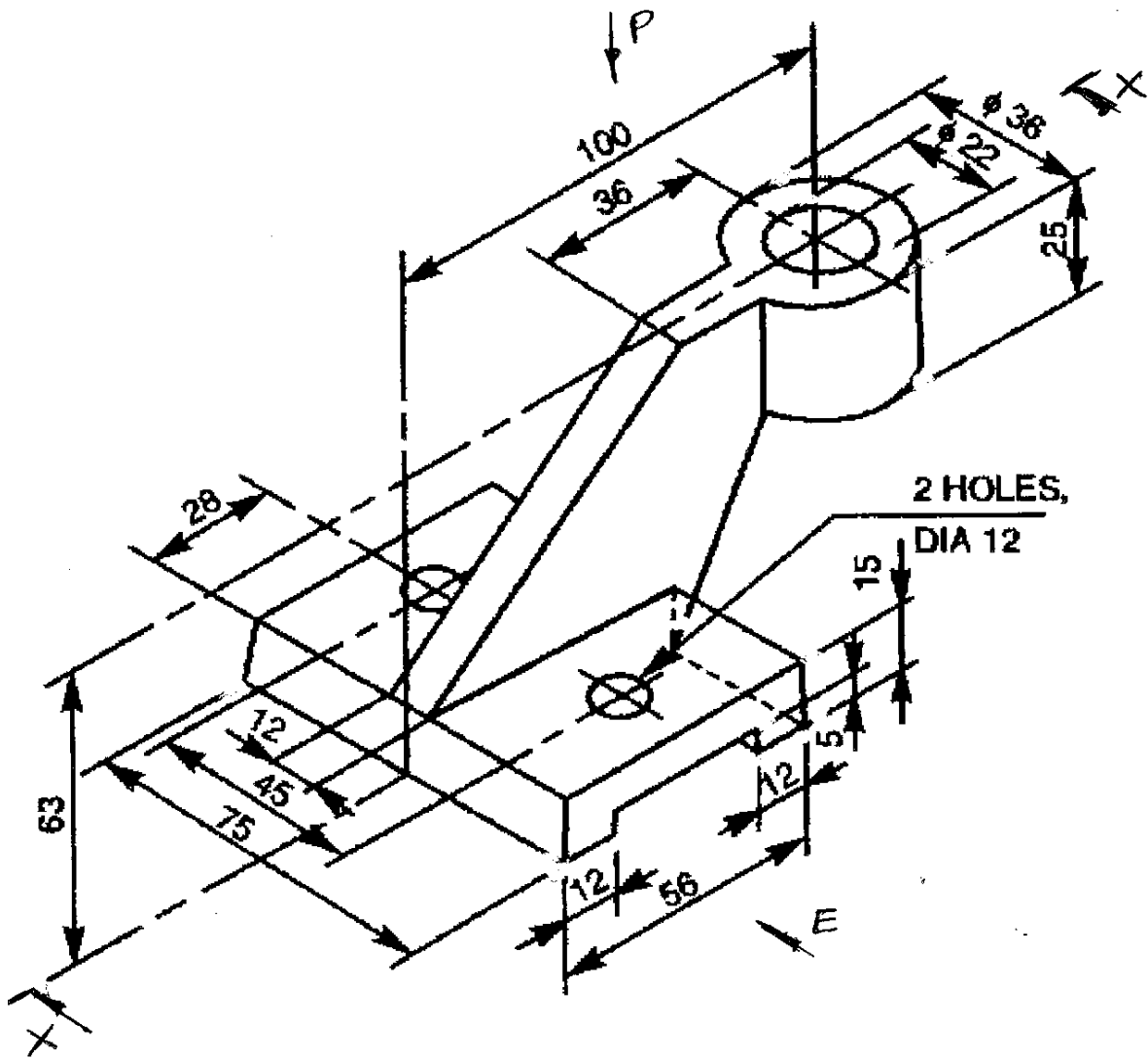


FIG 1

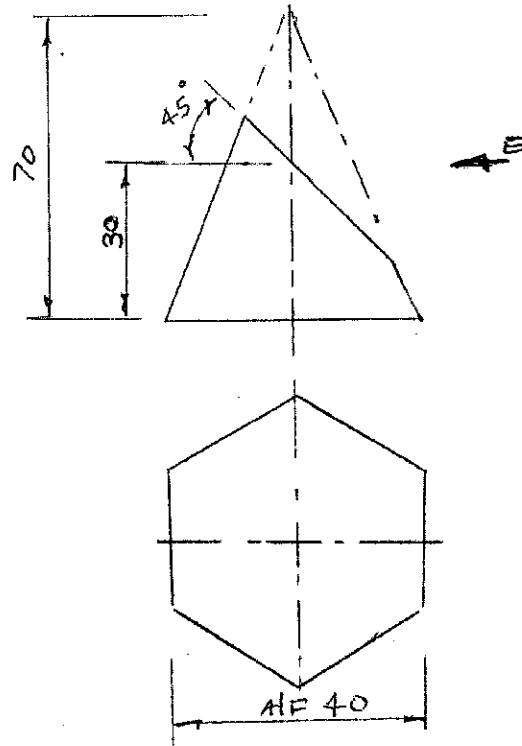


FIG 2

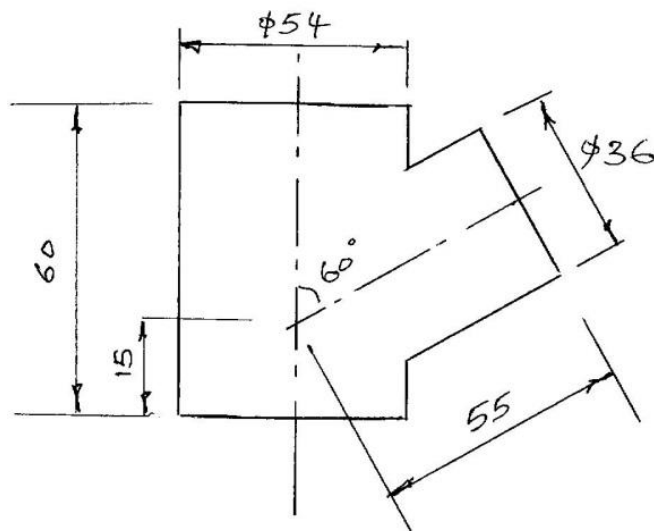


FIG 3

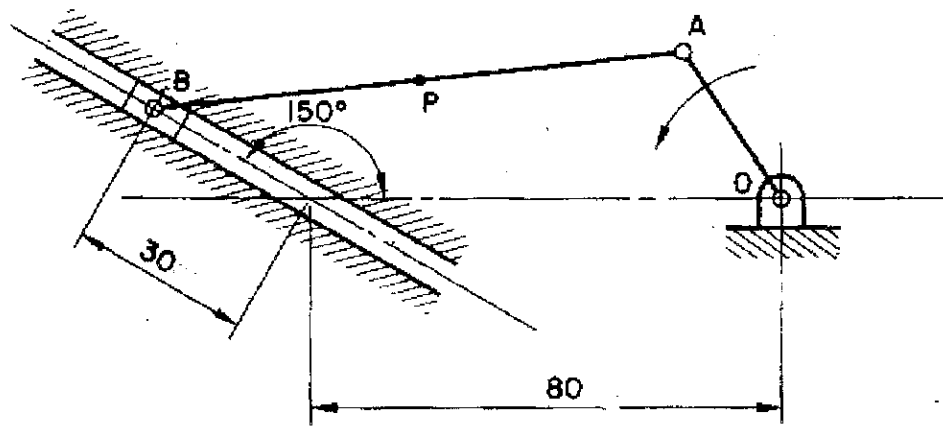


FIG 4