THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

FACULTY OF ENGINEERING &TEHNOLOGY

Department of Mechanical & Automotive Engineering

Diploma in Mechanical Engineering (Plant)
Diploma in Mechanical Engineering (Production)
Diploma in Automotive Engineering
Diploma in Chemical Engineering

YEAR I SEMESTER I

SPECIAL/SUPPLEMENTARY EXAMINATION

EME 2208

ENGINEERING DRAWING III

SERIES: OCTOBER, 2011

TIME: 2 HOURS

Instructions

You should have the following for this examination:

- Answer booklet
- Scientific calculator
- A2 Drawing Paper

This paper consists of **FIVE** Questions, answer
Question **ONE** (Compulsory) and any other **TWO** Questions.
Marks for each question are shown.

Question ONE (Compulsory)

Figure I show views a wheel Bracket Assembly. Assembly all the parts and draw the following views in Third angle orthographic projection:

(a) Front elevation
(b) End elevation viewed from E.

Show symbol of projection and scale used.

(30 Marks)

Question TWO

(a) State and sketch **THREE** types of cam followers. **(3 Marks)**

(b) A cam is required to impert the following motion:

- Rise 20mm with 5Hm for 90°
- Rise 30mm with uniform velocity for 60°
- Dwell for 90°
- Fall 50mm with uniform acceleration for 120°

Minimum radius of the cam is 30mm cam rotation is clockwise with a knife edge follower.

Construct the displacement diagram and the cam profile.

(17 Marks)

Question THREE

(a) Sketch and show the features of the following types of threads:

(i) Acme
(ii) Buttress

(5 Marks)

(b) A single start square thread is required with major diameter 120mm and pitch of 50mm. construct the thread upto the third pitch. **(15 Marks)**

Question FOUR

Figure shows a diagram of a link mechanism. Crank OA pin-jointed to linke AP at A. Link BC oscillates about point C and is Pin-jointed to link AP at B. Trace the locus of Point P for one complete revolution of crank OA. **(20 Marks)**

Question FIVE

(a) Explain briefly the difference between plain and roller bearings use sketches. **(3 Marks)**

(b) Sketch a roller bearing and name its parts. **(3 Marks)**

(c) With the aid of sketches explain the difference between needle roller bearing and self-aligning bearing. **(10 Marks)**

(d) (i) State **FOUR** materials used for the manufacture of plain bearings.

(ii) Nylon is a type of plastic used as a bearing material. State where it is used and the reason why it is suitable.

(4 Marks)