



# **Technical University of Mombasa**

## **Faculty of Applied and Health Sciences**

**DEPARTMENT OF MECHANICAL AND AUTOMOTIVE ENGINEERING**  
DIPLOMA IN MECHANICAL ENGINEERING (PLANT)  
DIPLOMA IN MECHANICAL ENGINEERING (AUTOMOTIVE)  
DIPLOMA IN MECHANICAL ENGINEERING (CHEMICAL)

## **EME 2102: ENGINEERING DRAWING I**

YEAR I SEMESTER I

SPECIAL/SUPPLEMENTARY EXAMINATION  
February 2013 SERIES  
TIME: 2 HOURS

### ***INSTRUCTIONS TO CANDIDATES:***

You should have the following for this examination:

- Drawing paper A2
- Drawing Instruments

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.

***This paper consists of 3 printed Pages***

### Question ONE

- a) Figure I shows a template. Copy the template and show clearly how the centre for the curves are obtained. **(30marks)**

### Question TWO

- a) Give the full meaning of the following abbreviations used in engineering drawing;

- i) S'FACE
- ii) ASSY
- iii) CHAM
- iv) SPEC
- v) PCD

**(5marks)**

- b) State the abbreviations for the following terms

- i) Material
- ii) Undercut
- iii) Drawing
- iv) Round head
- v) Hexagon head

**(5marks)**

- c) Sketch the conventional symbols to represent the following;

- i) First angle projection
- ii) Square
- iii) Third angle projection
- iv) Diameter
- v) Centre line

**(10marks)**

### Question THREE

- a) The centre between two circles is 98mm. If the radii of the circles are 30mm and 21mm respectively, construct the following:

- i) An internal tangent to the circle
- ii) An external tangent to the circle

**(8marks)**

- b) i. Draw an inscribed circle for a triangle whose sides are 40mm x 52 mm x 65mm  
ii. Construct a nonagon and a heptagon whose side length are 21mm each by the perpendicular bisector method. **(12marks)**

### Question FOUR

a) construct without using a protector the following angle:

- i)  $22.5^\circ$
- ii)  $105^\circ$
- iii)  $75^\circ$
- iv)  $202.5^\circ$
- v)  $285^\circ$
- vi)  $67.5^\circ$

**(9marks)**

b) Construct an ellipse of major and minor axes 38mm and 26mm respectively. Show the focal points.

**(11marks)**

### **Question FIVE**

Fig 2 shows a truncated pentagonal pyramid. Draw the following:

- a) Complete from elevation
- b) Complete plan
- c) The shape of the cut
- d) Surface development

**(20marks)**