# TECHNICAL UNIVERSITY OF MOMBASA

***Faculty of Engineering and Technology***

**DEPARTMENT OF MEDICAL ENGINEERING**

DIPLOMA IN MEDICAL ENGINEERING
(DME 213)

**EME 2151**

**COMPUTER AIDED DRAWING AND DESIGN**

END OF SEMESTER EXAMINATIONS
**SERIES:** APRIL, 2014
**TIME:** 2 HOURS

**INSTRUCTIONS TO CANDIDATES:**

-You should have the following for this examination

- Drawing instruments
- Drawing paper
- Scientific Calculator

-Attempt Question ***ONE*** and ***any other TWO*** questions

This paper consists of **4 PRINTED** pages

**QUESTION ONE**

Fig 1 shows the Pictorial view of a shaft support bracket. Construct on a scale of 1: 1 in the first angle orthographic Projection views of the component to include.

**(i)** a front view as seen on plane F
**(ii)** a sectional end view on plane xx
**(iii)** a plan view elevation as seen on plane P
**(iv)** full dimensions. **(30 marks)**

**QUESTION TWO**

(a) Construct the hyperbola whose eccentricity is 4:3 with a relative distance of 42 mm (use at least **TEN** point with a maximum radius value being 96 mm) **(10 marks)**

(b) Construct the involutes of an equilateral triangle whose side length distance is 30 mm **(10 marks)**

**QUESTION THREE**

**(a)** Fig 2 shows the 1st angle orthographic views of an engineering component. Construct to show pictorial view of the component using the Isometric method. **(20 marks)**

**QUESTION FOUR**

Fig 3 shows the front view of an incomplete open ended sheet metal cylindrical pipe assembly.

(a) Construct to show the given view and include
(i) A plan view **(8 marks)**

**(b)** Construct to show the interpenetration curve of the assembly **(6 marks)**

**(c)** Construct the economical sheet metal development of pipe B **(6 marks)**

**QUESTION FIVE**

(a) Distinguish, with the aid of sketches, the following fits
   (i) Clearance
   (ii) Transitional **(4 marks)**

(b) With the aid of clearly labeled clearance fit, identify the following:
   (i) Shaft tolerance
   (ii) Hole tolerance
   (iii) Nominal size
   **(iv)** Maximum clearance **(11 marks)**

(c) Explain the meaning for each of the tolerance dimension value for the tolerance given as $52H_7g_6$ **(5 marks)**