TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering and Technology
DEPARTMENT OF MEDICAL ENGINEERING

DIPLOMA IN MEDICAL ENGINEERING
(DME 213)

EME 2151
COMPUTER AIDED DRAWING & DESIGN

SPECIAL/SUPPLEMENTARY EXAMINATIONS
SERIES: JULY, 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 **6 PRINTED** pages
QUESTION ONE (COMPULSORY)

(a) Fig 1 shows an engineering Bracket support unit. Construct on a scale of 1:1 the orthographic views of the component using Third angle projection to include:

(i) A front view as seen on plane F
(ii) A sectional end view on plane XX
(iii) A plan view as seen on plane P
(iv) Full dimensions.
(30 marks)

QUESTION TWO

(a) Construct to show the cycloid generated by a point on a wheel diameter 30 mm as it makes one rotation on a frictionless flat surface. **(10 marks)**

(b) Construct the parabola using the rectangular method for a rectangle of 120 mm by 80 mm (a minimum EIGHT points should be used). **(10 marks)**

QUESTION THREE

Fig 2 shows two views of a truncated open ended sheet metal hexagonal based pyramid.

(a) Re-draw the views as shown to include

(i) The complet plan view
(ii) An end view as seen in arrow direction E **(12 marks)**

(b) Construct the economical sheet metal development of the pyramid. **(8 marks)**

QUESTION FOUR

Fig 3 shows a crank-slider mechanism. Crank 0A rotates clockwise as slider B reciprocates along plane XY.

0A = 20 mm, AB = 90 mm & BC = 30 mm

Construct to show the mechanism set-up

Construct to show the locus of point C for one rotation of crank OA

Determine the maximum horizontal and vertical distances made by point C

(20 marks)

QUESTION FIVE

Fig 4 shows two FIRST ANGLE orthographic views of an engineering design.

On a scale of 1:1 construct the isometric pictorial view of the object with point X as the lowest point ie nearest to you. **(20 marks)**