THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)
Faculty of Engineering and Technology

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

DIPLOMA IN CIVIL ENGINEERING – YR I SEM II –(DC 11)

DIPLOMA IN BUILDING AND CIVIL ENGINEERING – YR 1 SEM II (DBC 11)

EBC 2109: ENGINEERING DRAWING I

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2011

TIME: 2 HOURS

<u>**Instructions to Candidates:**</u>
You should have the following for this examination
- *Answer Booklet*
- *Drawing paper size A2*
- *A set of drawing instruments*

This paper consists of **FIVE** questions in two sections **A & B**
Answer question **ONE (COMPULSORY)** and any other **TWO** questions.
Maximum marks for each part of a question are clearly shown
This paper consists of **FOUR** printed pages

SECTION A (COMPULSORY)

Question 1 (30 marks)

a) Draw an ellipse by the intersecting arcs method given the major and minor axes as 140 and 100 mm respectively.   (8 marks)

b) Construct a parabola given the position of the focus from the diretrix as 32mm   (8 marks)

c) A circle 18mm radius rotate without slip around another circle 65mm radius without slip. Draw the epicycloids of a point on the circumstance of the smaller radius circle for a complete revolution   (14 marks)

SECTION B (Answer any TWO questions from this section)

Question 2 (20 marks)

a) Draw a cycloid given the diameter of the generating circle as 36mm for a complete revolution
                                                                                        (10 marks)
b) Construct a locus of a point on the circumference of a circle which rotates round 90mm diameter at a constant velocity and the same time advances towards its centre at a uniform rate. The point stops 10mm from the centre of the circle. Name the locus   (10 marks)

Question 3 (20 marks)

a) Figure 1 shows the plan and elevation of a triangular lamina. Determine, by geometric, construction, the true shape of the lamina.

Figure 1

b) Construct a helix given the pitch and the diameter of the generating circle as 101 and 36mm respectively for a complete revolution   (10 marks)

Question 4 (20 marks)

a) Shown in figure 2 are the plan and front elevation of a hollow octagonal truncated right prism. Draw the following for the prism.
   (i)   The given plan
   (ii)   The given front view
   (iii)   An end elevation   (20 marks)

Figure 2

Question 5 (15 marks)

Shown in figure 3 is a link mechanism in which AB is a crank which is pin jointed to a rod BC. AB can rotate about A but the rod is constrained to move along a straight line X-X. Draw the locus of point P for a complete revolution   (10 marks)

Figure 3

Figure 4 shows the front elevation of right cone. Draw the following:

    i)   The given front elevation

    ii)   A complete plan   (10 marks)