TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

UNIVERSITY EXAMINATION FOR BACHELOR OF SCIENCE IN CIVIL ENGINEERING (BSCE)

ECE 2101: ENGINEERING DRAWING I

END OF SEMESTER EXAMINATION
SERIES: APRIL 2013
TIME ALLOWED: 2 HOURS

<u>**Instructions to Candidates:**</u>
You should have the following for this examination
- *Answer Booklet*

This paper consists of **FIVE** questions.
Answer question **ONE (COMPULSORY)** in section **A** and any other **TWO** questions from section **B**
Maximum marks for each part of a question are as shown
This paper consists of **THREE** printed pages

SECTION A

Question One (Compulsory)

The figure below shows an isometric view of an object. Draw the following: **(30 marks)**

    (i)   The isometric view of the object as shown
    (ii)   The front view in the direction of the arrow
    (iii)   The top view
    (iv)   The side view from the right

       Draw in first angle orthographic projection

SECTION B (Attempt any TWO questions)

Question Two

Construct the front view of the assembly of a hexagonal head bolt of nominal diameter d = 30, with a hexagonal nut keeping the axis horizontal. The length of the bolt = 120mm, threaded portion of bolt = 80mm. Mark the proportions in terms of the diameter, d. **(20 marks)**

Question Three

Plot the cam profile which meets the following specifications:

      Shaft diameter   10mm

      Minimum diameter   25mm

      Lift   13mm

Performance 90° uniform velocity to ½ maximum lifts

               90° simple harmonic mortion to maximum lift at ½ rotation. 180° uniform retardation to maximum fall.

Rotation   clockwise   **(20 marks)**

Question Four

Draw the sectional elevation and the sectional end view of a solid muff coupling. The part drawing is given below. **(20 marks)**

Question Five

Using a well labeled drawing, show the following as used in the nomenclature of screw threads:

    (i)   The external thread
    (ii)   The internal thread
    (iii)   Depth of thread
    (iv)   Nominal diameter
    (v)   Minor diameter

Give a brief description of each of the terms above. **(20 marks)**