THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A constituent College of JKUAT)

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL AND AUTOMOTIVE ENGINEERING

CERTIFICATE IN MECHANICAL ENGINEERING (PLANT)

EME 1103: WORKSHOP TECHNOLOGY I

SPECIAL/SUPPLEMENTARY EXAMINATION
MAY 2012 SERIES
TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

You should have the following for this examination:

- Answer booklet
- Geometric Set

This paper consists of **FIVE** questions

Attempt any THREE questions. Maximum marks for each part of a question are as shown.

This paper consists of 3 printed Pages

Question ONE

a) i. Sketch the vernier calipers and label any FIVE parts.
ii. Sketch part of the vernier calipers indicating readings of
(i) 12.14
(ii) 12.34
(12marks)

b) Sketch the vernier height gauge and label the parts. **(8marks)**

Question TWO

a) i. Name the material that is used in the manufacture of the hand file
ii. List five precautions taken in the storage and use of files to ensure long life for the tool
iii. Explain what is meant by pinning of files. How do we remove the "pins".
iv. List FOUR types of files and name one use for each. **(15marks)**

b) State any FIVE causes of hack saw blade breakages. **(5marks)**

Question THREE

a) Sketch the combination set and label any four parts. **(8marks)**

b) Explain how you would make a surface perfectly flat, using the screwper and the surface plate. **(6marks)**

c) Explain with suitable illustrations the use of the following tools,
i) Try square to mark lines perpendicular to an edge.
ii) Centre square to locate the centre of a round bar
iii) Odd-log caliper to mark lines parallel to an edge. **(6marks)**

Question FOUR

a) i. List FOUR classes of fires and state the cause of each
ii. Explain at least ONE way of extinguishing each of the fires in (i)

b) List any FIVE precautions which should be observed to prevent fire hazards in the workshop **(4marks)**

c) Distinguish, with suitable illustrations, the following sheet-metal joints.
i. Lap joint
ii. Countersink lap joint
iii. Seam joint
iv. Modified lap joint
(6marks)

Question FIVE

(a) Sketch the Vee thread form and on the same diagram, label the following:-
i) Major diameter

ii) Minor diameter
iii) Root
iv) Crest
v) Pitch

(6marks)

b) i. Sketch the thread tap and label the parts

ii. Explain how you would create a 12mm internal thread. Sketch the tools used.

(14marks)