



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL AND AUTOMOTIVE ENGINEERING

DIPLOMA IN MECHANICAL ENGINEERING (PLANT)
DIPLOMA IN MECHANICAL ENGINEERING (AUTOMOTIVE)

EME 2103: WORKSHOP TECHNOLOGY AND PRACTICE

YEAR I SEMESTER I

SPECIAL/SUPPLEMENTARY EXAMINATION
JULY 2013 SERIES
TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

You should have the following for this examination:

- Answer Booklet
- Drawing Instruments

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) Show the following on a twist drill sketch or series of sketches and explain their importance land, heel, helix angle, recess, dead centre.
- b) Illustrate the THREE effects of incorrect twist drill grinding.
- c) State FOUR safety precautions to be observed while drilling. **(20marks)**

Question TWO

- a) i. Define the meaning of the term cold chisels and explain their desirable features.
- ii. List the FOUR types of chisels and explain their applications.
- b) Draw labeled sketches to illustrate the following chisel operations:
 - (i) Chipping
 - (ii) Chopping
 - (iii) Shearing
- c) Explain the safety precautionary measure to be undertaken when using chisels. **(20marks)**

Question THREE

- a) Explain briefly the importance of the following parts of a file:-
 - i) Teeth
 - ii) Tang
 - iii) Handle
- b) Explain the applications of the following types of files:-
 - i) Double cut
 - ii) Bastard
 - iii) Smooth cut
 - iv) Rough
- c) Explain fully the procedure to be followed before and during the process of cross-filing. **(20marks)**

Question FOUR

- a) State FIVE precautionary measures that should be taken when using measuring instruments.

- b) (i) Draw a labeled sketch of a scribing block.
- (ii) With aid of a sketch explain one application of a scribing block in the workshop.
- c) Use sketches to show the following settings by the use micrometer and protractor
 - i) $30^{\circ} 20'$
 - ii) 25.20mm
 - iii) 0.30 mm

(20marks)

Question FIVE

- a) With the aid of sketches, differentiate between the following:
 - i) Oxidizing flame
 - ii) Neutral flame
 - iii) Carburizing flame
- b) Explain fully the principle of cutting metal using oxy-acetylene welding equipment.
- c) Use sketches to explain the process of leftward gas welding process.

(20marks)