



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL & AUTOMOTIVE ENGINEERING

UNIVERSITY EXAMINATION FOR:

BSC IN MECHANICAL ENGINEERING

EMG 2103 : WORKSHOP PROCESSES & PRACTICE I

END OF SEMESTER EXAMINATION

SERIES: APRIL 2016

TIME: 2 HOURS

DATE: Pick Date Select Month Pick Year

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

-Drawing instruments

This paper consists of **FIVE** questions. Attempt any **THREE** questions.

Do not write on the question paper.

Question ONE

- a) List any **two** acts of Kenyan laws that have been put in place to ensure safety and health at work place. [1 mark]
- b) State the duties of the following with regard to safety and health at work place:
I) Employer
II) Employee. [4 marks]
- c) A public inspector visited a certain workshop after receiving a complaint from the members of the public. List any **three** steps he may take after visiting the workshop. [3 marks]
- d) Describe the first aid treatment that may be administered when a colleague suffers from
i) Minor wounds and scratches
ii) Severe bleeding
iii) Fractured leg
iv) Fainting [8 marks]
- e) Explain the procedure of lifting a heavy item and moving it from one place to another position. [4 marks]

Question TWO

- a) Micrometers are precision measuring instruments.
- i) List the four types of micrometers and state the applications of each type. [2 marks]
 - ii) Sketch an outside micrometer and label at least six parts. [5 marks]
 - iii) A micrometer has a spindle screw of 0.5 mm pitch and its thimble has 50 divisions. For the micrometer;
 - I) Determine the least count. [1 mark]
 - II) Illustrate a reading of 8.69 mm. [3 marks]
- b) Using sketches distinguish between the following tools:
- i) Dot punch and centre punch
 - ii) Surface gauge and a vernier height gauge.
 - iii) Surface table and surface plate [9 marks]

Question THREE

- a) Riveting is a popular metal joining technique.
- i) List any **Four** reasons as to why riveting is popular among the metal joining techniques. [2 marks]
 - ii) Sketch any **four** solid rivet standard head types. [4 marks]
 - iii) Explain the procedure of pop riveting sheet metal panel on the body of a motor vehicle. [5 marks]
- b) Describe the procedure of soft soldering an electrical wire on a stud. [9 marks]

Question FOUR

- a) Files are metal cutting tools commonly used in bench work.
- i) Define the following terminologies associated with files:
 - I) Cut of teeth
 - II) Grade of cut
 - III) Safe edge [4½ marks]
 - IV) Draw a file and label the different parts [2½ marks]
 - V) Describe five classes of files according to their shape or cross-section. [10 marks]
 - VI) List any three precautions observed while handling files. [3 marks]

Question FIVE

- a) Using sketches distinguish the following types of hammers and state their applications.
- i) Ball peen hammer.
 - ii) Cross peen hammer
 - iii) Straight peen hammer
 - iv) Soft hammer [12 marks]
- b) List any **four** materials that are used to make soft hammers. [2 marks]
- c) Distinguish the following types of calipers:
- i) Inside
 - ii) Outside and
 - iii) Odd leg (hermaphrodite). [6 marks]