



TECHNICAL UNIVERSITY OF MOMBASA

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Faculty of Engineering and Technology  
Department of Mechanical & Automotive Engineering  
UNIVERSITY EXAMINATION FOR:  
Certificate in Electrical & Electronics Engineering  
EME 1132 : Workshop Technology & Practice  
SPECIAL/ SUPPLEMENTARY EXAMINATION  
SERIES: AUGUST 2019  
TIME: 2 HOURS  
DATE: Pick Date Aug 2019

**Instruction to Candidates:**

You should have the following for this examination

- *Student I.D. Card & Examination Pass*
- *Answer booklet*
- *Non-Programmable scientific calculator*

This paper consists of **FIVE** questions. Attempt question **ONE** and any other **TWO** questions.

Maximum marks for each part of a question are as shown.

**Do not write on the question paper.**

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**Question ONE**

- Explain the following safety measures
  - Eye protection (2 marks)
  - Head protection (2 marks)
  - Foot protection (2 marks)
  - Hand protection (2 marks)
- Sketch the fire triangle and explain how it works (4 marks)
- Define fire phenomenon (2 marks)
- Give **THREE** suggestions or methods of fire extinguishing and state in each method the particular class of fire (6 marks)

### Question TWO

- a) Describe the following forging tools
  - i. Pick-up or dandy tong (3 marks)
  - ii. Box or square tong (3 marks)
  - iii. Universal tong (3 marks)
- b) Clearly describe the blacksmith's Hearth [use sketch] (7 marks)
- c) Generally outline forge work process (4 marks)

### Question THREE

- a) Define drilling (1 marks)
- b) With aid of a well labeled sketch outline the construction of a drilling machine (10 marks)
- c) Explain the function of the following parts of a drilling machine
  - i. Main drive motor
  - ii. Heavy cast base (4 marks)
- d) Taps are the tools used for making internal threads. Clearly explain the process of tapping given one set of taps M8\*1.25 (6 marks)

### Question FOUR

- a) What do you understand by the term "tinning" (3 marks)
- b) List the steps used in soldering process (10 marks)
- c) Show by sketch the following types of rivets
  - i. Snap head
  - ii. Flat head (2 marks)
- d) Outline the steps involved in riveting operation (5 marks)

### Question FIVE

- a) With aid of a neat sketch, describe the black smith's anvil (8 marks)
- b) Sketch the following forge work tools
  - i. Hollow bit
  - ii. Scroll bit
  - iii. Box or square bit (6 marks)
- c) Explain the uses of each of the following tools shown in question (b) above (6 marks)