



TECHNICAL UNIVERSITY OF MOMBASA

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Faculty of Engineering and Technology  
Department of Mechanical & Automotive Engineering  
UNIVERSITY EXAMINATION FOR:  
BSc. Mechanical Engineering  
EMC 4211 : Workshop Technology and Practice II  
SPECIAL/SUPPLEMENTARY EXAMINATION  
SERIES: SEPTEMBER 2018  
TIME: 2 HOURS  
DATE: Pick Date Sep 2018

**Instruction to Candidates:**

You should have the following for this examination

- *Answer booklet*
- *Non-Programmable scientific calculator*

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

- Compare and contrast a turret lathe and a capstan lathe (10mks)
- State **FOUR** operations that can be carried out in a lathe machine.(4mks)
- State **FOUR** work holding and tool holding devices used in drilling operations. (4mks)
- State **TWO** types of lathe machine.(2mks)

## Question TWO

- i. Define the following terms
  - a. Shearing
  - b. Blanking and punching
  - c. Bending
  - d. Drawing

4mks

- ii. With aid of a sketch define :
  - a. Direct extrusion
  - b. Indirect extrusion .(6mks)
- iii. State **TWO** advantages of drawing.(2mks)
- iv. Differentiate between open and closed die forging.(4mks)
- v. State **TWO** guidelines for a good die design in extrusion.(2mks)
- vi. Name at least **TWO** tools and equipment used in sheet metal shops. (2mks)

## Question THREE

- i. State **TWO** Advantages and **TWO** Disadvantage of following brazing .(4mks)
  - a. Torch brazing
  - b. Furnace blazing
- ii. State **TWO** Advantages and **TWO** Disadvantages of oxyacetylene welding. (4mks)
- iii. State **FOUR** welding defects. (4mks)
- iv. Name **TWO** gases used in gas welding (2mks)
- v. State **TWO** Advantages of using reverting as a metal joining process (2mks)
- vi. Describe at least **TWO** types of rivets. (4mks)

#### Question FOUR

- i. With an aid of sketch define rolling operation. (4mks)
- ii. Name **TWO** types of rolling processes.(2mks)
- iii. Differentiate hot and cold rolling operations. (4mks)
- iv. Differentiate forging and extrusion. (4mks)
- v. Why is lubricant necessary in extrusion (1mks)
- vi. State **TWO** types of surface coating .(2mks)
- vii. State **THREE** Advantages of grinding operations(3mks)

#### Question FIVE

- i. Name **TWO** types of drilling machines (2mks)
- ii. Name at least **FOUR** cutters used in milling operation (4mks)
- iii. Describe the shaper working mechanisms (3mks)
- iv. State **THREE** types of sheet metals. (3mks)
- v. State at least **THREE** maintenance strategies/Policies (3mks)
- vii. State the **THREE** methods of weld protections (3mks)
- viii. State **TWO** factors that affect quality of a weld in oxyacetylene gas welding.(2mks)

***\*END\****

***Happy holidays***