



# TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL & AUTOMOTIVE ENGINEERING

**UNIVERSITY EXAMINATION FOR:**

**BSC IN MECHANICAL ENGINEERING**

**EMG 2209 : WORKSHOP PROCESSES & PRACTICE III**

**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 and a scientific calculator.

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

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

## **Question ONE**

- a) Briefly explain the **three** classes of milling cutters; based on the method of mounting. [3 marks]
- b) Describe the **four** general methods of mounting milling cutters. [6 marks]
- c) Distinguish between.
  - i) Plane milling and face milling
  - ii) Up-cut and down-cut milling [6 marks]
- d) With the aid of a sketch explain the simple indexing principle. [6 marks]

## **Question TWO**

- a) Grinding is to be used to machine a certain machine component.
  - i) State any **four** reasons of grinding the component. [2 marks]
  - ii) Name any **four** abrasives that may be contained in the grinding wheel used to machine the component. [2 marks]
  - iii) Explain the following terminologies associated with a grinding wheel:
    - I) Wheel dressing.
    - II) Wheel truing.

III) Wheel loading

IV) Wheel grazing.

[8 marks]

b) Explain the process of cylindrical grinding.

[8 marks]

### Question THREE

a) For oxy-acetylene gas welding.

i) Explain the **three** types of flames used.

[9 marks]

ii) Distinguish between right ward and left ward movement methods of flame movement. [7 marks]

b) Explain the following problems associated with gas welding:

i) Back firing.

ii) Flash back.

[4 marks]

### Question FOUR

a) Briefly describe the following types of sands used for sand casting:

i) Green sand.

ii) Dry sand.

iii) Facing sand.

iv) Parting sand.

[10 marks]

b) Explain the following types of sand tests.

i) Permeability test.

ii) Grain fineness test.

[10 marks]

### Question FIVE

a) Distinguish between cold working and hot working of metals.

[2 marks]

b) State two advantages and two disadvantages of cold working of metal.

[2marks]

c) Describe the following types of rolling mills.

i) Two high reversing mills.

ii) Three high mill

iii) Continuous mill

iv) Planetary rolling mill.

[10 marks]

d) Explain the following cold working processes:

i) Stretch forming.

ii) Deep drawing.

[6 marks]