



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]