



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 **four** causes of injury at a workplace. (2 marks)
- b) For each of the following health hazards explain the precautions taken:
- i) Dust and fumes
 - ii) Toxic substances
 - iii) Noise
 - iv) Contact with skin (8 marks)
- c) For each of the following safety colors state their meaning and application
- i) Red
 - ii) Yellow
 - iii) Green
 - iv) Blue (4 marks)
- d) Explain the **four** classes of fire extinguishers and state the application of each. (6 marks)

Question TWO

- a) Vernier instruments are precision measuring instruments.
- i) List the **three** types of vernier instruments and state the applications of each type. (3 marks)
 - ii) Sketch vernier caliper and label at least six parts. (5 marks)
 - iii) A vernier caliper has a smallest division on the main scale of 0.5 mm and the vernier scale has 25 divisions. For the vernier caliper;
 - I) Determine the least count.
 - II) Illustrate a reading of 26.66 mm. (4 marks)
- b) Using sketches describe a combination set and state the application of each part. (6 marks)
- c) Explain the use of a center squire and a vee-block to determine the center of a shaft. (2 marks)

Question THREE

- a) Brazing is a popular metal joining technique.
- i) Distinguish between brazing and soldering. (2 marks)
 - ii) Briefly explain the procedure of brazing a handle of a dust pan made of mild steel sheet. (8 marks)
- b) Describe the procedure of hand cutting an external screw thread. (10 marks)

Question FOUR

- a) Hacksaw is a tool used for cutting rods, bars and pipes.
- i) With the aid of sketches name the four types of hacksaws used in a workshop. (6 marks)
 - ii) Explain the following terminologies associated with hacksaw blades:
 - I) Setting of teeth.
 - II) Pitch of teeth
 - III) Number of teeth in contact with work (4 marks)
 - iii) Describe the **three** types of hack saw blades that are commonly used. (6 marks)
 - iv) State any **four** causes of hacksaw blade breakage. (4 marks)

Question FIVE

- a) Using sketches distinguish the following types of cold chisels and state their applications.
- i) Flat chisel.
 - ii) Cross-cut chisel
 - iii) Half round chisel
 - iv) Diamond point chisel (8 mark)
- b) Distinguish the following operations under taken using a chisel:
- i) shearing
 - ii) chopping and
 - iii) chipping (6 marks)
- c) Explain the following terms associated to inspection:
- i) Limit
 - ii) Fit
 - iii) Tolerance (6 marks)