



MACHAKOS UNIVERSITY

University Examinations for 2021/2022

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL ENGINEERING

FIRST YEAR SEMESTER ONE EXAMINATION FOR

DIPLOMA IN MECHANICAL ENGINEERING

AUTOMOTIVE, PLANT AND PRODUCTION

WORKSHOP TECHNOLOGY AND PRACTICE

DATE: 30/11/2021

TIME: 2.30-5.30 PM

INSTRUCTIONS: ANSWER ALL QUESTIONS.

1. a) State any **five** objectives of industrial safety. (5 marks)
 b) Highlight any **five** precautions to be observed in prevention of electric shock (5 marks)
 c) Describe any **four** metals used in sheet metal work (8 marks)
 d) Differentiate between the following;
 i. Ferrous and non ferrous metals
 ii. Chipping and scrapping (2 marks)
2. a) Describe any five toxic substances in a workshop. (7 marks)
 b) Briefly describe the filing process. (5 marks)
 c) Explain the four safety colors' giving an example of where they can be used. (8 marks)
3. a) Define and briefly describe the following engineering materials giving two properties of each
 i) Conductor
 ii) Semi-conductor
 iii) Modern dielectrics. (15 marks)
 b) Describe the hacksawing process (5 marks)

4. a) sketch the following hand tools
- i) Chisel
 - ii) Scriber
 - iii) Hacksaw
 - iv) Ball pein hammer (8 marks)
- b) Differentiate between the following exercises
- i) Measuring and marking
 - ii) Cutting and shearing (6 marks)
- c) Highlight any twelve causes of accidents in workshops. (6 marks)
5. a) Discuss the similarities between hacksawing process and filing process (10 marks)
- b) Briefly highlight five properties of Aluminum that makes it a preference in Electrical appliances. (5 marks)
- c) Sketch and label a bench vice. (5 marks)