



MACHAKOS UNIVERSITY

University Examinations for 2021/2022

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL ENGINEERING

FIRST YEAR SEMESTER ONE EXAMINATION FOR

CERTIFICATE IN ELECTRICAL ENGINEERING

APPLIED SCIENCE II

DATE:

TIME:

INSTRUCTIONS: ANSWER ALL QUESTIONS

QUESTION ONE (20 MARKS)

List five safety measures in each of the following

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|------|-----------------------------------|-----------|
| I. | In construction Work | (5 marks) |
| II. | Material handling | (5 marks) |
| III. | Against electric shock | (5 marks) |
| IV. | In fire prevention and protection | (5 marks) |

QUESTION TWO

- | | | |
|-----|--|-----------|
| (a) | Define measuring out as used in workshop process | (2 marks) |
| (b) | Using sketches illustrate the following inspection tools | |
| | I. Radius gauge | (3 marks) |
| | II. Try Square | (3 marks) |
| | III. Feeler gauge | (3 marks) |
| (c) | Sketch a Vernier caliper and name 3 main parts | |

QUESTION THREE (20 MARKS)

- (a) Explain the importance of alloying steel giving two examples. (6 marks)
- (b) Explain the main components of the following types of metals.
 - I. Ferrous metals (3 marks)
 - II. Non- Ferrous metals (3 marks)
- (c) Explain the following mechanical properties of metals.
 - I. Malleability (2 marks)
 - II. Hardness (2 marks)
 - III. Ductility (2 marks)
 - IV. Electrical conductivity (2 marks)

QUESTION FOUR (20 MARKS)

- (a) Outline two characteristics why copper is popularly used among non-ferrous-Metal. (4 marks)
- (b) Explain four properties of copper (8 marks)
- (c) List any four properties of brasses (8 marks)

QUESTION FIVE

In case of an accident explain how you can save a life using a mouth to mouth artificial Respiration.