



MACHAKOS UNIVERSITY

University Examinations for 2019/2020 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

FIRST YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (ELECTRICAL AND ELECTRONICS ENGINEERING)

ECU 108: INTRODUCTION TO THE ENGINEERING PROFESSION

DATE: 15/12/2020

TIME: 8:30 – 10:30 AM

INSTRUCTIONS

- i. There are **Five** questions.
- ii. Question No.1 is **Compulsory** and carries **30 Marks**.
- iii. Select any **other Two** questions, each of which carries 20 Marks.
- iv. Define all symbols used .
- v. Marks will be awarded for procedure, methodologies used and not necessarily on the final answer.

QUESTION ONE (30 MARKS)

- a) i Agricultural and Biosystems Engineering is one of the interdisciplinary and specialized engineering fields.
 - I. Name four (4) others. (2 marks)
 - II. Give its scope and its major specialties. (5 marks)
- ii What does the term “Building Works” entail? (3 marks)
- b) i What is depreciation, and why is it necessary in the formulation of industrial projects? (5 marks)
- ii State the critical factors that influence the location of industrial projects. (5 marks)
- c) i Distinguish between a feasibility study and a strategic plan. (4 marks)
- ii State the role a manager plays in an industrial organisation and briefly explain how they do so. (6 marks)

QUESTION TWO (20 MARKS)

- a) Compare and contrast the Preliminary Sketch Design stage of a building project, and the Final Design Stage. (10 marks)

- b) Give the work areas of electrical and electronic engineers and show their relevance in building construction and industrial application.
(10 marks)

QUESTION THREE (20 MARKS)

- a) Design is one of the key areas of specialization in civil engineering.
- i. Name the other areas. (3 marks)
 - ii. Outline what it entails. (7 marks)
- b) Describe what engineering activity the following would be engaged in:
- i. A mechanical engineer in the hotel industry. (8 marks)
 - ii. An electrical engineer deployed in telecommunications. (8 marks)

QUESTION FOUR (20 MARKS)

You are the Managing Director and CEO of a leading engineering organization.

- a) State the legal status of that organisation, and why. (5 marks)
- b) List your key functions. (5 marks)
- c) Briefly state how you would execute each of your functions. (10 marks)

QUESTION FIVE (20 MARKS)

The design and construction of building works requires a multidisciplinary team of experts.

- a) List these experts and their qualifications. (5 marks)
- b) Show what each expert is required to do over the entire project-execution period. (15 marks)