



MACHAKOS UNIVERSITY

University Examinations for 2020/2021

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

FIFTH YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (ELECTRICAL AND ELECTRONICS ENGINEERING)

BACHELOR OF SCIENCE (MECHANICAL ENGINEERING)

BACHELOR OF SCIENCE (CIVIL ENGINEERING)

ECU 500: ENGINEERING PROFESSIONAL ETHICS AND PRACTICE

DATE: 10/8/2021

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 (COMPULSORY) (30 MARKS)

- (a) (i) Demonstrate thorough understanding of how an engineer owes the public *Duty of Care* during the execution of his/her work. (5 marks)
- (ii) Giving suitable examples, state what a *Tort* is. (5 marks)
- (b) (i) State fundamental canons engineers must observe in the fulfilment of their professional duties. (5 marks)
- (ii) I. Show the role of education and training in ethics. (2 marks)
- II. Outline what ISO 14000 is. (3 marks)
- (c) (i) Discuss an employee's right to freedom of association as provided in *The Labour Relations Act, 2007 (Revised in 2013)*. (5 marks)
- (ii) The Engineering profession in Kenya is regulated under the Engineers Act, 2011. Give the requirements for one to be registered as an Engineer. (5 marks)

QUESTION TWO (20 MARKS)

- (a) OHSAS 18000 is an evolving series for various components of an organization's occupational health and safety management system. Give 5 elements that an occupational health and safety system is based on. (10 marks)
- (b) Give a brief outline of the National Labour Board which is established under The Labour Institutions Act, 2007 (Revised 2012). (5 marks)
- (c) Outline the steps for registering a patent in Kenya. (5 marks)

QUESTION THREE (20 MARKS)

- (a)
 - (i) Explain what the Law of Tort is, and how such laws are made. (5 marks)
 - (ii) Conflicts arise in engineering profession particularly while managing contracts. Discuss the role of arbitration as a conflict resolution mechanism. (5 marks)
- (b)
 - (i) State what a contract is and explain how to determine the validity of a contract. (6 marks)
 - (ii) Outline the essential elements of a valid contract. (4 marks)

QUESTION FOUR (20 MARKS)

The *Work Injuries Benefits Act, 2007 (Revised 2012)* is one of the New Labour Laws in Kenya.

- (a) Name two others. (4 marks)
- (b) Give the obligations of employers under the Act. (6 marks)
- (c) Describe the legal procedure under which an employee gets compensated upon injury. (10 marks)

QUESTION FIVE (20 MARKS)

- (a)
 - (i) Outline the foundations of ethics. (4 marks)
 - (ii) Give the classification of engineering works. (7 marks)
- (b)
 - (i) Define quality. (2 marks)
 - (ii) What do you understand by the term "Intellectual Property"? (2 marks)
 - (iii) Show why *Intellectual Property* needs protection and state how that is done in Kenya. (5 marks)