



THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

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MAIN EXAMINATION

SEPTEMBER – DECEMBER 2019 TRIMESTER

FACULTY OF SCIENCE

DEPARTMENT OF BIOLOGY

REGULAR PROGRAMME

BIO 107: INTRODUCTION TO LABORATORY TECHNIQUES IN BIOLOGY

Date: DECEMBER 2019

Duration: 2 Hours

INSTRUCTIONS: Answer Question ONE and any other TWO Questions

- Q1. a) Safety officers in approving construction of a clinic lab employed tools of conducting hazard assessment; briefly describe these tools
(5 marks)
- b) Fourth year students used Balb/C mice for bioassays briefly explain five euthanasia techniques applied in sacrificing laboratory animals to observe effects of post infection
(5 marks)
- c) Define laboratory ethics and explain five ethical principles applicable in biology laboratory
(6 marks)
- d) Modern laboratories are using robot equipment's, which are the likely drivers leading to automation
(4 marks)
- e) The following organisms were found in a research laboratory tapeworm, HIV, yellow fever virus, E. coli, explain the various level used to handle each one of them
(4 marks)
- f) When choosing autoclaving process for sterilization what do you use to determine complete sterilization and what is the principle behind autoclaving
(3 marks)
- g) A laboratory consultant advised a client on designing a histology laboratory which six factors did he consider state and explain
(3 marks)

- Q2. a) Discuss twelve essentials in a quality laboratory management system model (12 marks)
- b) A grant to construct an animal house was given to school of science which are the key components to consider during its construction (8 marks)
- Q3. Laboratory Q runs paternity tests; the number of clients has increased hence need for more equipment's
- a) Which are the equipment's likely to be sourced for this lab and considerations before purchasing relevant equipment (10 marks)
- b) Describe five types of assays that are done in this lab (10 marks)
- Q4. During an open day at KEFRI headquarters fourth year student from C.U.E.A had a demonstration on tissue culture, visited a germplasm facility and collected unutilized plants that bear edible fruits
- a) Describe equipment used for tissue culture and tools employed in germplasm (12 marks)
- b) Briefly describe how they collected these plants and preserved in school herbarium (8 marks)
- Q5. Following an accident in a school lab the casualty had a failed breathing and the heartbeat was not felt:
- a) Explain cardinal signs you observe and the right first aid procedure followed (10 marks)
- b) Explain five basic techniques for culturing microorganisms (10 marks)

END