



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF AGRICULTURAL AND FOOD SCIENCES

**FOURTH YEAR SECOND SEMESTER UNIVERSITY EXAMINATION FOR THE
DEGREE OF BACHELOR OF SCIENCE IN HORTICULTURE AND
BACHELOR OF SCIENCE IN ANIMAL SCIENCE**

2017/2018 ACADEMIC YEAR

REGULAR

COURSE CODE: AAB 3424

COURSE TITLE: GMOS, BIOSAFETY AND BIOETHICS

EXAM VENUE:

STREAM: BSc. Horticulture and Bsc. Animal Science

DATE:

EXAM SESSION:

TIME: 2 HOURS

Instructions:

- 1. Answer ALL the questions in section A and any TWO in section B.**
 - 2. Candidates are advised not to write on question paper.**
 - 3. Candidates must hand in their answer booklets to the invigilator while in the examination room.**
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SECTION A [30 MARKS]

Answer ALL questions from this Section.

- 1 a. Define bioethics (2 marks)**
 - b. What are the current limitations of genetic engineering in maize research? (3 marks)**

- c. What is biosafety? Explain its role in human health (2 marks)
- d. State four regulatory agencies that have been established in Kenya for the purposes of regulatory detection and testing, research and training that aim at controlling and managing activities of GMOs (3 marks)
2. a. Write short notes on the international conventions on biotechnology (4 marks)
- b. Define risk assessment and what it involves (3 marks)
- c. Differentiate between GMOs and LMOs. (3 marks)
3. a. State and briefly explain different ethical issues involved in genetic testing (4 marks)
- b. Classify different biosafety levels as per the guidelines (4 marks)
- c. Write down the characteristic features of biohazard (2 marks)

SECTION B [40 MARKS]

Answer any TWO QUESTIONS from this Section.

- Q4. The General Laboratory Safety Manual offers generic safety guidelines and standard Operating procedures for laboratories on campus. You have been appointed the Principal Investigator for a biotechnology laboratory in Jaramogi Oginga Odinga University of Science and Technology. Develop specific standard operating procedures for this laboratory. (20 marks)
- Q5. Concerns about transgenic crop plants fall into two broad categories: (1) environmental impacts, and (2) health and safety issues. Discuss (20 marks)
- Q6 (a) Demonstrate measures Kenya has taken to fulfil her commitment to Biosafety issues as provided in Cartagena protocol ratified in 2000 and 2003 (10 marks)
- (b) Discuss the different remedies available in Kenya against patent infringement (10 marks)