



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND  
TECHNOLOGY**

**SCHOOL OF AGRICULTURAL AND FOOD SCIENCES**

**SECOND YEAR FIRST SEMESTER UNIVERSITY EXAMINATION**

**2016/2017 ACADEMIC YEAR**

**REGULAR**

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**COURSE CODE: AAE 3212**

**COURSE TITLE: Biodiversity and Agricultural Biotechnology**

**EXAM VENUE:**

**STREAMS:** Bsc. Food Security

Bsc. Soil Science

**DATE:**

Bsc. Agribusiness management

**TIME: 2 HOURS**

**EXAM SESSION:**

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**Instructions:**

- 1. Answer ALL questions in section A and ANY other 2 Questions 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.**

**SECTION A [30 MARKS]**

**Answer ALL questions from this Section.**

1. Describe the following:
  - (i) Ecosystem (2 marks)
  - (ii) Biodiversity (2 marks)
2. State and explain the benefits of biodiversity to mankind (4 marks)
3. Explain how biodiversity conservation helps in bio-prospecting (2 marks)
4. Explain the following methods of biodiversity conservation:
  - (i) In situ conservation (2 marks)
  - (ii) Ex situ conservation (2 marks)
5. Using a flow chart, explain the unidirectional flow of energy in the ecosystem (4 marks)
6. State and explain the roles of agro-biodiversity in any ecosystem (4 marks)
7. With well labeled diagrams, explain Recombinant DNA Technology (RDT) (4 marks)
8. Describe the application of biotechnology in pharmaceutical technology and how these advances have impacted on the development of Agriculture (4 marks)

**SECTION B [40 MARKS]**

**Answer ANY TWO questions from this Section.**

9. Describe the socio-economic impact of genetic engineering in developing countries in Africa (20 marks)
10. State and explain the applications of biotechnology in environmental science (20 marks)
11. State and explain the different ways by which intellectual property rights can be protected (20 marks)