

**UNIVERSITY OF KABIANGA**

**UNIVERSITY EXAMINATIONS**

**2014/2015 ACADEMIC YEAR**

**SECOND YEAR SECOND SEMESTER EXAMINATION**

**FOR THE DEGREE OF BACHELOR OF SCENCE IN MICROBIOLOGY AND BACHELOR OF EDUCATION SCIENCE**

**COURSE CODE: BOT 213**

**COURSE TITLE: ANIMAL GENETICS AND EVOLUTION**

**DATE: 8TH MAY, 2015**

**TIME: 9.00 A.M-12.00 NOON**

**INSTRUCTIONS TO CANDIDATES:**

Answer **ALL** questions in **section A** and any other **three** questions in **section B**.

Illustrate your answer with diagrams where possible.

**SECTION A; (28 MARKS)**

1. State **three** evidences which demonstrate that genes are located on chromosomes. (3 marks)
2. State any **three** differences between the messenger RNA (m-RNA) and DNA
3. Briefly describe how chromosomal crossover takes place. (4 marks)
4. State the significance of meiosis in living organisms. (4 marks)
5. Distinguish between pleiotropy and epistasis and give an example of each of the two conditions in humans. (4 marks)
6. Describe any **one** experimental evidence that led to the discovery of DNA as the genetic material. (3 marks)
7. Describe Lamarck’s theory of evolution. (4 marks)
8. What is cytoplasmic inheritance? (2 marks)
9. What are lethal genes? (1 mark)

**SECTION B; (42 MARKS)**

1. Describe the process of DNA replication. (14 marks)
2. Describe the various stages of meiosis and state the significance of mitosis in living organisms. (14 marks)
3. Discuss the types of reproductive isolation mechanisms and how they may lead to the emergence of a new species. (14 marks)
4. Describe Darwin’s theory of natural selection and evidences that support the theory. (14 marks)