



# THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

**A. M. E. C. E. A**

**MAIN EXAMINATION**

**JANUARY – APRIL 2015 TRIMESTER**

**FACULTY OF SCIENCE**

**DEPARTMENT OF NATURAL SCIENCES (BIOLOGY)**

**REGULAR PROGRAMME**

**BIO 103: EVOLUTIONARY BIOLOGY**

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<b>Date: April 2015</b>	<b>Duration: 2 Hours</b>
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<b>Instructions: Answer Question ONE and any other TWO Questions.</b>
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- Q1. a) Define the following (1 marks each)
- i) Adaptation
  - ii) Fossil
  - iii) Founder effect
- b) Distinguish between the following;
- i) Artificial and natural selection (2 marks)
  - ii) Species and breed (2 marks)
  - iii) Relative and absolute dating (three differences) (3 marks)
  - iv) Autopolyploidy and allopolyploidy (2 marks)
  - v) Coevolution and adaptive evolution (2 marks)
  - vi) Ecological and sexual selection (2 marks)
- c) Explain the following:
- i) Basis of  $^{14}\text{C}$  radiometric fossil tests (3 marks)
  - ii) The hypothesis for the origin of chloroplasts (2 marks)
  - iii) The processes that lead to rapid evolution of plant varieties. (3 marks)
  - iv) Causes of mass extinctions. (6 marks)
- Q2. Discuss how isolating mechanisms maintain species integrity. (20 marks)
- Q3. Discuss macroevolution as an evolutionary process. (20 marks)
- Q4. Describe the factors responsible for speciation in living organisms. (20 marks)

- Q5. a) Why is variation important for biological evolution and what are its causes? **(7 marks)**
- b) Using examples discuss Darwin's sexual selection theory. **(13 marks)**

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