



THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

A. M. E. C. E. A

MAIN EXAMINATION

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AUGUST - DECEMBER 2015 TRIMESTER

FACULTY OF SCIENCE

DEPARTMENT OF BIOLOGY

REGULAR PROGRAMME

BIO 108: HISTORICAL FOUNDATIONS OF BIOLOGY

Date: DECEMBER 2015

Duration: 2 Hours

INSTRUCTIONS: Answer Question ONE and ANY other THREE Questions

- Q1. a) Define
- i Natural selection
 - ii Homeostasis
 - iii Evolution
 - iv Species. **(4 marks)**
- b) List the THREE main features required by a living system. **(3 marks)**
- c) Explain the terms 'interdependence of organism' **(2 marks)**
- d) Define and explain the following terms as used in biology of a living organism
- i Space and time
 - ii Matter and energy
 - iii Information. **(6 marks)**
- e) Define what is microscopy giving specific types of microscopes. **(4 marks)**
- f) List how cells are organized in a multicellular organisms. **(5 marks)**
- g) Explain what differentiation is in cell division. **(3 marks)**

- h) Define laws in context of biology giving its THREE main attributes.
(3 marks)
- Q2. Explain the main characteristics of life as per to the themes of biology.
(20 marks)
- Q3. a) Briefly explain the TWO types of reproductions in biological organism giving specific examples of them.
(10 marks)
- b) Describe how genetic information in all cells is oriented and packaged to size so as to fit in the nucleus.
(10 marks)
- Q4. a) Explain how the sun is used to provide energy during photosynthesis.
(4 marks)
- b) Describe in detail the main classification of organisms on how they make food or gain their energy to drive their needs and processes. **(10 marks)**
- c) Briefly explain the process of gene expression. **(6 marks)**
- Q5. a) Describe briefly the life cycle stating from the formation of gametes to adulthood.
(10 marks)
- b) Describe using an illustration the major differences in the organization of the two types of cells as observed in biology.
(10 marks)

END