



THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

A. M. E. C. E. A

MAIN EXAMINATION

AUGUST - DECEMBER 2015 TRIMESTER

FACULTY OF SCIENCE

DEPARTMENT OF BIOLOGY

REGULAR PROGRAMME

BIO 405: CONSERVATION BIOLOGY

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Date: DECEMBER 2015

Duration: 3 Hours

INSTRUCTIONS: Answer Question ONE and ANY other THREE Questions

- Q1. a) Explain the THREE perspectives of biodiversity. **(3 marks)**
- b) Give THREE reasons that lead to high biodiversity in the tropical regions compared to temperature zones. **(3 marks)**
- c) How do the following aspects pose threats to biodiversity
- i Introduced species.
 - ii Global warming. **(6 marks)**
- d) I Map out the THREE level system of classification of species based on the probability of extinction. **(3 marks)**
- ii What are the roles of IUCN and CITES in regard to biodiversity conservation. **(4 marks)**
- e) Explain how the following genetic concerns are a threat to biodiversity conservation.
- i Hybridization.
 - ii Inbreeding depression.
 - iii Outbreeding depression. **(6 marks)**

- f) Outline the basic methods that can be used to maximize the ratio of the effective population size (N_e) to the total population size (N) ie N_e / N during captive breeding. **(5 marks)**
- Q2. Describe the random factors that can significantly cause populations to decline. **(20 marks)**
- Q3. a) Discuss the TWO types of species inventories and give their relevance to biodiversity conservation. **(12 marks)**
- b) Why are the following steps important during a biological survey and how is each achieved?
- i Standardization
 - ii Sampling effort
 - iii Monitoring
 - iv Methodology of data collection. **(8 marks)**
- Q4. i Explain how you can manage the ecosystem by using a single species. **(3 marks)**
- ii Summarize the TWO main approaches in reducing biodiversity loss. **(8 marks)**
- iii Elaborate on the major tenets you would consider when designing a nature reserve or a game park. **(9 marks)**
- Q5. a) Advise Mombasa Cement Company on five principles to follow in order to restore their excavated quarries to house wildlife. **(10 marks)**
- b) Expound on the roles played by the following biodiversity conventions
- i Convention on the conservation of migratory species of wild animals. (CMS)
 - ii Ramsar convention on wetlands. **(4 marks)**
- c) i Describe the characteristics of logistic population growth pattern. **(4 marks)**

- ii What is environmental resistance and why is it important in natural populations? **(2 marks)**

END