MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS

2023/2024 ACADEMIC YEAR

SECOND YEAR SECOND SEMESTER EXAMINATIONS
FOR
BACHELOR OF EDUCATION (SCIENCE)

COURSE CODE: ZOO 2207

COURSE TITLE: INTRODUCTION TO ECOLOGY AND BIOANALYSIS

DATE: 15TH APRIL,2024   **TIME: 0830-1030 HRS**

Instructions

A. Answer ANY TEN (10) questions.

B. Illustrate your answers with diagrams and give examples where appropriate.

ANSWER ANY 10 (TEN)QUESTIONS (50 MARKS)

1. Define and relate the following to ecology;

   a. Population **(1 mark)**

   b. Liebig's law **(1 mark)**

   c. Fundamental niche **(1 mark)**

   d. Crude density **(1 mark)**

   e. Biotic potential **(1 mark)**

2. Explain the typical features of the age pyramids of an expanding, pulsing and collapsing population. **(5 marks)**

3.

   a. Describe five methods you can use to attain population density indices. **(2.5 marks)**

   b. In a mark-recapture exercise during which a population of butterflies remained constant in size, an initial sample provided 70 individuals, each of which was marked and then released back into the population. Two days later, a second sample was taken, totaling 123 individuals of which 47 bore a mark from the first sample. Estimate the size of the population. **(2.5 marks)**

4. Write a short essay on the factors that affect the distribution of organisms. **(5 marks)**

5. Discuss the advantages of wetlands. **(5 marks)**

6. Account for the energy flow through the ecosystem. **(5 marks)**

7. Describe TWO human-designed and managed ecosystems and their influence on the natural ecosystems. **(5 marks)**

8. Discuss the merits and demerits of wildfire as a disturbance. **(5 marks)**

9. Critique the features of a savannah grassland ecosystem **(5 marks)**

10. As a minister of Environment, discuss the impact of climate change in your county and the mitigation measures you would put in place. **(5 marks)**

11. Citing examples, describe the interactions that occur between macro and microorganisms. **(5 marks)**

12. Account for the main causes of loss of biological diversity.

    (5 marks)

13. Distinguish between Liebig's and Shelford's laws in relation to organismal ecology. **(5 marks)**

14. Discuss how competitive exclusion and resource partitioning reduces interspecific competition. **(5 marks)**

15. Give the abiotic factors that characterize a forest ecosystem.

    (5 marks)

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