MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS
2023/2024 ACADEMIC YEAR
THIRD YEAR SECOND SEMESTER

SCHOOL OF NATURAL RESOURCES, ENVIRONMENTAL STUDIES AND AGRICULTURE

BACHELOR OF SCIENCE WILDLIFE RESOURCE MANAGEMENT

COURSE CODE: WRM 3225-1

COURSE TITLE: LANDSCAPE ECOLOGY

DATE: 13TH DECEMBER 2023 **TIME: 0830-1030 HRS**

INSTRUCTIONS TO CANDIDATES
ATTEMPT ALL QUESTIONS IN SECTION A AND ANY 3 IN SECTION B

Support your answers with relevant examples and illustrations and clearly show your calculations, where relevant.

This paper consists of 3 printed pages. Please turn over

SECTION A (20 MARKS)

1. Briefly explain how agricultural activities contribute to climate change (**2 Marks**).

2. Name four (4) ecozones found in the Narok socio-ecological system and briefly describe each (**4 Marks**).

3. Define the term savanna and give three (3) examples of savanna vegetation derivatives in East Africa (**4Marks**).

4. Outline steps and spatial analysis a wildlife conservation organization would take to establish a wildlife corridor between two protected areas (**5 Marks**).

5. Explain any 3 benefits of landscape heterogeneity (**3 Marks**).

6. Identify any two (2) roles of fire in shaping savanna landscapes

(**2 Marks**)

SECTION B (30 MARKS)

7. The Narok socio-ecological system is a fast-changing landscape driven by multiple interacting factors that are likely to modify this ecosystem into a simpler and less heterogenous ecosystem. This may result into reduced ecosystem functioning and its long-term persistence.
   a. Identify drivers and nature of ecological changes in the Narok landscape (**5 Marks**)
   b. What are the immediate and envisaged long term impacts of these changes? (**2 Marks**)
   c. How can the impacts of the drivers be mitigated? (**3 Marks**).

8. Discuss the concepts of landscape connectivity and corridors and explain how the concepts can be applied in management of wildlife populations in the Mara – Serengeti ecosystems (**10 Marks**).

9. Discuss the meaning and significance of the following concepts in landscape ecology:

a. Pattern (**4 Marks**)
b. Scale (**3 Marks**)
c. Grain (**3 Marks**).

10. Discuss the use of remote sensing data in assessing wildlife habitats and monitoring habitat changes. Provide specific examples and identify challenges that may be encountered (1**0 Marks**).

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