

NATIONAL UNIVERSITY OF LESOTHO
BSC & BA SUPPLEMENTARY EXAMINATIONS
PG 3242: RANGE ECOLOGY

August 2023

Marks: 100

Time: 3 Hours

Instructions:

- **Answer ANY four (4) questions.**
- **Where appropriate, illustrate your answers with diagrams**

Question 1

- (a) Explain the following types of ecosystems
- (i) Biotic components of the ecosystem. (7)
 - (ii) Abiotic components of the ecosystem. (7)
- (b) With well labelled diagram, illustrate energy flow in the ecosystem. (5)
- (c) Explain why there is low species diversity in desert (6)
- [25]**

Question 2

- (a) Explain two types of fire (4)
- (b) Explain how each of the following influences the spread of fire in the Rangelands.
- (i) Fuel size. (5)
 - (ii) Fuel spread. (5)
 - (iii) Fuel moisture. (5)
- (c) Explain three different types of fire belts (6)
- [25]**

Question 3

Discuss processes involved in the Nitrogen cycle. **[25]**

Question 4

- (a) Explain two different types of carbohydrates. (10)
- (b) With the aid of diagram, illustrate carbon cycle (8)
- (c) Explain three different processes through which CO₂ is released into the atmosphere (7)
- [25]**

Question 5

- (a) State five main nutrient cycles in the ecosystem (5)
- (b) Discuss four different types of ecosystem services (20)
- [25]**

Question 6

- (a) Define rangeland (2)
 - (b) Explain the following rangeland types
 - (i) Grassland (10)
 - (ii) Tundra (10)
 - (c) State three desired management objectives that are achieved through Range ecology studies (3)
- [25]**