



MACHAKOS UNIVERSITY

University Examinations for 2021/2022 Academic Year

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

THIRD YEAR SUPPLEMENTARY/SPECIAL EXAMINATION

SZL 312: LIMNOLOGY

DATE: 10/3/2023

TIME: 2.00 – 4.00 PM

INSTRUCTIONS

1. Answer 1 (compulsory) and **any two** questions
2. Use clean well labelled diagrams wherever appropriate.

QUESTION ONE (30 MARKS)

- a) Differentiate between:
 - i. Eutrophy and oligotrophy (2 marks)
 - ii. Nekton and Neuston (2 Marks)
- b) Explain the cause and significance of the following in aquatic systems:
 - i. thermal stratification (3 marks)
 - ii. Currents (3 marks)
- c) Give reasons to explain:
 - i. The high benthic community in estuarine ecosystems (3marks)
 - ii. The high numbers of organisms in mid water streams compared to head water streams and down water streams (3 marks)
- d) Describe three (3) adaptations of organisms in the lower reaches of rivers (3 marks)

- e) Explain the significance of riparian vegetation in the functioning of a lotic system (3 marks)
- f) Describe two modes of feeding in benthic organisms (2 marks)
- g) Outline the significance of macrophytes in limnological systems (3 marks)
- h) Outline the significance of Phylum Annelida in aquatic systems (3 marks)

QUESTION TWO (20 MARKS)

Describe the role of man in the deteriorating aquatic conditions in lake Victoria
(20 Marks)

QUESTION THREE (20 MARKS)

Discuss the significance of unique properties of water to marine life (20 marks)

QUESTION FOUR (20 MARKS)

Describe how physical characteristics in aquatic systems affect the structure of lake ecosystems
(20 marks)

QUESTION FIVE (20 MARKS)

Describe how organisms living in lotic systems are adapted to the conditions of life in their environment
(20 marks)