



# MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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## University Examinations 2024/2025

SECOND YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR  
OF SCIENCE IN ENVIRONMENTAL SCIENCE

### SEG 3202: FUNDAMENTALS OF AQUATIC ECOLOGY

DATE: DECEMBER 2024

TIME: 2 HOURS

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INSTRUCTIONS: Answer question *one* and any other *two* questions

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#### QUESTION ONE (30 MARKS)

- a) Define five main components of the hydrological cycle (5 marks)
- b) List three common methods for sampling benthic organisms in: (5 marks)
  - i) Rivers
  - ii) Wetlands
- c) With an aid of an illustration, explain the main components of a lake ecosystem (5 marks)
- d) Explain how marine organism are adapted to immense pressure and total darkness (5marks)
- e) Identify the main sources of carbon, nitrogen and phosphorus in aquatic ecosystems (5 marks)
- f) Discuss five Ecosystem Services Provided by Aquatic Environments (5 marks)

**QUESTION TWO (20 MARKS)**

Evaluate the impact of dam construction, wetland drainage and coral reef degradation in aquatic ecosystems

**QUESTION THREE (20 MARKS)**

Compare the effectiveness of "no-take zones" versus "seasonal closures" as conservation strategies in marine habitats. What are the pros and cons of each approach?

**QUESTION FOUR (20 MARKS)**

Analyse the benefits of employing riparian buffer strips as a strategy for managing pollution in aquatic ecosystems