

BOT 201E  
FUNDAMENTALS OF ECOLOGY



OFFICE OF THE DEPUTY PRINCIPAL  
ACADEMICS, STUDENT AFFAIRS AND RESEARCH

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## UNIVERSITY EXAMINATIONS

### 2021/2022 ACADEMIC YEAR

SECOND YEAR FIRST SEMESTER MAIN EXAMINATION

## FOR THE DEGREE OF BACHELOR OF EDUCATION SCIENCE

COURSE CODE: BOT 201E

COURSE TITLE: FUNDAMENTALS OF ECOLOGY

DATE: 25<sup>TH</sup> JANUARY 2022

TIME: 2.00PM-5.00PM

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### INSTRUCTIONS TO CANDIDATES

- SEE INSIDE

THIS PAPER CONSISTS OF 3 PRINTED PAGES

PLEASE TURN OVER

BOT 201E  
FUNDAMENTALS OF ECOLOGY

REGULAR – MAIN EXAM

**BOT 201E: FUNDAMENTALS OF ECOLOGY**

**STREAM: BED (SCIENCE)**

**DURATION: 3 Hours**

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**INSTRUCTIONS TO CANDIDATES**

- i. Answer **ALL** questions from section A and any **FOUR** from section B.
- ii. Diagrams should be used whenever they serve to illustrate the answer.
- iii. Do not write on the question paper.

**SECTION A (30 MARKS)**

**Question One**

- a) Define the term ecology as viewed by Eudgene Odum (1963). (2 Marks)
- b) Differentiate between autecology and synecology. (4 Marks)
- c) A pond can be constructed on the surface of the earth to constitute an ecosystem. Is this a natural or an artificial ecosystem? Explain your answer. (3 Marks)
- d) Using a schematic representation, describe the structure of the ecosystem. (6 Marks)

**Question Two**

- a) Illustrate the continuous unidirectional flow of energy. (4 Marks)
- b) Using appropriate example, describe using the Zeroth law of thermodynamics. (4 Marks)
- c) Describe two types of fresh water ecosystems. (4 Marks)
- d) Differentiate between natality and mortality. (3 Marks)

**SECTION B (40 MARKS)**

**Question Three**

- a) Discuss four areas where the study of ecology can be effectively applied. (8 Marks)
- b) Describe any two types of pyramid of numbers. (2 Marks)

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**Question Four**

- a) State the second law of thermodynamics and explain what it signifies. (6 Marks)
- b) Outline four differences between a habitat and a niche. (4 Marks)

**Question Five**

- a) Describe three aspects of a nutrient cycle. (3 Marks)
- b) Illustrate the oxygen cycle showing the significance of all its components. (7 Marks)

**Question Six**

- a) Describe any three causes of population growth. (6 Marks)
- b) Differentiate resistance and resilience as types of ecological stability. (4 Marks)

**Question Seven**

- a) Discuss six parameters used to characterize a community as a whole. (6 Marks)
- b) Explain how invasive species affect environmental quality. (4 Marks)

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