

UNIVERSITY EXAMINATIONS

SECOND SEMESTER 2023/2024 ACADEMIC YEAR

**SECOND YEAR EXAMINATION FOR THE DEGREE OF
BACHELOR OF EDUCATION (SCIENCE)**

ZOOLOGY 421: POPULATION BIOLOGY

STREAM: R

TIME: 2 HRS

DAY: MONDAY [11.30A.M – 1.30P.M]

DATE: 08/04/2024

THIS QUESTION PAPER CONSISTS OF TWO (2) PAGES

PLEASE DO NOT OPEN UNTIL THE INVIGILATOR SAYS SO.

Instructions: Answer **ALL** questions in section A and any **TWO** questions in section B

SECTION A (40 MARKS)

QUESTION ONE

Define the following terms used in population biology.

(5 Marks)

- i. Guilds.
- ii. Demography.
- iii. Carrying capacity.
- iv. Food web.
- v. Dynamic ecosystem.

QUESTION TWO

Outline types of desert ecosystem.

(5 Marks)

QUESTION THREE

Differentiate qualitative vs. quantitative models in Population Biology studies.

(5 Marks)

QUESTION FOUR

- a) Using an appropriate example outline the outcomes of primary succession.
- b) Briefly describe the characteristics of a Climax Community

(5 Marks)

(5Marks)

QUESTION FIVE

Describe mark-recapture method in Population Biology studies.

(5 Marks)

QUESTION SIX

Differentiate between habitat & community, and habitat & population?

(5 Marks)

QUESTION SEVEN

Briefly discuss spatial-temporal heterogeneity of an ecosystem.

(5 Marks)

SECTION B (30 marks)

QUESTION EIGHT

Discuss the defining characteristics of a forest ecosystem.

(15 Marks)

QUESTION NINE

Discuss the application of mathematical modelling in relation to biology in the 21st century. **(15 Marks)**

QUESTION TEN

Discuss species interactions in a community.

(15 Marks)