

SEB 403E



OFFICE OF THE DEPUTY PRINCIPAL
ACADEMICS, STUDENT AFFAIRS AND RESEARCH

UNIVERSITY EXAMINATIONS

2020 /2021 ACADEMIC YEAR

FOURTH YEAR FIRST SEMESTER MAIN EXAMINATION

**FOR THE DEGREE OF BACHELOR OF
EDUCATION SCIENCE**

COURSE CODE: SEB 403E

COURSE TITLE: ENVIRONMENTAL PHYSIOLOGY

DATE: 15TH MARCH 2021

TIME: 9.00 A.M -12.00 P.M

INSTRUCTIONS TO CANDIDATES

- SEE INSIDE

THIS PAPER CONSISTS OF 3 PRINTED PAGES

PLEASE TURN OVER

REGULAR – MAIN EXAM

SEB 403E: ENVIRONMENTAL PHYSIOLOGY

STREAM: BED (SCIENCE)

DURATION: 3 Hours

INSTRUCTIONS TO CANDIDATES

- i. Answer **ALL** questions from section A and any **THREE** 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 (24 MARKS)

Question One

- a) Classify animals into two groups based on their temperature regulation. (4 Marks)
- b) Describe the process of aerobic respiration. (4 Marks)
- c) Define the term diapause and its causes. (4 Marks)

Question Two

- a) What is a biological rhythm? (3 Marks)
- b) State three advantages of a biological clock. (3 marks)
- c) Distinguish between vasoconstriction and vasodilation. (4 Marks)
- d) Match the following metabolic wastes against the type of chemical reactions that produce them. (2 Marks)

Metabolic Waste

Carbon dioxide

Salts

Urea

Water

Type of chemical reactions

SECTION B (36 MARKS)

Question Three

Discuss six physiological functions of kidneys. (12 Marks)

Question Four

- a). Using an illustration, describe an experiment that demonstrates transpiration in plants. (8 Marks)
- b) Describe the main types of osmoregulation. (4 Marks)

Question Five

- a). What is:-
 - i. Guttation (1 Mark)
 - ii. Transpiration (1 Mark)
- b) Discuss the structure of the skin an excretory organ. (10 Marks)

Question Six

- a) Explain the various mechanisms of controlling the loss and gain of heat in animals. (8 Marks)
- b) Outline two characteristics of respiratory organs. (4 Marks)

Question Seven

Write explanatory notes on the following:-

- i. How hibernation works. (4 Marks)
- ii. Artificial kidney (4 Marks)
- iii. Stomatal Transpiration (4 Marks)
