ALUPE UNIVERSITY

OFFICE OF THE DEPUTY PRINCIPAL

ACADEMICS, STUDENT AFFAIRS AND RESEARCH

UNIVERSITY EXAMINATIONS

2023 /2024 ACADEMIC YEAR

FOURTH YEAR FIRST SEMESTER REGULAR MAIN EXAMINATION

FOR THE DEGREE OF BACHELOR OF EDUCATION SCIENCE

COURSE CODE: ZOO 403E

COURSE TITLE: ENVIRONMENTAL PHYSIOLOGY

DATE: 15TH DECEMBER, 2023 **TIME: 2.00 P.M – 5.00 P.M**

INSTRUCTIONS TO CANDIDATES

- **SEE INSIDE**

THIS PAPER CONSISTS OF 3 PRINTED PAGES **PLEASE TURN OVER**

REGULAR – MAIN EXAM

ZOO 403E: ENVIRONMENTAL PHYSIOLOGY

STREAM: BED (SCIENCE) **DURATION: 3 Hours**

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) 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 explain its causes. (4 Marks)

d) Explain tolerance and resistance in animals as response to changing environment. (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) State the type of chemical reactions that produce the following metabolic wastes
. (4 Marks)

Metabolic Waste	**Type of chemical reactions**
Carbon dioxide	_____
Salts	_____
Urea	_____
Water	_____

SECTION B (40 MARKS)

Question Three

Discuss any five physiological functions of kidneys. (10 Marks)

Question Four

a). Using an illustration, describe an experiment that demonstrates transpiration in plants. (6 Marks)

b) Describe the main types of osmoregulation. (4 Marks)

Question Five

a). What is:-

i. Guttation (1 Mark)

ii. Excretion (1 Mark)

b) Discuss the behavioural strategies used as thermoregulatory mechanisms in animals. (8 Marks)

Question Six

a) Explain three 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:-

i. How hibernation works. (3 Marks)

ii. How artificial kidney works (4 Marks)

iii. Stomatal transpiration (3 Marks)

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