



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

P.O. Box 972-60200 – Meru-Kenya

Tel: +254(0) 799 529 958, +254(0) 799 529 959, + 254 (0) 712 524 293,

Website: info@must.ac.ke Email: info@must.ac.ke

University Examinations 2023/2024

SECOND YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF
BACHELOR OF BIOCHEMISTRY AND BACHELOR OF SCIENCE IN EDUCATION

SZA 3250: COMPARATIVE ANIMAL PHYSIOLOGY

DATE: APRIL 2024

TIME: 2 HOURS

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

QUESTION ONE (30 MARKS)

- a) Distinguish between hibernation, torpor and aestivation (3 marks)
- b) i. Differentiate between open and closed circulatory system (3 marks)
ii. Sketch and label a cross section of a mammalian heart (3 marks)
- c) Describe briefly the organization of the nervous system in cnidarians and ctenophores (3 marks)
- d) Highlight three advantages of asexual reproductive over sexual reproduction (3 marks)
- e) State the major factors influencing the evolution of respiratory mechanisms(3 marks)
- f) i. Outline the purposes of food digestion in animals (3 marks)
ii. Compare filter feeding features in baleen whales, marine petrels and ciliate protozoans (3 marks)
- g) Explain why:

- i. Birds can fly over the Himalayas mountains yet mountain climbers need breathing oxygen (3 marks)
- ii. Branchial respiration is most efficient in teleost fishes in low oxygen environment (3 marks)

QUESTION TWO (20 MARKS)

Discuss the different respiratory organs in the animal kingdom

QUESTION THREE (20 MARKS)

Describe in details the circulatory system exhibited by

- a. Annelids (10 marks)
- b. Insects (10 marks)

QUESTION FOUR (20 MARKS)

Discuss adaptations of endotherms to low and high temperatures