



TECHNICAL UNIVERSITY OF MOMBASA

Ordinary Paper

Faculty of Applied and Health Sciences

Department of PURE AND APPLIED Sciences

UNIVERSITY EXAMINATION FOR:

BACHELOR OF SCIENCE IN BIOCHEMISTRY (BSB)

ABT 4409:LABORATORY ANIMAL SCIENCE

END OF SEMESTER EXAMINATION

SERIES: DECEMBER

TIME: 2 HOURS

DATE: N/A Dec 2024

Ordinary Paper

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question ONE

Define the following terminologies in the context of Laboratory Animal Science

- i) Laboratory animals
 - ii) Refinement
 - iii) Serial sacrifice
 - iv) Record
 - v) Microenvironment (5 mks)
- b) Discuss merits and demerits of a decentralized design of an animal laboratory facility (5 mks)
- c) Enumerate the principles that guide the utilization and care of vertebrate animals used in testing, research, and training (5 mks)
- d) Enumerate the factors to consider in planning for adequate and appropriate physical laboratory facility and social environment (5 mks)

- e) Describe at least five different types and animal records and their use (5 mks)
- f.) Describe anesthesia as a standard animal laboratory procedure focused on pain minimization (5 mks)

Question TWO

- 2a) Explain the factors a researcher would look into to choose gerbils over mice as a model laboratory organism (10 mks)
- 2b) Discuss 3Rs principle as a framework based on ethical and responsible use of experimental animals in scientific and biomedical research (10 mks)

Question THREE

- 3a) Discuss computer simulation models as a dependable biomedical research tool (10 mks)
- 3b) Explain the reasons that influence a researcher's prioritization of mice as an indispensable laboratory animal model in human genetic disease investigation (10 mks)

Question FOUR

- 4a) Vitamin C is critical and growth performance limiting feed component in some laboratory animals. Using a suitable animal model, explain why it is good animal husbandry practice to supplement it and the potential benefits (10 mks)
- 4b.) Good animal husbandry practices are fundamental ethical standards for reliable and valid result outcomes. Explain (10 mks)

Question FIVE

- 5a.) Laboratory animal identification is an important husbandry practice for record keeping and animal traceability. Discuss (10 mks)
- 5b.) 'Cruelty free' advocacy potentially can could lead sustainable and ethical practices in cosmetic product manufacture. Discuss (10 mks)