



W1-2-60-1-6

**JOMO KENYATTA UNIVERSITY
OF
AGRICULTURE AND TECHNOLOGY
UNIVERSITY EXAMINATIONS 2023/2024**

**END OF SEMESTER EXAMINATIONS FOR THE DEGREE OF MASTER OF
SCIENCE IN MEDICAL VIROLOGY**

TMM 3117: LABORATORY ANIMAL CARE & USE

DATE: DECEMBER 2023

TIME: 3 HOURS

INSTRUCTIONS: ANSWER ANY FOUR QUESTIONS

QUESTION ONE (25 MARKS)

- a) Discuss FIVE welfare needs of laboratory research animals aligning with the focus of federal regulation of animal use. (15 marks)
- b) Discuss how an Institutional Animal Care and Use Committee (IACUC) conducts the process of reviewing proposals that involve use of laboratory research animals. (10 marks)

QUESTION TWO (25 MARKS)

- a) Giving clear examples, discuss FIVE situations in which proper handling and use of restrainers is critical when using laboratory animals for research. (10 marks)
- b) Describe how mice, rats and hamsters are handled and/or restrained during inoculation and sample collection. (15 marks)

QUESTION THREE (25 MARKS)

- a) Discuss factors to consider in order to ensure that laboratory research animals not exposed to distress during quarantine and transportation. (10 marks)
- b) Discuss general reasons why laboratory research animals need to be quarantined and/or transported from one Institution to another. (15 marks)

QUESTION FOUR (25 MARKS)

- a) Discuss the SEVEN principles that guide the ethical and human utilization and care of vertebrate laboratory research animals for use in testing research and training. (15 marks)
- b) Discuss with examples the principle of 3R as applied in the ethical use of laboratory animals for research. (10 marks)

QUESTION FIVE (25 MARKS)

- a) Discuss why use of laboratory animals for research is more regulated than human research. (5 marks)
- b) Discuss instances when use of laboratory animals for research is not reliable citing examples in each instance. (10 marks)
- c) Discuss the following research models giving specific discoveries obtained from research using the mentioned research models. (10 marks)
- i) Mice
 - ii) Rats
 - iii) Guinea pigs
 - iv) Poultry
 - v) Monkey

QUESTION SIX (25 MARKS)

- a) Discuss how infectious disease can be detected in a laboratory research animal, giving an example of a research animal and atleast two common diseases that affects them. (10 marks)
- b) Discuss common hazards associated with animal research facility and how they can be mitigated. (15 marks)