



W1-2-60-1-6

JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY
UNIVERSITY EXAMINATIONS 2024/2025
EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE IN MEDICAL
VIROLOGY

TMM 3117: LABORATORY ANIMAL CARE AND USE

DATE: DECEMBER, 2024

TIME: 3 HOURS

Answer any four questions!

- 1) (a) List the factors considered when selecting an animal for a particular biomedical research (5 marks)
(b) Describe the challenges that are associated with use of animals in biomedical research (10 marks)
(c) Explain the reasons that can make a pharmaceutical candidate drug pass animal testing BUT later fail human trials (10 marks)

- 2) (a) List research model organisms that are commonly used in conducting biomedical research (5 marks)
(b) Describe the role and importance of animals in human research (10 marks)
(c) Explain how transgenic mice are produced in a research laboratory (10 marks)

- 3) (a) List the 5 freedoms and their provisions for animals used for human research (5 marks)
(b) Describe the concept of 3Rs which is practiced for the conservation, care, and welfare of research animals for biomedical research giving examples in each (10 marks)
(c) Discuss animal welfare relevant to animals used in biomedical research (10 marks)

- 4) (a) List the components of an effective animal care and use program (5 marks)
(b) Describe the composition and functions of the KEMRI animal care and use committee (10 marks)
(c) Explain the principles applied in ethical care and use of animals used in testing, research and training (10 marks)

- 5) (a) List the common alternative models used in biomedical research besides the use of animals (5 marks)
(b) Describe the characteristics of zebra fish that make it a suitable model for human disease research (10 marks)
(c) Explain how each of the following laboratory animals are handled and their application in biomedical research (i) Rabbit (ii) Guinea pig (iii) Rat (iv) Hamster (v) Mice (10 marks)

- 6) (a) List the important factors that must be considered when breeding animals that are used in biomedical research (5 marks)
(b) Describe relevant characteristics that can be targeted for improvement in a breeding program involving animals used in biomedical research (10 marks)
(c) Discuss the measures that are put in place to control the spread of vermin in an animal house (10 marks)