MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2013/2014

SECOND YEAR SECOND SEMESTER EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOMEDICAL SCIENCE WITH INFORMATION TECHNOLOGY

PMB 215: ANIMAL SCIENCE FOR BIOMEDICINE

Date: 7th April, 2014 Time: 2.45 – 5.00 p.m.

INSTRUCTIONS:

- **Answer ALL questions in Section A and ANY TWO from Section B.**

PMB 215: ANIMAL SCIENCE FOR BIOMEDICINE

TIME: 2 Hours

SECTION A: Answer ALL questions in section A-40 marks

1. a). Define "animal model" as used in biomedical research. (2 mark).

   b). Briefly describe any 5 types of animal models used in biomedical research (5 marks).

2. a). Define "zoonoses". (1 mark).

   b). Name any 4 zoonotic diseases and indicate in each case the laboratory animal involved (4 marks).

3. a). What anatomic feature of the Syrian hamster is useful in tumor transplantation research? (2 marks).

   b). Explain the disadvantage(s) of using mice as a research animal (2 marks).

4. a). Differentiate between anaesthesia and euthanasia. (4 marks).

   b). List 3 instances in which euthanasia of laboratory animals is indicated (3 marks).

5. a). What is Specific Pathogen Free (SPF) animal? (2 marks).

   b). Explain 4 ways by which pathogens can be introduced into the animal environment (4 marks).

6. a). Explain the term "quarantine" as used in laboratory animal science (2 marks).

   b). Outline 5 methods that can be used to identify individual animals in an animal house (5 marks).

7. Explain the purposes of using the following types of laboratory animals in biomedical research.
   a) Knockout mice (2 marks).
   b) Severe combined immune deficiency (SCID) mice (2 marks).

SECTION B: Answer any TWO questions in section B-30 marks

8. Describe the techniques that can be used to collect blood samples from and administer test material to a named laboratory animal (15 marks).

9. Discuss the role of laboratory animals in biomedical research. (15 marks).

10. Discuss the non-experimental factors that can potentially influence the results of animal research studies (15 marks).

11. Discuss the important handling and restraint techniques for the following laboratory animals
    a). Rats (5 marks).
    b). Guinea pigs (5 marks)
    c). Mice (5 marks)