



# MASENO UNIVERSITY

## UNIVERSITY EXAMINATIONS 2012/2013

**SECOND YEAR SECOND SEMESTER EXAMINATIONS  
FOR THE DEGREE OF BACHELOR OF SCIENCE IN  
PHARMACEUTICAL SCIENCE AND BACHELOR OF  
SCIENCE IN MEDICAL BIOTECHNOLOGY WITH  
INFORMATION TECHNOLOGY  
(MAIN CAMPUS)**

**PMB 215: LABORATORY ANIMAL SCIENCE FOR  
BIOMEDICINE**

*Date: 19<sup>th</sup> July, 2013*

*Time: 2.30 – 4.30 p.m.*

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**Maseno University**

**University End of Semester Examinations 2013 / 2014**

**PMB 215: Laboratory Animal Science for Biomedicine**

**BSc Medical Biotechnology and BSc Pharmaceutical Science**

**SECTION A (40 MARKS)**

**Answer all questions from this section. Each question carries Four marks**

- Q1.** Outline water and feed requirements of any four (4) laboratory animals.
- Q2.** Distinguish between anesthesia and euthanasia as used in laboratory animal science.
- Q3.** Differentiate between “ad libitum” feeding versus scheduled interval feeding of a named laboratory animal.
- Q4.** Outline the necessary guidelines used to determine if an animal is experiencing pain or distress.
- Q5.** List four common hazards to personnel encountered when working in an animal unit. Choosing one hazard, explain how such risk should be avoided by staff working in an animal unit.
- Q6.** Mention appropriate sites for obtaining blood samples from the following species:
- (i) Mice
  - (ii) Guinea pigs
- Q7.** Describe forms of animal housing
- Q8.** List methods available for sterilization of materials entering an isolator housing for specific pathogen free animal

- Q9.** Define “inbreeding” in the context of laboratory rodents. Explain the advantages and disadvantages of using inbred rodents in research.
- Q10.** Mention principal disease of zoonotic concern for staff engaged in care and use of non-human primates. Outline how to manage the risk of the disease.

**SECTION B (30 MARKS).**

**ANSWER ANY TWO QUESTIONS FROM THIS SECTION**

- Q11.** Discuss the benefits of transgenic animals in biomedical research. **(15 marks)**
- Q12.** Define “environmental enrichment” as used laboratory animal science. Explain why it is important for laboratory animals. **(15 marks)**
- Q13.** Describe the means by which infection can gain access to a SPECIFIC PATHOGEN FREE (SPF) rodent unit. Discuss the possible means for preventing infection with respect to animal unit design, entry procedures, housing and husbandry. **(15 marks)**

