



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
MICROBIOLOGY

TIM 3103: IMMUNOLOGICAL TECHNIQUES I

DATE: DECEMBER, 2024

TIME: 3 HOURS

Answer any 4 questions

1. You are given a piece of mouse spleen and tasked with determining the proportion of B cells, T cells and Myeloid cells therein. Describe how you would go about the process (25 marks)
2. Describe the following;
 - (a) Why mouse is an appropriate model for biomedical research (10 marks)
 - (b) How to develop a humanized Severe Combined Immunodeficiency (SCID) mouse Model (15 marks)
3.
 - (a) With the help of a sketch graph, discuss the kinetics of cell growth (13 marks)
 - (b) Describe how hybrid cell lines are generated (12 marks)
4. Given a liver tissue infiltrated by various immune cells, explain how you would process the tissue to eventually observe different cells in that tissue using hematoxylin and eosin staining (25 marks)
5. Lenhard is interested in confirming the levels of phosphorylated ERK1/2 protein in DU145 prostate cancer cells treated with a herbal product. Describe how he would go about this process from the point of harvesting his treated cells (25 marks)
6. Explain various ways in which gene regulation sequences can be studied (25 marks)