



WI-2-60-1-6

JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY
UNIVERSITY EXAMINATIONS 2024/2025

MASTER OF SCIENCE IN MEDICAL PARASITOLOGY

UNIT CODE: SZL 3124: IMMUNOLOGY OF PARASITIC INFECTIONS
EXAMINATION

DATE: SEPTEMBER 2024

TIME: 3 HOURS

INSTRUCTIONS: ANSWER ANY FOUR QUESTIONS

QUESTION ONE (25 MARKS)

Discuss the role of IL-12 in the initiation of the T helper I-dependent cell-mediated immune responses in parasite infections (25 marks)

QUESTION TWO (25 MARKS)

- a) Describe the immune responses to the infective L3 of filarial nematode infections (10 marks)
- b) Elaborate the immunoregulatory aspects of the anti-hookworm immune response (15 marks)

QUESTION THREE (25 MARKS)

- a) Using Balb/c and C57BL/6 mice, design a murine leishmaniasis model to demonstrate the impact of T helper cell subset on disease outcome. (15 marks)
- b) Explain the potential roles of T cell subsets in parasitic diseases (10 marks)

QUESTION FOUR (25 MARKS)

- a) Describe the TH1/TH2 cell-differentiation induced by *Schistosoma mansoni* eggs
(15 marks)
- b) Discuss the conflicting roles of muscular M2 and M1 macrophages in conferring immunity to *Trichinella* spp.
(10 marks)

QUESTION FIVE (25 MARKS)

- a) Compare and contrast traditional methods of vaccine development and reverse vaccinology technology.
(15 marks)
- b) Explain the role of Tumour Necrosis Factor (TNF) in severe malaria pathogenesis.
(10 marks)

QUESTION SIX (25 MARKS)

- a) Compare and contrast host immunity similarities in Plasmodium and HIV infections.
(13 marks)
- c) Derive an experimental design for *Trichuris* experimental infection model using BALB.K and B10.BR mice groups to demonstrate the ability of T helper 2 (TH2) cells to mediate disease resolution.
(12 marks)