



W1-2-60-1-6

**JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY
UNIVERSITY EXAMINATIONS 2019/2020**

MASTER OF SCIENCE IN MOLECULAR MEDICINE

UNIT CODE TIM 3102: UNIT NAME IMMUNITY AND DISEASE

DATE: FEBRUARY 2020

TIME: 3 HOUR

INSTRUCTIONS: ANSWER ANY FOUR QUESTIONS

1. a) Discuss the evidence of immunity to schistosomiasis as shown in an endemic community and in animal studies (15 marks)
(i) Define inflammation (ii) Describe the four stages of inflammatory response. [10 marks]
2. a Describe in details the host immune response against Malaria parasites and the mechanisms used by the parasites to evade the immune system (20 marks)
b. Outline the characteristics of transformed tumor cells (5 marks)
3. a) Describe modes of treatment used in type I hypersensitivity reactions (15 marks)
b) Discuss five monoclonal antibodies used in cancer immunotherapy (10 marks)
- 4(a) Describe bacterial virulence factors used to cause disease. (b) Outline the main extracellular enzymes that enable pathogens to invade host cells and deeper tissues (25 Marks)
5. Vaccination has saved millions of people from vaccine-preventable infectious disease, yet millions of people are still not gaining these benefits. Discuss 12 immunization challenges for 2020–2030, showing how they can be resolved (25 marks)
6. a) T-cell selection occurs primarily within the thymus in the human species. Discuss the mechanisms that are subsequently deployed to maintain tolerance to self-antigens in the peripheral compartment and guard against self reactivity (15 marks)
b) Describe the manifestations, causative factors, and management of ONE organ specific and ONE non-organ specific autoimmune disease (10 Marks)