



W1-2-60-1-6

**JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY**

UNIVERSITY EXAMINATIONS 2022/2023

**EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE IN MEDICAL  
VIROLOGY**

TMM 3118: MEDICAL VIROLOGY I

**DATE: AUGUST 2023**

**TIME: 2 HOURS**

**INSTRUCTIONS: ANSWER ANY FOUR QUESTIONS**

**Question 1**

- a) How viruses cause diseases depends on complex interactions between the viral agent and the host. Distinguish between pathogenicity and virulence **(4 marks)**
- b) Discuss seven fundamental processes of viral pathogenesis **(21 marks)**

**Question 2**

- a) Discuss the general characteristics of viruses and features used to classify viruses **(10 marks)**
- b) With appropriate examples, distinguish between latent and chronic viral infections **(4 marks)**
- c) Discuss the consequences of antigen- antibody binding **(6 marks)**
- d) With examples, discuss the Cell mediated immunity **(5 marks)**

**Question 3**

- a) Discuss five (5) stages of viral replication cycle targeted by antiviral drugs, giving an example of a drug acting at each stage **(10 marks)**
- b) Describe five (5) mechanisms of action of antiviral drugs **(15 marks)**

**Question 4**

- a) Discuss gene mutations and their classification **(10 marks)**
- b) Describe two causes of gene mutations in biological systems **(3 marks)**
- c) Discuss four advantages and disadvantages of frame shift mutations **(12 marks)**

**Question 5**

Describe and highlight the genetic basis of inheritance, of three Mendelian postulates **(25 marks)**

**Question 6**

- a) Discuss limitations and challenges of vaccines in control of viral diseases giving relevant examples where applicable **(10 marks)**
- b) Outline the steps involved in Clinical testing of a vaccine candidate **(15 marks)**