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JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY
UNIVERSITY EXAMINATIONS 2023/2024
EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE MEDICAL
MICROBIOLOGY

TMM 3118: MEDICAL VIROLOGY I

DATE: AUGUST, 2024

TIME: 3 HOURS

INSTRUCTIONS: Answer Any FOUR Questions (25 Marks each)

Question 1

- Describe a capsid and discuss its 3 major functions (4 marks)
- What is cell tropism? Discuss five factors that influence tropism (10 marks)
- Using relevant viral examples, describe four types of incubation periods associated with viral infections (8 marks)
- Distinguish between Innate immunity and adaptive immunity in viral infections (3 marks)

Question 2

- Describe two mechanisms by which viruses develop resistance to antiviral drugs, giving an example of the drug affected and virus involved (10 marks)
- Discuss 5 classes of drugs used in the treatment of HIV, giving an example of a drug in each class Nucleoside/nucleotide reverse transcriptase inhibitors (NRTIs) (15 marks)

Question 3

- Giving examples, describe indicators of viral disease eradicability (5 marks)
- Based on Dengue (DEN) and the yellow fever virus (YFV) outbreaks, describe biologic, economic, and socio-political factors that you would consider to control their spread in the community (20 marks)

Question 4

Discuss the steps involved in a typical process of viral vaccine manufacturing and product release (25 marks)

Question 5

- Discuss implication of RNA viruses in viral epidemics (15 marks)
- Citing two recent relevant examples of (a) above, describe how the epidemics were managed (10 marks)

Question 6

- Describe the main goals of primary prevention of viral diseases and how they are achieved (15 marks)
- What are the key approaches (strategies) to primary viral disease prevention? 10 marks