MACHAKOS UNIVERSITY

University Examinations for 2021/2022 Academic Year

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

FOURTH YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (BIOLOGY)

SBT 422: VIROLOGY

DATE: **TIME :**

Instructions

1. Anwer Question 1 (compulsory) and **any two** questions in Section B.
2. Use clean well labelled diagrams wherever appropriate.

SECTION A

QUESTION ONE (30 MARKS)

a) Viruses can be classified both as life forms and as lifeless molecules. Argue for and against this statement . (4 marks)

b) Describe the significance of latency in virus pathogenicity (3 marks)

c) Illustrate the development of the virus envelope (4 marks)

d) Illustrate two ways by which viruses enter the host cell (4 marks)

e) Explain the characteristics of the HIV and infection that make it such a difficult target for the immune system and for drugs (3 marks)

f) Highlight the significance of RNA dependent RNA polymerase in virus replication (3 marks)

g) Briefly discuss viral oncogeneity (3 marks)

h) Highlight three theories that explain the origin of viruses (3 marks)

i) Explain host range in virology (3 marks)

SECTION B: ANSWER ANY TWO QUESTIONS

QUESTION TWO (20 MARKS)

a) A new disease has emerged and is suspected to be viral. Discuss the methods you would use as a virologist to ascertain presence of the virus. (12 marks)

b) Discuss the classification of viruses on the basis of replication strategy. (8 marks)

QUESTION THREE (20 MARKS)

Compare and contrast the main phases in the lytic multiplication cycle in bacteriophages and animal viruses.

QUESTION FOUR (20 MARKS)

You are involved in developing an antiviral drug, discuss with illustrations some important considerations you would make.

QUESTION FIVE (20 MARKS)

"There is no such thing as a good virus". Argue for and against this statement.