



MACHAKOS UNIVERSITY

University Examinations 2022/2023 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. Answer Question 1 (compulsory) and **any two** questions in Section B.
2. Use clean well labelled diagrams wherever appropriate.

SECTION A (COMPULSORY)

QUESTION ONE (30 MARKS)

- a) Explain three mechanisms of virus penetration (3 marks)
- b) Describe latency in viral replication and diagnosis (3 marks)
- c) Describe viruses as living molecules (3 marks)
- d) Explain the viral oncogeneity (3 marks)
- e) Explain the advantage of continuous cell cultures over primary cell lines in virus cultivation (3 marks)
- f) Describe the role of a viral envelope in determining the host range (3 marks)
- g) Describe the cultivation of bacteriophages on agar plates (3 marks)
- h) Explain the advantage live animal inoculation of viruses over other inoculation methods (3 marks)

- i) Explain the economic importance of viruses (3 marks)
- j) Distinguish RNA-dependent RNA polymerases from DNA-dependent RNA polymerases (3 marks)

SECTION B: ANSWER ANY TWO QUESTIONS
QUESTION TWO (20 MARKS)

Discuss modes of action of antiviral drugs

QUESTION THREE (20 MARKS)

Contrast the multiplication cycle of an enveloped animal and a T4 bacteriophage

QUESTION FOUR (20 MARKS)

- a) Discuss the methods of virus detection (10 marks)
- b) Illustrate the grouping of viruses based on strategies of mRNA, synthesis (10 marks)

QUESTION FIVE (20 MARKS)

Discuss the epidemiology, pathogenesis and treatment for SARS-CoV-2