

UNIVERSITY EXAMINATIONS

FIRST SEMESTER 2025/2026 ACADEMIC YEAR

**SECOND YEAR EXAMINATION FOR THE DEGREE OF
BACHELOR OF BIOMEDICAL SCIENCE AND
TECHNOLOGY**

BMED 215: BIOLOGY OF HIV/AIDS

STREAM: R

TIME: 2 HRS

DAY: TUESDAY [8.30 – 10.30 A.M]

DATE: 27/01/2026

THIS QUESTION PAPER CONSISTS OF THREE (3) PAGES

PLEASE DO NOT OPEN UNTIL THE INVIGILATOR SAYS SO.

Answer all the questions in section A and any of the two questions in B

SECTION A (40 MARKS)

QUESTION ONE

Outline the key factors that contributed to the rapid spread of HIV/AIDS during the early stages of the epidemic. (5 Marks)

QUESTION TWO

Explain the immune system's response to HIV infection. (5 Marks)

QUESTION THREE

Mention the function of the HIV p24 protein and its significance in diagnosis. (5 Marks)

QUESTION FOUR

Explain the relationship between sexually transmitted infections (STIs) and HIV/AIDS. (5 Marks)

QUESTION FIVE

Outline the relationship between HIV infection and opportunistic infection (5 Marks)

QUESTION SIX

Illustrate the role of integrase and its significance in HIV replication. (5 Marks)

QUESTION SEVEN

Elucidate how mutations in the HIV reverse transcriptase gene can lead to resistance. (5 Marks)

QUESTION EIGHT

Outline the importance of HIV testing and counseling. (5 Marks)

SECTION B (30 MARKS)

QUESTION NINE (15 MARKS)

Describe the life cycle of HIV in CD4+ T cells, including the key stages involved in viral replication.

(15 Marks)

QUESTION TEN (15 MARKS)

Discuss the mechanisms of action of different classes of antiretroviral drugs used to treat HIV.

(15 Marks)

QUESTION ELEVEN (15 MARKS)

Discuss the strategies for control and management of HIV/AIDS.

(15 Marks)