



# UNIVERSITY EXAMINATIONS

**SECOND SEMESTER 2023/2024 ACADEMIC YEAR**

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

**BMED 225: MEDICAL VIROLOGY**

***STREAM: R***

***TIME: 2 HRS***

***DAY: MONDAY [11.30A.M – 1.30P.M]***

***DATE: 08/04/2024***

**THIS QUESTION PAPER CONSISTS OF THREE (3) PAGES**

**PLEASE DO NOT OPEN UNTIL THE INVIGILATOR SAYS SO.**

**INSTRUCTIONS**

- i. Answer ALL questions in Section A and ANY TWO questions in Section B**
- ii. Do not write on the question paper**

**SECTION A: 40 MARKS****QUESTION ONE**

## Pathogenic Viruses

- a) Define a pathogenic virus and provide examples of viral diseases. **(4 Marks)**
- b) Briefly describe viral pathogenesis in humans. **(3 Marks)**
- c) Discuss the role of viral evolution in the emergence of new pathogenic viruses. **(3 Marks)**

**QUESTION TWO**

## Virus Structure and Architecture

- a) Describe the basic structure of a virus. **(2 Marks)**
- b) Explain the significance of viral capsids and envelopes in virus structure. **(2 Marks)**
- c) Compare and contrast the structural features of DNA and RNA viruses. **(2 Marks)**

**QUESTION THREE**

## Classification and Nomenclature

- a) Define viral taxonomy and its importance in virology. **(2 Marks)**
- b) Describe the hierarchical classification of viruses. **(2 Marks)**
- c) Briefly discuss the challenges in classifying newly discovered viruses. **(2 Marks)**

**QUESTION FOUR**

## Diseases Caused by Viruses and their Pathogenesis

- a) Provide an overview of viral diseases affecting the respiratory system. **(3 Marks)**
- b) Explain the pathogenesis of viral hepatitis. **(4 Marks)**
- c) Briefly discuss the neurological manifestations of viral infections. **(3 Marks)**

**QUESTION FIVE**

## Mechanisms of Virus and Viroid Transmission

- a) Briefly explain the role of vectors in the transmission of arboviruses. **(4Marks)**
- b) Briefly describe viroid transmission and its impact on plant health. **(4 Marks)**

**SECTION B: 30 MARKS**

Choose any **two questions** to answer.

**QUESTION SIX**

Prospects for Management and Control of Viral Diseases

- a) Evaluate the effectiveness of vaccination in preventing viral infections. **(5 Marks)**
- b) Discuss the challenges in developing antiviral drugs and therapies. **(5 Marks)**
- c) Explain the concept of herd immunity and its role in controlling viral outbreaks. **(5 Marks)**

**QUESTION SEVEN**

Identification of Pathogenic Viruses

- a) Describe laboratory techniques used to identify viruses in clinical samples. **(5 Marks)**
- b) Discuss the importance of surveillance systems in detecting emerging viral pathogens. **(5 Marks)**
- c) Explain the role of genomics in identifying novel viruses. **(5 Marks)**

**QUESTION EIGHT**

Mechanisms of Viral Transmission

- a) Compare and contrast horizontal and vertical transmission of viruses. **(5 Marks)**
- b) Discuss the role of zoonotic transmission in viral epidemics. **(5 Marks)**
- c) Explain the significance of environmental factors in viral transmission. **(5 Marks)**

**QUESTION NINE**

Management Strategies for Viral Diseases

- a) Outline public health measures for controlling viral outbreaks. **(5 Marks)**
- b) Discuss the ethical considerations in implementing quarantine measures during viral epidemics. **(5 Marks)**
- c) Evaluate the role of international cooperation in combating global viral threats. **(5 Marks)**

