

BINDURA UNIVERSITY OF SCIENCE EDUCATION
BIOLOGICAL SCIENCES DEPARTMENT
BACHELOR OF SCIENCE HONOURS DEGREE IN BIOTECHNOLOGY
VIROLOGY (BTEC424)

EXAMINATION

NOV 2024

2 HOURS (100 MARKS)

INSTRUCTIONS

Answer **FOUR (4)** questions. You **MUST** answer **QUESTION 1** from Section A and any **THREE (3)** questions from SECTION B. Each question carries 25 marks. Where a question contains subdivisions, the mark value of each part is given in brackets. Illustrate your answer where appropriate with large clearly labeled diagrams. You should not spend more than 30 minutes on each question.

SECTION A (COMPULSORY)

1. (a) Fully label the following diagram of a virus.

[6]

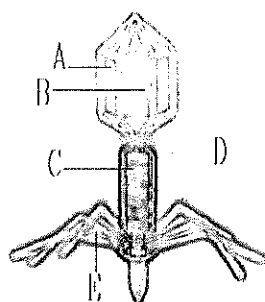


Figure1: Illustration of a typical bacteriophage virus.

- (b) Describe the budding off process from a host cell employed by viruses. [8]
- (c) Illustrate the modified Central Dogma of Molecular Biology due to involvement of viruses transcription and replication. [10]
- (d) State two (2) types of human infecting viruses. [1]

SECTION B. Choose any THREE (3) from FIVE (5) questions below.

2. Describe the scientific issues of either Ebola or Covid19 under the following titles:
- (a) Target organs and damage methods. [10]
- (b) Diagnosis techniques and identification. [15]

3. With the aid of a labeled diagram, describe the laboratory technique of virus amplification using the chick embryo. [25]
4. Elaborate how Baculovirus exhibit two forms of life existence dependent on host location. [25]
5. Write short notes on any **FIVE** of the following:
 - (a) Virus-induced cell fusion. [5]
 - (b) Zika virus. [5]
 - (c) Horizontal transmission. [5]
 - (d) Viral replication curve. [5]
 - (e) Concatemer. [5]
6. Write an essay on the molecular approaches employed towards the development of viral vaccines. [25]

END OF EXAMINATION PAPER