



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF APPLIED SCIENCE
DEPARTMENT OF APPLIED BIOLOGY AND BIOCHEMISTRY
BACHELOR OF SCIENCE HONOURS DEGREE IN BIOTECHNOLOGY
BACTERIOLOGY AND MYCOLOGY (SBT1204)

Main Examination Paper

OCTOBER 2024

This examination paper consists of 3 pages

Time Allowed : 3 hours
Total Marks : 100
Special Requirements : NONE
Examiner's Name : MS L. NGWENYA

INSTRUCTIONS

1. Answer four (4) questions. Each question carries 25 marks.
2. Where a question contains subdivisions, the mark value for each subdivision is given in brackets.
3. Illustrate your answer where appropriate with large, clearly labelled diagrams.

MARK ALLOCATION

QUESTION	MARKS
1.	25
2.	25
3.	25
4.	25
5.	25
6.	25
TOTAL	100

- 1.(a) Outline the key structural differences between Gram-positive and Gram-negative bacteria. (7 marks)
- (b) Differentiate between pure and mixed cultures. (4 marks)
- (c) Discuss the economic applications of bacteria in the pharmaceutical and medical industry. (14 marks)
- 2.(a) Explain why fungi are considered saprophytes. (5 marks)
- (b) Compare and contrast the reproduction methods in fungi and bacteria. (5 marks)
- (c) Discuss the economic importance of fungi. (15 marks)
- 3.(a) Name five morphological classes of bacteria, giving an example of each. (5 marks)
- (b) Name and describe the four groups of special-purpose media. (10 marks)
- (c) List and describe the four phases of the bacterial growth curve and the significance of each stage. (10 marks)
- 4.(a) Explain the key environmental factors that affect microbial growth. (8 marks)
- (b) Describe the four stages of biofilm formation. (7 marks)
- (c) Discuss virulence factors associated with pathogenic bacteria. (10 marks)
5. Using specific examples, describe the classification of fungi.
- 6.(a) Explain the following terms:
- | | |
|-------------------|-----------|
| Symbiotic | (2 marks) |
| Commensal | (2 marks) |
| Parasite | (2 marks) |
| Septate hyphae | (2 marks) |
| Coenocytic hyphae | (2 marks) |
| Karyogamy | (2 marks) |
| Plasmogamy | (2 marks) |
| Zygosporangia | (2 marks) |
- (b) Differentiate between yeasts and moulds in terms of morphology. (9 marks)

END OF EXAMINATION