BINDURA UNIVERSITY OF SCIENCE EDUCATION
BIOLOGICAL SCIENCES DEPARTMENT
BACHELOR OF SCIENCE HONOURS DEGREE IN BIOTECHNOLOGY (HBScBioTec)
BACTERIOLOGY & MYCOLOGY (BTEC 127)

EXAMINATION

2 HOURS (100 marks) JUN 2024

INSTRUCTIONS
Answer FOUR questions. You must answer Question 1(Section A) and any other THREE questions from Section B. Each question carries 25 marks. Where a question contains subdivisions, the mark value of each subdivision is given in brackets. Illustrate your answer where appropriate with large clearly labelled diagrams. You should not spend more than 30minutes on each question.

SECTION A (COMPULSORY)

1. (a) You are provided with a MacConkey agar plate.
Describe a procedure to use this plate to isolate single colonies from a mixed broth culture. (10 marks)

(b) Figure 1 shows three growth forms of lichens and cross-section through a lichen lamina.

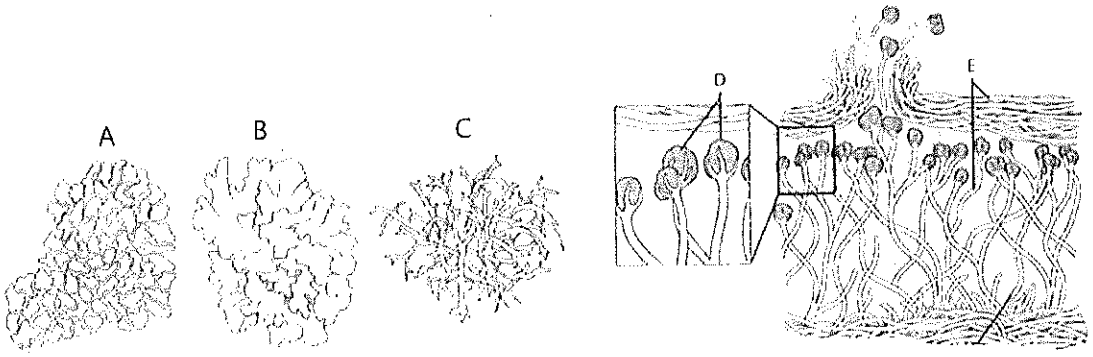

Figure 1 Growth forms and cross section through a lichen lamina

(i) Name the structures labelled A to E. (5 marks)
(ii) Explain the interaction between the cells of structures D and E. (3marks)

(c) Outline the economic importance of lichens. (7 marks)

SECTION B

2. Write short notes on any **FIVE** of the following:

(a) Endospore (5 marks)
(b) Selective media (5 marks)
(c) Ascomycota (5 marks)
(d) Mycorrhizae (5 marks)
(e) Mycotoxins (5 marks)
(f) Mycelium (5 marks)

3. (a) Describe the pathogenesis of the following microorganisms:
   (i) *Vibrio cholerae* (5 marks)
   (ii) Tinea corporis (ringworm) (5 marks)
   (b) Compare and contrast continuous and batch culture techniques. (15 marks)

4. Describe asexual and sexual reproduction of fungi using suitable examples in each case.

5. Explain the role of bacteria in the production of yoghurt.

6. Describe the small scale cultivation of mushrooms.

END OF EXAMINATION QUESTION PAPER