

BINDURA UNIVERSITY OF SCIENCE EDUCATION

BIOLOGICAL SCIENCE DEPARTMENT

DipSciEd

BIOLOGICAL MOLECULES (BZ002)

EXAMINATION

2 HOURS (100 MARKS)

Answer FOUR questions. You MUST answer QUESTION 1 (Section A) and any THREE questions from Section B. each question carries 25 MARKS. Where a question contains subdivisions, the mark value of each sub-division is given in brackets. Illustrate your answers where appropriate with large clearly labelled diagrams. You should not spend more than thirty minutes on each question.

SECTION A (COMPULSORY)

1. a) Describe test for a non-reducing sugar from sugar cane. (15 marks)
- b) Outline the steps to test for the presence of a peptide bond in a sample. (10 marks)

SECTION B

2. a) Describe the structure and function of lipids. (10 marks)
  - b) Outline the physical properties of the following compounds:
    - i) Collagen (3 marks)
    - ii) Keratin (3 marks)
    - iii) Glucose (3 marks)
    - iv) Cellulose (3 marks)
    - v) Starch (3 marks)
5. Write short notes on each of the following:
- a) Tetravalent (5 marks)
  - b) Saturated (5 marks)
  - c) Dehydration (5 marks)
  - d) Complementary bases (5 marks)
  - e) Replication (5 marks)
4. Describe the characteristics of water molecule and relate them to the functions of water in the organisms and habitats.
5. a) Compare the main features of the DNA and RNA molecules, {10marks]
- b) Explain the relationship between structure and function in the following molecules:
- i) Monosaccharides (3 marks)
  - ii) Polysaccharide (3 marks)
  - iii) Collagen (3 marks)

iv) Haemoglobin

(3 marks)

v) Keratin

(3 marks)

6. Discuss the structure of a carbon atom and explain the different functional groups found in biomolecules. [

END OF QUESTION PAPER