BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF SCIENCE AND ENGINEERING

DEPARTMENT: BIOLOGICAL SCIENCES APR 2025

PROGRAMME: HBScBZH

COURSE CODE: BZH 104 : NARRATION: CELL AND MOLECULAR BIOLOGY

DURATION: 2 HOURS TOTAL MARKS: 100

INSTRUCTIONS TO CANDIDATES

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 subdivision 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

1. (a) Describe an investigation to determine the effect of a range of concentrations of sugar solution on the mass of plant tissue. (15 Marks)

   (b) Explain the results you would expect to find in part (a). (10 Marks)

SECTION B

2. (a) Differentiate between saturated and unsaturated fats. (10 Marks)

   (b) Explain the role of lipids in living cells. (15 Marks)

3. Explain the Fluid Mosaic Model of the cell membrane and enumerate the functions of membrane proteins.

4. (a) Explain the process of DNA replication. Include key enzymes involved and the significance of this process. (15 Marks)

   (b) Compare and contrast active and passive transport across membranes (10 Marks)

5. Using a labelled diagram, describe the structure and function of the endoplasmic reticulum.

6. Write short notes on any **Five** of the following

(a) Esterification (5 Marks)
(b) Gram staining principle (5 Marks)
(c) Cell theory (5 Marks)
(d) Interphase (5 Marks)
(e) Peptide bond (5 Marks)
(f) Exocytosis (5 Marks)
(g) Meiosis (5 Marks)

END OF PAPER