BINDURA UNIVERSITY OF SCIENCE EDUCATION

BIOLOGICAL SCIENCES DEPARTMENT

BScBZH/HBScBIOTEC

BIOCHEMISTRY (BTEC112/BZH108)

EXAMINATION

MAR 2024

2 HOURS (100 MARKS)

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 sub-divisions, the mark value of each sub-division is given in brackets. Illustrate your answer where appropriate with large clearly labelled diagrams. You should not spend more than thirty minutes on each question.

SECTION A (COMPULSORY)

1. (a) Outline the principles of Benedict's test. (5 marks)

   (b) Describe a procedure for the identification of an unknown protein. (15 marks)

   (c) Outline a test for detecting blood in a urine sample. (5 marks)

SECTION B

2. Describe the fatty acid ß-oxidation.

3. Write short notes on any FIVE of the following:

   (a) Biological functions of carbohydrates. (5 marks)

   (b) Conjugated proteins. (5 marks)

   (c) Functions of mRNA. (5 marks)

   (d) Disorders of carbohydrate digestion. (5 marks)

   (e) Actions of testosterone. (5 marks)

   (f) Applications of recombinant DNA. (5 marks)

4. (a) Describe the process of oxidative phosphorylation. (15 marks)

   (b) Outline the differences between fat-soluble and water-soluble vitamins. (10 marks)

5. (a) Explain competitive inhibition in enzymes. (15 marks)

(b) Explain any **TWO** applications of competitive inhibition in medical field.

(10 marks)

6. Describe the general mechanisms of hormone action.

END OF EXAMINATION QUESTION PAPER