

BINDURA UNIVERSITY OF SCIENCE EDUCATION
DEPARTMENT OF BIOLOGICAL SCIENCES
HBScBio
CELL AND MOLECULAR BIOLOGY (BZH 104)

EXAMINATION
2 HOURS (100 MARKS)

MAR 2024

INSTRUCTIONS

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 COMPULSORY

1. (a) Differentiate between resolution and magnification. (5 marks)
- (b) (i) Describe an experimental procedure to view mitochondria under an electron microscope. (12 marks)
- (ii) Explain the functions of the mitochondria in the cell. (8 marks)

SECTION B

2. (a) With the aid of labelled diagrams, describe the fate of the proteins as they move through the endomembrane system. (20 marks)
- (b) Water is said to be essential for life. Elaborate (5 marks)
3. Describe the mechanisms of reproduction in prokaryotic organisms.
4. (a) Draw and label the Fluid Mosaic Model of cell the membrane. (5 marks)
- (b) Explain the Fluid Mosaic Model of the cell membrane and outline the functions of cell membrane. (20 marks)
5. Compare and contrast mitosis and meiosis as modes of cell division.
6. Explain the structure and functions of the following in cellular processes.

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| (a) Proteins | (10 marks) |
| (b) Lipids | (9 marks) |
| (c) Carbohydrates | (6 marks) |

END OF EXAMINATION QUESTION PAPER