

BINDURA UNIVERSITY OF SCIENCE EDUCATION
DEPARTMENT OF BIOLOGICAL SCIENCES
BSc HONOURS IN BIOLOGICAL SCIENCES
GENETIC ENGINEERING (BTEC 214)

EXAMINATION

2 HOURS (100 MARKS)

JUN 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. Describe the major steps involved in gene cloning.

SECTION B

2. Write short notes on any five on the following:
 - (a) transgenic mice. (5)
 - (b) T4 DNA ligase. (5)
 - (c) *Taq* DNA polymerase. (5)
 - (d) expression vector. (5)
 - (e) cDNA. (5)
 - (f) T-DNA. (5)
3. Genetic engineering is Friend or foe? Discuss.
4. Advances in genetic engineering have led to the development of designer foods. Discuss.
5. Outline the production of a **NAMED** pharmaceutical product using genetic engineering.
6. Describe the Southern blot technique.

END OF EXAMINATION QUESTION PAPER