

BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF AGRICULTURE AND ENVIRONMENTAL SCIENCE

AGC422/AGH410

Department of Crop Science
BSc Agricultural Science (Honours) Part IV Examination
Applied Plant Biotechnology

3 HOURS (100 Marks)

INSTRUCTIONS

Answer any **FOUR** questions. Each question carries **25 marks**.

1. (a) State any 7 types of tissue culture. [7 marks]
(b) Outline the use of somaclonal variation in crop improvement. [15 marks]
(c) State any three types of cells produced after protoplast fusion. [3 marks]
2. Discuss the causes, symptoms and control of plant tissue culture disorders. [25 marks]
3. (a) Explain the characterization of protoplast fusion products. [10 marks]
(b) Discuss the use of Bt genes in crop protection. [12 marks]
(c) Outline the importance of abscisic acid to tissue culture. [3 marks]
4. (a) Discuss the different methods of GMO testing. [10 marks]
(b) Analyse the use of the gene gun (biolistic approach) in genetic modification. [15 marks]
5. (a) Outline the importance of virulence genes in recombinant DNA technology. [10 marks]
(b) Explore the importance of growth regulants in tissue culture. [15 marks]
6. (a) Explain four importance of in vitro fertilization technology to crop improvement. [8 marks]
(b) Describe how haploid plants are produced. [11 marks]
(c) Discuss three importance of doubled haploids in plant breeding. [6 marks]

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