BINDURA UNIVERSITY OF SCIENCE EDUCATION
DEPARTMENT OF BIOLOGICAL SCIENCES
MSc APPLIED MICROBIOLOGY AND PLANT PATHOLOGY
ADVANCED PLANT PATHOLOGY MPP513

EXAMINATION
2 HOURS (100 MARKS)   ._" JUN 2025

INSTRUCTIONS
Answer TWO out of the following questions. You MUST answer ONE question from Section A and ONE question from Section B. Each question carries 50 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 1 hour on each question.

SECTION A
1. Outline classical diagnostic methods for fungal pathogens.

2. You are presented with a tomato plant affected by *Ralstonia solanacearum*.
   a. Describe how you would
      i.   Confirm the presence of and name of the disease.   (15 marks
      ii. Isolate the phytopathogen.   (15 marks)
      iii. Purification of the phytopathogen.   (15 marks)
   b. Suggest methods of identifying the pathogen.   (5 marks)

SECTION B
3. Explain with illustrations how gene editing can be used to improve crop plants.

4. Describe the procedure of marker-assisted selection (MAS) for improved disease resistance in plants.

END OF EXAMINATION QUESTION PAPER