

BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF AGRICULTURE AND ENVIRONMENTAL SCIENCE

NR125

DEPARTMENT OF CROP SCIENCE

BACHELOR OF AGRICULTURAL SCIENCE (HONOURS) DEGREE PART I EXAMINATION

PLANT-BIOLOGY

3 HOURS [100 MARKS]

 **MAR 2023**

INSTRUCTIONS

ANSWER ANY *FOUR* QUESTIONS. EACH QUESTION CARRIES 25 MARKS

1. a. Explain why it is important to study plant biology. [10 marks]
b. Describe the germination process [15 marks]
2. a. Describe the dark reactions of photosynthesis [15 marks]
b. Discuss how the C4 pathway corrects the weakness of the Calvin cycle [10 marks]
3. Outline the occurrence and importance of the following plant growth hormones to crops:
 - a. Auxins [6 marks]
 - b. Gibberins [6 marks]
 - c. Cytokinins [5 marks]
 - d. Ethylene [4 marks]
 - e. Abscissic acid [4 marks]
4. a. Outline the cell expansion stage of growth [15 marks]
b. With the aid of diagrams describe the functional structure of the following:
 - i. Mitochondria [5 marks]
 - ii. Chloroplast [5 marks]
5. Outline the movement of water from the soil until it gets lost into the atmosphere through the leaves. In your narration explain the factors that affect the water uptake rate [25 marks]
6. Write notes under the following topics:
 - a. The link reaction [5 marks]
 - b. Relate the structure of plant leaves to their functions [10 marks]
 - c. With the aid of a diagram, describe the structure and functioning of the phloem [10 marks]