

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF APPLIED SCIENCES
BACHELOR OF SCIENCE HONOURS DEGREE EXAMINATIONS
DEPARTMENT OF APPLIED BIOLOGY AND BIOCHEMISTRY

THEORY: PLANT PHYSIOLOGY SBB 1105

MAY 2002

2 HOURS (100 marks)

INSTRUCTIONS

Answer Four (4) Questions. Each question carries 25 marks. Where a question contains subdivisions, the mark value for each subdivision is given in brackets. Illustrate your answer where appropriate with large, clearly labelled diagrams.

1. (a) Give a detailed outline of the main features of biological nitrogen fixation process. (15 marks)
(b) What practical measures aimed at maximizing biological nitrogen fixation would you recommend to farmers in Zimbabwe. (10 marks)
2. Explain how the functions of plant cell organelles are affected by plant mineral nutrients.
3. (a) Briefly discuss the roles of plant growth regulators in plant growth and development. (15 marks)
(b) Discuss the possible sites of hormonal control of gene activity in higher plants. (10 marks)
4. Using clearly labelled diagrams where possible, describe and discuss the differences between C₃ and C₄ plants.
5. Write short notes on the following.
 - (a) ectomycorrhizas (6 marks)
 - (b) peroxisomes (5 marks)
 - (c) seed dormancy (10 marks)
 - (d) lyoxysomes (4 marks)
6. What is apical dominance? Discuss the theories that have been postulated to explain apical dominance.

END OF EXAMINATION QUESTION PAPER