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

JUNE 2004

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) With the aid of a suitable and clearly labeled diagram, describe the light reactions of photosynthesis. (17 marks)

   (b) List the biochemical or morphological differences between C3 and C4 plants. (8 marks)

2. Write short notes on:
   (a) microbodies (9 marks)

   (b) ectomycorrhizas (6 marks)

   (c) cytoskeleton (5 marks)

   (d) anerobic respiration. (5 marks)

3. (a) Give a detailed account of biological nitrogen fixation. (15 marks)

   (b) Outline the processes involved in seed dormancy. (10 marks)

4. Discuss the possible benefits and risks of using biotechnology in crop improvement.

5. (a) Discuss briefly 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)

6. (a) Give a brief description of the roles in higher plants of five named essential elements. (15 marks)

   (b) Describe the following theories of transport in plants:
   (i) diffusion
   (ii) mass flow. (10 marks)

END OF EXAMINATION