



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF APPLIED SCIENCE
DEPARTMENT OF APPLIED BIOLOGY AND BIOCHEMISTRY
BACHELOR OF SCIENCE HONOURS DEGREE IN APPLIED BIOLOGY AND
BIOCHEMISTRY
PLANT PHYSIOLOGY (SBB1105)

Main Examination Paper

DECEMBER 2024

This examination paper consists of 2 pages

Time Allowed : 3 hours
Total Marks : 100
Special Requirements : NONE
Examiner's Name : DR K. MUSHONGA

INSTRUCTIONS

1. Answer **QUESTION 1 (compulsory)** from Section A and any other **THREE (3)** questions from Section B.
2. Each question carries 25 marks.
3. Where a question contains subdivisions, the mark value for each subdivision is given in brackets.
4. Illustrate your answer where appropriate with large, clearly labelled diagrams.

MARK ALLOCATION

QUESTION	MARKS
1.	25
2.	25
3.	25
4.	25
5.	25
6.	25
TOTAL	100

Section A

1. (a) With reference to specific plant organ types, describe the structure and functions of various metamorphic roots, stems and leaves. (18 marks)
- (b) Outline the classification of fruit types according to their morphology. (7 marks)

Section B

2. Write an essay on nitrogen fixing bacteria and mycorrhizal fungi in facilitating plant mineral nutrition.
3. Write short notes on the following:
 - (a) C₄ photosynthetic pathway. (6 marks)
 - (b) Crassulacean acid metabolism pathway. (6 marks)
 - (c) Secondary growth of stems. (7 marks)
 - (d) Polar transport of auxins. (6 marks)
4. Describe and explain the physiological and biochemical disturbances in plants caused by fluctuations in the abiotic environment.
5. Discuss the environmental factors which can alter plant respiration.
6. Write a detailed essay on the main driving forces of solute transport in flowering plants

END OF EXAMINATION