



PAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF HEALTH, NATURAL RESOURCES AND APPLIED SCIENCES
SCHOOL OF AGRICULTURE AND NATURAL RESOURCES AND SCIENCES
DEPARTMENT OF AGRICULTURAL SCIENCES AND AGRIBUSINESS

QUALIFICATION: BACHELOR OF SCIENCE IN HORTICULTURE	
QUALIFICATION CODE: 07BHOR	LEVEL: 7
COURSE CODE: PTP610S	COURSE NAME: PLANT PHYSIOLOGY
SESSION: JUNE 2023	PAPER: THEORY
DURATION: 3 HOURS	MARKS: 100

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER(S)	Dr Grace N. Kanguuehi
MODERATOR:	Prof Theo Wassenaar

INSTRUCTIONS
1. Answer ALL the questions. 2. Write clearly and neatly. 3. Number the answers clearly.

PERMISSIBLE MATERIALS

1. Examination question paper
2. Answering book

THIS QUESTION PAPER CONSISTS OF 2 PAGE (Including this front page)

QUESTION 1

- 1.1. Differentiate between the two (2) types of plant growth. (3)
- 1.2. Explain what is meant by differentiation, giving two examples. (3)
- 1.3. List the three principal criteria by which an element can be judged essential or non-essential to a plant. (3)
- 1.4. Give three reasons why photoperiodism is important in plants. (3)
- 1.5. What do you understand by the terms plant physiology and plant anatomy? (4)
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QUESTION 2

- 2.1. Discuss nitrogen metabolism. (4)
- 2.2. Discuss stomatal responses to water stress. (5)
- 2.3. Describe the soil, plant, and atmosphere continuum (SPAC). (6)
- 2.4. Deliberate how water potential, evapotranspiration, stomatal regulation, and solute concentration differences between the xylem and phloem influences transportation of water in plants. (9)
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QUESTION 3

- 3.1. List the two types of mycorrhizal fungi and explain how they facilitate nutrient (including which nutrient is important in which fungi) uptake by plant roots. Also discuss nitrogen-fixing bacteria in roots. (10)
- 3.2. Describe tissue culture and list four advantages of propagation by tissue culture. (10)
- 3.3. Explain how photosynthates are transported in plants. (10)
- 3.4. Define plant catabolism and describe the three stages of catabolism in details. (15)
- 3.5 Differentiate between C3, C4, and CAM photosynthetic pathways. (15)
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Final Marks: 100