NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF HEALTH, NATURAL RESOURCES AND APPLIED 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
DATE: JULY 2024	
DURATION: 3 HOURS	**MARKS:** 100

SECOND OPPORTUNITY/SUPPLEMENTARY EXAMINATION QUESTION PAPER	
EXAMINER(S)	Dr Grace N. Kangueehi
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 1 PAGE (Excluding this front page)

QUESTION 1

1.1. Give three reasons why photoperiodism is important for plants? (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. Explain in detail the cohesion-tension theory. (3)

1.5. What do you understand by the term cellular respiration? (4)

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QUESTION 2

2.1. Differentiate between the Symplastic and the Apoplastic pathway. (4)

2.2. Differentiate between a plant cell and an animal cell, by listing the main difference between the two cells. (4)

2.3. Why is nitrogen important in plants and what do you understand by the term nitrogen metabolism? (5)

2.4. Discuss the pollination and fertilisation process in Angiosperms. (5)

2.5. Vegetables can be classified in different categories, briefly discuss the classification by climate and give an example of each. (6)

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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, giving an example. (10)

3.2. Define water potential and explain how it is influenced by solutes, pressure, gravity, and the matric potential. (10)

3.3. Water deficit can have a negative impact on plant growth. In your own words, discuss the morphological, physiological, biochemical and growth responses of plants to water stress. (10)

3.4. Define plant catabolism and describe the three stages of catabolism in details. (15)

3.5 Give an example of a C3, C4, and CAM plants and differentiate between their photosynthetic pathways. (15)

[60]

Final Marks: 100