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**UNIVERSITY EXAMINATIONS
2023/2024 ACADEMIC YEAR**

**THIRD YEAR FIRST SEMESTER
MAIN EXAMINATIONS**

FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOLOGY

COURSE CODE: SBT 312

COURSE TITLE: PLANT PHYSIOLOGY

DATE: 14TH DECEMBER 2023

TIME: 8.00 - 10.00 AM

INSTRUCTIONS TO CANDIDATES

Answer Question one (1) and any other two (2) Questions. Question one is compulsory and carries 30 marks, the other Questions carry 20 marks each.

TIME: 2 Hours

QUESTION ONE

- a) Highlight roles of minerals salts in plant physiology. (4mks)
- b) Predict four significance of photosynthesis. (4mks)
- c) Recall four types of synthetic auxins. (4 mks)
- d) Illustrate how osmotic pressure is calculated. (4 mks)
- e) Distinguish between cyclic and non-cyclic photophosphorylation (4 mks)
- f) Summarize biosynthesis of cytokinins. (4 mks)
- g) List two main steps occurring in CAM plants. (2 mks)
- h) Demonstrate role of RUBISCO enzyme in photorespiration. (4mks)

QUESTION TWO

- a) Discuss one theory regarding minerals salts absorption by roots. (10mks)
- b) Describe tricarboxylic acid cycle. (10 mks)

QUESTION THREE

- a) Explain five factors that affect rate of transpiration in plants. (10mks)
- b) Classify stomata based on arrangement of epidermal cells. (10mks)

QUESTION FOUR

- a) State reasons why the primary site of action of plant growth hormones is still unresolved. (5mks)
- b) Describe five plant hormone groups. (15mks)

QUESTION FIVE

Discuss recent advances in photosynthesis research. (20mks)