

CHUKA



UNIVERSITY

Knowledge is Wealth (*Sapientia divitia est*) Akili ni Mali

DEPARTMENT OF BIOLOGICAL SCIENCE

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SUPLIMENTARY/SPECIAL EXAMINATION

BOTA 271 PLANT PHYSIOLOGY I

TIME: 2 HOURS

Instructions: Answer all questions in section A and any two in section B

SECTION A (30 marks)

1. a. Describe the structure of the chloroplast (3 marks)
b. Describe events that occur during the first phase of photosynthesis (2 marks)
2. a. Define the following terms as used in plant physiology (2 marks)
 - i. Capillary
 - ii. Water potentialb. Draw a well labeled diagram of the phloem (3 marks)
3. a. Describe the roles of carbohydrates in plants (3 marks)
b. Describe classification of the carbohydrates that are found in plants (3 marks)
4. a. Explain the differences between amylose and amylopectin (2 marks)
b. Describe the general structure of amino acid (3 marks)
5. Describe the process of water absorption by plants from the soil compartments (5 marks)
6. Describe the roles of the following hormones in plant growth (4 marks)
 - a. Auxins
 - b. Cytokinins

SECTION B

7. a. Discuss the role of minerals in plant growth and development (10 marks)
b. Discuss the classification of lipids that are produced in plants (10 marks)
8. a. Discuss the factors that affect enzyme action in plants (10 marks)
b. Discuss the factors that influence the functions of enzymes (10 marks)
9. a. Describe the levels of organization in protein structures (10 marks)
b. Discuss the functions of water in plant growth and development (10 marks)