



*(Knowledge for Development)*

**KIBABII UNIVERSITY**  
**UNIVERSITY EXAMINATIONS**  
**2021/2022 ACADEMIC YEAR**

**THIRD YEAR FIRST SEMESTER**  
**MAIN EXAMINATIONS**

**FOR THE DEGREE OF BACHELOR OF SCIENCE**

**COURSE CODE: SBT 311**

**COURSE TITLE: PLANT PHYSIOLOGY & BIOCHEMISTRY**

**DATE: 19<sup>TH</sup> MAY 2022**


**TIME: 9.00 - 11.00 AM**

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**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

This paper consists of 3 printed pages. Please Turn Over   
KIBU observes ZERO tolerance to examination cheating

### **QUESTION ONE (30 Marks)**

- a) Explain the following terms
- (i) Chlorophyll fluorometry
  - (ii) Kautsky effect
  - (iii) Photophosphorylation
  - (iv) Photorespiration
  - (v) Osmotic systems (5 marks)
- b) State five factors that responses of plants to hormones depend on (5 marks)
- c) Describe the first law and second law of thermodynamics in relation to photosynthesis (5 marks)
- d) Briefly describe the process of phloem loading (5 marks)
- e) State the functions of glycolysis (5 marks)
- f) Briefly explain why photorespiration is light dependent (5 marks)

### **QUESTION TWO (20 Marks)**

Describe the experiments which prove that organic molecules are translocated through the anatomy of the phloem tissue in plants.

### **QUESTION THREE (20 Marks)**

Discuss the C<sub>3</sub>, C<sub>4</sub> and CAM photosynthesis citing specific importance to crop production.

**QUESTION FOUR (20 Marks)**

Describe the biochemical reactions in the matrix of the mitochondria during the Krebs cycle in plants.

**QUESTION FIVE (20 Marks)**

Discuss the functions of five plant secondary metabolites