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**UNIVERSITY EXAMINATIONS  
2022/2023 ACADEMIC YEAR**

**THIRD YEAR FIRST SEMESTER  
SPECIAL/SUPPLEMENTARY EXAMINATIONS**

**FOR THE DEGREE OF BACHELOR OF EDUCATION SCIENCE AND  
BACHELOR OF SCIENCE**

**COURSE CODE:** SBT 311 & SBT 312

**COURSE TITLE:** PLANT PHYSIOLOGY AND BIOCHEMISTRY

**DATE:** 4<sup>TH</sup> AUGUST 2023

**TIME:** 2.00 PM

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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

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

- a) Differentiate between photosystem I and photosystem II light reaction in photosynthesis (5 marks)
- b) Explain why photorespiration is a wasteful process in C3 plants (5 marks)
- c) Briefly describe the process of phloem loading and unloading (5 marks)
- d) State and explain the functions of any five secondary plant metabolites (5 marks)
- e) Briefly describe the steps in the Calvin cycle (5 marks)
- f) Highlight the differences between photorespiration and respiration in plants (5 marks)

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

Discuss the process of respiration in plants and its significance to higher plants

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

Discuss the biosynthetic pathway (dark reaction) in the C3, C4 and CAM photosynthesis

### **QUESTION FOUR (20 Marks)**

Identify any five endogenous plant hormones. In each case name the site of its production and function.

### **QUESTION FIVE (20 Marks)**

Describe the process of water absorption and transpiration in plants