



*(Knowledge for Development)*

# **KIBABII UNIVERSITY**

## **UNIVERSITY EXAMINATIONS 2019/2020 ACADEMIC YEAR**

### **THIRD YEAR 1<sup>ST</sup> SEMESTER SPECIAL/SUPPLEMENTARY EXAMINATIONS**

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

**COURSE CODE: SBT 312: / SBT 311**

**COURSE TITLE: PLANT PHYSIOLOGY**

**DATE: 12<sup>TH</sup> JANUARY 2022 TIME: 2.00 -4.00 PM**

---

#### **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 2 printed pages. Please Turn Over



KIBU observes ZERO tolerance to examination cheating

### Question 1

- a. Define the following terms: (4 Marks)
- i) Phosphorylation.
  - ii) Capillary water.
- b. Briefly explain what happens in the C3 and C4 pathways. (5 Marks)
- c. Briefly explain the major forces that affect Water potential in single phase and phase transition? (4 Marks)
- d. Briefly discuss factors that influence the rate of diffusion in plants. (4 Marks)
- e. Briefly discuss the various hormones that induce growth and developmental responses in plants? (5 Marks)
- f. Briefly discuss the mechanisms have been proposed to explain absorption of mineral salts from soil to cells of roots. (4 Marks)
- g. Differentiate between macronutrients and micronutrients giving examples in each case. (4marks)

### Question 2

Using well labeled diagrams discuss phloem transport. (20 Marks)

### Question 3

- (a) Discuss the light and dark stages of photosynthesis. (10 Marks)
- (b) Discuss the various factors that affect the rate of photosynthesis (10 Marks)

### Question 4

Explain how respiration occurs in plants and the factors that affect the process. (20 Marks)

### Question 5

- (a) What is transpiration? (2 Marks)
- (b) Describe the mechanisms of opening and closing of the stomata (10 Marks)
- (c) Discuss the factors that affect the rate of transpiration (8 Marks)