



(Knowledge for Development)

KIBABII UNIVERSITY
UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR

THIRD YEAR FIRST SEMESTER
MAIN 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: 22ND DECEMBER 2022 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

This paper consists of 3 printed pages. Please Turn Over 

KIBU observes ZERO tolerance to examination cheating

QUESTION ONE (30 Marks)

- a) Explain the meaning of the following terms (5 Marks):
- (i) Glycolysis
 - (ii) Photophosphorylation
 - (iii) Turgor pressure
 - (iv) Light compensation point
 - (v) Carotenoids
- b) Explain the advantages of fluorescent ratio chlorophyll content meters over chlorophyll based absorption meters (5 marks)
- c) Explain why photorespiration is a wasteful process in C3 plants (5 marks)
- d) Briefly describe the process of phloem unloading (5 marks)
- e) State the functions of auxins endogenous plant hormones (5 marks)
- f) State the first law and second law of thermodynamics with reference to water relations 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 ways in which scientists might use greenhouses and genetic modification of plants to enhance crop production

QUESTION FOUR (20 Marks)

Secondary plant metabolites are not necessary for plant growth and development. With examples, explain why it may be important for plants to produce secondary metabolites during different stages of development or under biotic and abiotic stress.

QUESTION FIVE (20 Marks)

Discuss the factors affecting the process of photosynthesis