



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND
TECHNOLOGY
SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR
OF EDUCATION (SCIENCE)
1ST YEAR 2ND SEMESTER 2013/2014 ACADEMIC YEAR
REGULAR**

COURSE CODE: SBT 101/SBI 3111

COURSE TITLE: PLANT STRUCTURE AND FUNCTION

EXAM VENUE: LAB 1

STREAM: (BSc. Science)

DATE: 11/8/14

EXAM SESSION: 2.00 – 4.00PM

TIME: 2 HOURS

Instructions:

- 1. Answer question 1 (compulsory) in Section A and any other 2 questions in Section B .**
- 2. Candidates are advised not to write on the question paper.**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room.**

SECTION A

- 1) Describe the three tissue systems in a plant body citing their meristematic origin. (3 marks)
- 2) Define the following:
 - a) Mass meristems (1 mark)
 - b) Rib meristems (1 mark)
 - c) Plate meristems (1 mark)
- 3) Distinguish between simple and complex tissues in plants. (3 marks)
- 4) Describe any three types of lignin depositing patterns that can be found in tracheids. (3 marks)
- 5) Distinguish between epigynous and hypogynous flowers. (3 marks)
- 6) Describe any three environmental factors that affect transpiration. (3 marks)
- 7) Describe the internal structure of dicotyledonous leaves. (3 marks)
- 8) Describe any three ways in which seed dormancy can be overcome. (3 marks)
- 9) List the three categories of proteins that are involved in the transport of minerals across cell membranes. (3 marks)
- 10) Outline the events that take place during the following stages of glycolysis:
 - a) Phosphorylation (1.5 marks)
 - b) Lysis (1.5 marks)

SECTION B

- 11) Give a comparative account of the internal structures of roots and stems in monocotyledonous and dicotyledonous plants. (20 marks)
- 12) Discuss the unique adaptive features of the plant types listed below that enable them to survive in their environments.
 - a) Hydrophytes
 - b) Halophytes
 - c) Epiphytes
 - d) Xerophytes(20 marks)
- 13)
 - a) Explain the soil factors that affect water absorption by plant roots. (6 marks)
 - b) With the aid of an illustration, describe water translocation in the plant roots through the apoplastic, symplastic and vacuolar pathways. (9 marks)
 - c) Explain how transpiration is affected by prevailing environmental conditions. (5 marks)
- 14) Discuss the photochemical reaction that takes place in photosynthesis. (20 marks)