



SOUTH EASTERN KENYA UNIVERSITY

UNIVERSITY EXAMINATIONS 2016/2017

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR

OF SCIENCE IN BIOLOGY

SBL 302: PLANT PHYSIOLOGY

DATE: 20TH APRIL, 2017 TIME: 10.30-12.30 P.M

INSTRUCTIONS TO CANDIDATES

(a) Answer ALL the Questions in Section A

(b) Answer ANY TWO Questions in Section B

(c) Illustrate your answers with well labeled diagrams where appropriate

SECTION A (30 Marks)

1. Explain three functions of plasmalemma. **(3 Marks)**
2. Explain three phenomena in plants that are influenced by water potential. **(3 Marks)**
3. Explain the term turgor pressure in plants. **(3 Marks)**
4. State **three** major factors that contribute to cell water potential. **(3 Marks)**
5. State **three** structural leaf adaptations of gymnosperms to dry conditions. **(3 Marks)**
6. Explain the role of plasmodesmata in plant cells. **(3 Marks)**
7. Describe briefly the components and functions of the casparian strip. **(3 Marks)**
8. Explain the role of hydathodes in suppressed transpiration. **(3 Marks)**
9. Distinguish a tracheid from a vessel. **(3 Marks)**
10. State three parameters which are affected by soil pH in plants. **(3 Marks)**

SECTION B (40 Marks)

11. Discuss:
 - (a). the fluid-mosaic model. **(10 Marks)**
 - (b). the differences between the fatty acid chains of phospholipids and glycosylglycerides, **(10 Marks)**
12. Discuss the various structures and roles of the proteins molecules in the plasma membrane. **(20 Marks)**
13. Direct diffusion across the lipid bilayer is not sufficient to account for observed rates of water movement across membranes. Discuss. **(20 Marks)**
14. Discuss the various pathways for water uptake by the plant root from the soil. **(20 Marks)**