JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE \& TECHNOLOGY SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOLOGICAL SCIENCES
$2^{\text {nd }}$ YEAR $2^{\text {nd }}$ SEMESTER 2018/2019 ACADEMIC YEAR
MAIN CAMPUS - REGULAR

## COURSE CODE: SBI 3223

COURSE TITLE: PLANT PHYSIOLOGY

LR 1
DATE: 03/04/2019

STREAM: (BIO)
EXAM SESSION: 3.00-5.00PM

TIME: 2 HOURS

## Instructions:

1. Answer ALL questions in Section $A$ and Any two questions in Section $B$
2. Candidates are advised not to write on question paper
3. Candidates must hand in their answer booklets to the invigilator while in the examination room

## SECTION A: SHORT ANSWER QUESTIONS (30 MARKS)

1. Explain how water availability affects stomatal movements.
2. Describe the lateral movement of water in stems.
3. Explain how soil aeration affects the rate of absorption of mineral nutrients.
4. List the potential sites of vernalization in plants.
5. Describe the importance of light in photoperiodism.
6. Describe the theory of proton transport in stomatal movements.
7. Outline the adaptations of the xylem for upward transport of water.
8. Describe Donnan effect and equilibrium as a theory of mineral salts absorption. (3 marks)
9. Differentaite short day plants from intermediate plants giving an example in each case.
10. Describe symplastic pathway of mineral salts movement through the roots.

## SECTION B: ESSAY QUESTIONS (40 MARKS)

11. Describe the role of the phytochrome in photoperiodism.
(20 marks)
12. Discuss the mechanisms of passive absorption mineral salts from the soil.
(20 marks)
13. Discuss the physical force theories of ascent of sap.
14. Discuss the factors that affect Vernalization in plants.
