

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**SECOND YEAR EXAMINATION FOR THE AWARD OF DEGREE
OF BACHELOR OF SCIENCE IN AGRICULTURAL ECONOMICS**

AGRI 211: PLANT ENVIRONMENT PHYSIOLOGY

STREAMS: BSC (AGEC)

TIME: 2 HOURS

DAY/DATE: TUESDAY 05/12/2017

11.30 A.M. – 1.30 P.M.

INSTRUCTIONS: ANSWER ALL QUESTIONS IN SECTION A AND ANY TWO IN SECTION B

SECTION A (30 MARKS)

1. Discuss three types of plants based on the auto periodic response. [6 marks]
2. (a) Explain the Q_{10} concept and the cardinal temperature points. [4 marks]
(b) Explain three categories of plants based on water supply adaptations.[3 marks]
3. (a) Discuss six roles of water in growth and development of plants. [6 marks]
(b) Explain the four main components of the total water potential of a system. [4marks]
4. (a) Explain the general criteria for essentiality of mineral elements in plants. [4 marks]
(b) Explain three important functions of transpiration. [3 marks]

SECTION B (40 MARKS)

5. (a) Explain three general roles of essential elements. [3 marks]
(b) Discuss the following terms used to describe level of nutrients in plants. [10 marks]
 - (i) Deficient
 - (ii) Critical range
 - (iii) Sufficient
 - (iv) Excessive or toxic
 - (v) Hidden hunger

AGRI 211

- (c) Explain the term “Guttation” and enlist its contrasts with transpiration. [7 marks]
6. (a) Using a diagram explain the hormonal influence on pruning. [5 marks]
- (b) Explain the tem “plant growth regulators” and the roles of cytokinins. [9 marks]
- (c) Using diagrams explain the role of auxins in geotropism and phototropism. [6 marks]
7. (a) Discuss the three types of symbiotic interactions in an ecosystem. [6 marks]
- (b) Using a diagram, discuss how you can measure transpiration rate. [6 marks]
- (c) Discuss the factors that affect the rate of photosynthesis. [8 marks]
-