

CHUKA



UNIVERSITY

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**UNIVERSITY EXAMINATIONS**

**EXAMINATION FOR THE AWARD OF DEGREE OF  
BACHELOR OF SCIENCE**

**BOTA 322: PLANT GROWTH AND DEVELOPMENT**

**STREAMS: BSC (BIO), BED (SCIE)**

**TIME: 2 HOURS**

**DAY/DATE: MONDAY 03/12/2018**

**8.30 AM – 10.30 AM**

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**INSTRUCTIONS:**

**Answer All Questions in Section A and only One Question in Section B**

**SECTION A (50 MARKS)**

1. Distinguish between the following terms:
  - (a) Growth and development [2 marks]
  - (b) Differentiation and dedifferentiation [2 marks]
  - (c) Photomorphogenesis and skotophotomorphogenesis [2 marks]
  
2. Briefly explain how the following factors affect growth of plants:
  - (i) Temperature [2 marks]
  - (ii) Water [2 marks]
  - (iii) Light [2 marks]
  
3. Outline five practical applications of plant growth regulators in agriculture. [5 marks]
  
4. Giving examples in each category, classify plants based on their photoperiodic response. [6 marks]
  
5. (a) Describe the following processes in plants:
  - (i) Vernalization [3 marks]
  - (ii) Senescence [3 marks]
  
6. (a) Explain three types of tissue found in all plant organs. [3 marks]

- (b) Describe two structural differences between xylem and phloem. [2 marks]  
(c) Explain two practical application of vernalization [2 marks]
7. Describe factors which affect seed germination. [5 marks]
8. Explain five advantages of plant tissue culture over conventional plant breeding methods. [5 marks]
9. Describe two types of biological stress to which plants can be exposed. [4 marks]

**SECTION B (20 MARKS)**

10. (a) With help of a well labelled diagram, describe the four phases of plant growth curve. [8 marks]
- (b) Describe the physiological effects of auxin as a plant hormone. [12 marks]
11. Describe the different types of plant movements. [20 marks]
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