

CHUKA



UNIVERSITY

**UNIVERSITY EXAMINATIONS**

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

**BOTA 322: PLANT GROWTH AND DEVELOPMENT**

**STREAMS:**

**TIME: 2 HOURS**

**DAY/DATE: FRIDAY 20/12/2024**

**8.30 A.M – 10.30 A.M**

---

**INSTRUCTIONS:**

**Answer all questions in section A and any two in section B**  
**Section A**

1. a. Describe three differences that are seen in alternation of generations in plants (3 marks)
- b. Describe the following terms with reference to plant growth and development
  - i. Vascular cambium (1 mark)
  - ii. Cork cambium (1 mark)
  - iii. Annual rings (1 mark)
2. a. Describe two factors that contribute to development in plants (2 marks)
- b. Explain how the following factors affect flowering in plants
  - i. Temperature (2 marks)
  - ii. Length of the day light (2 marks)
3. a. Explain why cell division alone may not contribute significantly to growth of a plant (2 marks)
- b. Describe the factors that determine the developmental pathway of a cell after division. (2 marks)
- c. List two meristematic tissues that arise from the apical meristems (2 marks)
4. a. Describe the structure of the male gametophyte (3 marks)
- b. Describe the development of the female gametophyte (3 marks)

5. a. Explain how you would develop a regeneration protocol for a plant that has never been regenerated before through tissue culture (4 marks)  
b. Describe two causes of abnormal growth in plants (2 marks)

**Section B**

---

6. a. Describe the stages of embryo development in plants (10 marks)  
b. Describe the structure of the shoot apical meristem (10 marks)  
7. a. Discuss senescence in plants (10 marks)  
b. Discuss the practical applications of gibberellins (10 marks)  
8. Discuss growth movements in plants (20 marks)
-