GWANDA STATE UNIVERSITY

FACULTY OF NATURAL RESOURCES MANAGEMENT AND AGRICULTURE

DEPARTMENT OF HORTICULTURE AND CROP PRODUCTION

BACHELOR OF SCIENCE HONOURS DEGREE IN CROP SCIENCE

CROP PHYSIOLOGY II LCS 4201

Final Main Examination Paper

June 2024

This examination paper consists of Three pages.

Time Allowed: **Three (3) Hours**

Total Marks: **100**

Special Requirements: **None**

Examiner's Name: **Mr. D Dube**

INSTRUCTIONS

1. Answer **all** questions in Section A
2. Answer **three** questions in Section B

MARK ALLOCATION

QUESTION	**MARKS**
SECTION A	**40**
SECTION B	**60**
TOTAL ATTAINABLE MARKS	**100**

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

Question 1

1a). Explain the following terms as used in crop physiology

i). Plant Development (2)

ii). C4 plants (2)

iii). Plant adaptation (2)

iv).Photosynthetically Active Radiation (2)

b). Briefly explain how light is intercepted by plants (4)

c). Discuss the significance of photoperiodism in flowering and fruiting of horticultural crops (8)

Question 2

2a. Describe the process of double fertilization in angiosperms. How does it contribute to seed development? (8)

b). Compare and contrast the adaptations of hydrophytes and xerophytes to their respective environments. (8)

c). Describe the role of ethylene in fruit ripening and senescence. (4)

SECTION B: ANSWER ANY 3 QUESTIONS IN THIS SECTION

Question 3

a. Compare sexual and asexual modes of reproduction in plants. (6)

b). Discuss role of two essential micro-nutrients in enhancing yield of cereal crops (4)

c). Explain factors contributing to post-harvest losses in fruits and vegetables? (10)

Question 4

a). Explain how CAM (Crassulacean Acid Metabolism) plants adapt to arid conditions? Give an example of a CAM plant (10)

b). Discuss different plant defense mechanisms for biotic stress. (10)

Question 5

a). Highlight Liebig's Law of the minimum, and how does it relate to nutrient availability in plants? (10)

b). Explain the source to sink concept. (6)

c). Describe how auxins influence apical dominance. (4)

Question 6

Small holder farmers of Silalatshani irrigation scheme in Insiza wants to venture into tomato production. As a crop physiologist give a detailed outline of techniques they can use to minimise postharvest losses in tomatoes (*Solanum lycopersicum*) (20)

Question 7

Outline the different phases of plant growth and discuss the growth stages most sensitive to moisture stress in maize (*Zea mays*). (20)

END OF EXAMINATION PAPER