GWANDA STATE UNIVERSITY

FACULTY OF NATURAL RESOURCES MANAGEMENT AND AGRICULTURE

DEPARTMENT OF HORTICULTURE AND CROP PRODUCTION

BACHELOR OF SCIENCE HONOURS DEGREE IN CROP SCIENCE

LCS4201 CROP PHYSIOLOGY II

SECOND SEMESTER EXAMINATION

MARCH 2025

This examination paper consists of 2 pages

Time Allowed: **3 hours**

Total Marks: **100**

Special Requirements: **None**

Examiner's Name:

INSTRUCTIONS

1. Answer **all** questions in Section A
2. Answer **only two** questions in Section B

MARK ALLOCATION

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

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

1. a) Explain the importance of Leaf Area Index (LAI) to grain yield [8]

   b) Describe how crop morphology affects Leaf Area Index (LAI) [8]

   c) Discuss the importance of Leaf Area Duration (LAD) to grain yield [4]

2. a) Explain the importance of source and sink relationship in plant growth and development [8]

   b) Explain why a source can become a sink in plant growth and development [6]

   c) Giving examples, discuss sink capacity [6]

3. a) Explain the linear relationship between photosynthesis and light interception and the intensity of Photosynthetically Active Radiation (PAR)intercepted by leaves [5]

   b) Light interception on a plant canopy is affected by many factors. List any five of these factors [5]

   c) With the aid of a diagram, describe the sigmoid growth curve [10

SECTION B: ANSWER ANY TWO QUESTIONS IN THIS SECTION

4. Giving examples, outline the techniques used for minimizing postharvest losses in horticultural crops [20]
5. Discuss the physiological adaptations to drought stress and their importance in sorghum (Sorghum bicolor) [20]
6. Describe the direct methods of measuring Leaf Area Index (LAI) [20]

END OF EXAMINATION PAPER