



GWANDA STATE UNIVERSITY
FACULTY OF LIFE SCIENCES
DEPARTMENT OF CROP SCIENCE
BACHELOR OF SCIENCE HONOURS DEGREE IN CROP SCIENCE
LCS 1101 PLANT ANATOMY AND PHYSIOLOGY

First Semester Final Examination Paper

JUNE 2019

This examination paper consists of 3 pages

Time Allowed: 3 hours
Total Marks: 100
Special Requirements: None
Examiner's Name: MR N. MATHEMA

INSTRUCTIONS

1. Answer **ALL** questions in Section A
2. Answer **ONLY THREE** questions in Section B

MARK ALLOCATION

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

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SECTION A: Answer ALL questions

1. a) Define Plant morphology (2)
b) Underground stem modifications/specializations/storage organs are a source of food to humans and animals. Describe stem modifications under the following headings;
 - i. Tubers (6)
 - ii. Rhizomes (6)
 - iii. Bulbs (6)

2. Light reactions of Photosynthesis form the foundation of the food chain. Describe the following concepts of photosynthesis using relevant diagrams
 - a) Cyclic photosphorylation (6)
 - b) Non- cyclic photosphorylation (12)
 - c) Briefly explain the difference between the above two cycles of photosynthesis (2)

SECTION B: Answer any three questions

3. a) Define Plant anatomy (2)
b) Describe meristems found in flowering plants based on their location on the plants (6)
c) Using examples of plants that you know, describe the functions of the different meristems you mentioned in (b) above. (12)

4. Describe the factors which affect photosynthesis in a flowering plant of your choice. (20)

5. Describe the following photosynthetic pathways giving examples of crops grown in Zimbabwe;
 - a) CAM Photosynthetic pathway (6)
 - b) C3 Photosynthetic pathway (8)
 - c) C4 Photosynthetic pathway (6)

6. a) Define respiration (2)
b) What are the 3 main stages of respiration and what are their sites of occurrence? (6)
c) Describe the fermentation process giving examples of its commercial application. (6)
d) Discuss the factors that affect respiration rate (6)

7. Water is taken up by plant roots from the soil solution. Describe the process of water absorption by the plant roots and its movement from the root hairs until it reaches the xylem. (20)