GWANDA STATE UNIVERSITY

FACULTY OF LIFE SCIENCES.

BACHELOR OF SCIENCE (HONOURS) CROP SCIENCE DEGREE

LCS 2212 CROPPING SYSTEMS

SECOND SEMESTER EXAMINATION PAPER JUNE 2019.

Time Allowed:	**3 hours**
Total Marks:	**100**
Special Requirements:	**N/A**
Examiner's Name:	**DLAMINI. D**

INSTRUCTIONS.

1. Answer **ALL** questions in **Section A**.
2. Answer any **THREE** Questions in **Section B**.
3. Each question in section B will carry 20 marks.
4. Do not open question paper until told to do so.

Section A: (40 Marks) Answer **ALL** questions**.**

1. Define the following :
   a. Cropping systems (2 marks)
   b. Shifting Cultivation (2 marks)
   c. Nutrient Immobilisation (2 marks)
   d. Allelopathy (2 marks)

2. Distinguish between the following:
   a. Intercropping and relay cropping (2 marks)
   b. Ratoon and Alley cropping (2 marks)
   c. Volatilization and Fixation. (2 marks)
   d. Soil Erosion and Leaching (2 marks)
   e. Cropping system and Cropping pattern (2 marks)

3. State if the following statements are TRUE or FALSE.
   a. The goal of precision farming is to improve farmers' profits and harvest yields while reducing the negative impacts of farming on the environment that come from over-application of chemicals. (1 mark)
   b. A weed must be alive in order to demonstrate allelopathic properties (1 mark)
   c. Tillage is an effective strategy of weed control regardless of weed species (1 mark)
   d. A disadvantage of biological control is the possibility of affecting non-target species (1 mark)
   e. The major function of the subsoiler or chisel plough is to break up deep hardpans or compacted layers (1 mark)

4. Discuss adoption drawbacks of conservation agriculture in the smallholder sector (12 mark)

5. State any three advantages and two disadvantages of multiple cropping. (5 mark)

Section B: (60 Marks) Answer any **THREE** Questions

6. A critical aspect in developing an effective ecological cropping system is to manage and organize crops so that they best utilize the available resources. Discuss the basic principles of cropping systems also highlighting their benefits. (20 marks)

7. Compare and contrast Poly-culture and Monoculture cropping systems highlighting the advantages and disadvantages of each. (20 marks)

8. Differentiate the concepts of conventional and conservation tillage and its various types. Highlight how these tillage systems affect the choice of certain cropping systems. (20 marks)

9. Discuss why crops differ in agro ecologies where they can thrive, further underlining the strategies one can employ to manage crops from these climates. (20 marks)

10. Discuss the main processes in nitrogen and phosphorus cycling, highlighting the form(s) available for plant uptake and how they can be utilised efficiently in cropping systems. (20 mark)