

GWANDA STATE UNIVERSITY
FACULTY OF LIFE SCIENCES



DEPARTMENT OF CROP SCIENCE
BACHELOR OF SCIENCE HONOURS DEGREE IN CROP SCIENCE
LCS 2209 AGRONOMY OF FIELD CROPS
SECOND SEMESTER FINAL MAIN EXAMINATION PAPER
MARCH 2019-JULY 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

Question 1.

- a. Define agronomy (2)
- b. Describe the importance of the micronutrient boron in crop production (5)
- c. It is essential for agronomists to determine the soil nutrient status. Discuss the methods used to carry out this important process. (12)

Question 2.

- a. Rural farming communities rely on farm yard manures for provision of crop nutrients. Discuss the use of farm yard manures as an alternative to use of synthetic fertilizers (10)
- b. Discuss the merits and demerits of composting in crop production, giving practical examples (10)

SECTION B: Answer any 3 questions

Question 3

- a. Describe the “El Niño” phenomenon (2)
- b. Discuss the effects of the “El Niño” phenomenon in Southern Africa including Zimbabwe (18)

Question 4

- a. Nitrogenous fertilizers are a very important source of nitrogen in crop production. Describe the nitrogenous fertilizers found in Zimbabwe giving examples of common brands (12)
- b. Give any 4 (four) advantages of composting organic matter (4)
- c. Give any 4 (four) advantages of green manuring (4)

Question 5

- a) It has been recommended that a farmer apply 160kg of nitrogen and 80kg of phosphate per hectare. How much of ammonium nitrate and triple superphosphate should be applied to achieve the recommended application rate of nitrogen and phosphate? (10)
- b) You have been assigned to grow a hectare of maize. At what stage would you apply the following fertilizers? Justify your answer.
 - i) Nitrogen (4)
 - ii) Phosphorous (3)
 - iii) Potassium (3)

Question 6

Discuss the agronomy of soya beans under the following sub-headings;

- (a) Cultivar choice (5)

(b) Planting methods, planting patterns and populations (5)

(c) Weed management (5)

(d) Pests and pest management (5)

Question 7

Good Agronomic Practices are essential and key to efficient and effective crop productivity in maize production. Discuss this statement using the following sub-headings;

1. Soil conditioning /correcting pH (2)
2. Land preparation (2)
3. Choice of Variety (2)
4. Plant population and even stand (2)
5. Available phosphorus (1)
6. Time of planting (2)
7. Weed and pest control (2)
8. Soil Organic Matter (SOM) build up (2)
9. Moisture management (2)
10. Address soil fertility issues (2)
11. Crop rotations (1)