

2<sup>ND</sup> SEM. 2013/2014 (M)



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**UNIVERSITY OF SWAZILAND**

**FINAL EXAMINATION PAPER**

**PROGRAMME: BACHELOR OF SCIENCE IN AGRONOMY YEAR IV**

**COURSE CODE: CP 405**

**TITLE OF PAPER: CEREALS/GRAIN LEGUME CROP PRODUCTION**

**TIME ALLOWED: TWO (2) HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE (1) (WHICH IS A COMPULSORY QUESTION) AND ANY OTHER THREE (3) QUESTIONS**

**QUESTION 1 (COMPULSORY QUESTION)**

- a. Define the terms, promiscuity, nitrogenase, leghaemoglobin, rhizosphere, BNF (5 marks)
  - b. Why is nitrogen fixation important? (5 marks)
  - c. Categorize and discuss the factors that influence the process of nitrogen fixation. (10 marks)
  - d. Briefly outline the nodulation process during nitrogen fixation (5 marks)
- (25 marks)**

**QUESTION 2**

- a. Discuss the major limitations of monocultures (10 marks)
  - b. Discuss the factors that influence success of seed germination in the field (10 marks)
  - c. Discuss the ecological requirements for maize production. (5 marks)
- (25 marks)**

**QUESTION 3**

- a. What are possible advantages and disadvantages of intercropping? (10 marks)
  - b. Outline strategies that can ensure success of 2 or 3 sequential crops on the same piece of land. (10 marks)
  - c. Give reasons why some farmers in semi-arid areas of Africa still prefer to grow maize rather than sorghum that may be more suitable in the region. (5 marks)
- (25 marks)**

**QUESTION 4**

- a. Groundnuts develop their fruits (pods) underground. What does this unique growth habit mean in terms of management of groundnuts in the field? (10 marks)
  - b. Give the optimum ecological requirements for production of common beans (10 marks)
  - c. In cropping systems terminology, what do the following indicate: Plus (+), Slash (/) and Hyphen (-)? (5 marks)
- (25 marks)**

**QUESTION 5**

- a. Discuss guidelines that should be considered when designing crop rotation programmes (10 marks)
  - b. Discuss reasons why continuous lowland rice production may be successful without fertilizer input (5 marks)
  - c. What are the two (2) most important constraints to maize production in Swaziland? How would you deal with each one of them? (10 marks)
- (25 marks)**