

UNIVERSITY OF SWAZILAND

DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE AND PLANNING

FINAL EXAMINATION PAPER – DECEMBER, 2006

B Sc. 111

TITLE : AGRICULTURAL SYSTEMS

COURSE NUMBER : GEP 326

TIME ALLOWED : THREE (3) HOURS

INSTRUCTIONS : 1. THIS PAPER CONTAINS TWO (2) SECTIONS, A AND B.
2. ANSWER FOUR (4) QUESTIONS.
3. CHOOSE TWO (2) QUESTIONS FROM EACH SECTION.
4. WHERE APPROPRIATE ILLUSTRATE YOUR ANSWER
WITH EXAMPLES AND DIAGRAMS.

MARKS ALLOCATION: EACH QUESTION CARRIES TWENTY FIVE (25) MARKS.

THIS PAPER IS NOT TO BE OPENED UNTIL PERMISSION HAS BEEN GRANTED BY
THE INVIGILATOR.

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SECTION A: ANSWER ANY TWO (2) QUESTIONS

Question 1

Using examples, explain why the general spatial equilibrium model is not completely general. (25 marks)

Question 2

'The assumption that each farmer has "best solution" of products to be produced under particular physical and economic environments has little relevance to real world conditions'. Discuss the relevance of this statement.

(25 marks)

Question 3

- (a) Explain how "the tragedy of the commons" was avoided in past pastoralists systems. (15 marks)
 - (b) Using examples, discuss how the pastoralists' management strategies were disrupted. (10 marks)
- (25 marks)

SECTION B: ANSWER ANY TWO (2) QUESTIONS

Question 4

- (a) Discuss probable impacts of adverse weather conditions to crop growth and explain the appropriate mitigation measures. (15 marks)
 - (b) Discuss the application of a rain gauge and an evaporation pan in the determination of the water balance of a given field. (10 marks)
- (25 marks)

Question 5

- (a) Explain two methods that are used to estimate the average precipitation of an area. (10 marks)
 - (b) Discuss the practical application of the average precipitation of an area. (15 marks)
- (25 marks)

Question 6

- (a) Describe how a combination of infiltration measurements and irrigation can be applied to enhance agricultural productivity. (15 marks)
 - (b) Discuss two common methods of determining water content and its changes in a typical soil profile. (10 marks)
- (25 marks)