UNIVERISTY OF SWAZILAND

DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE AND PLANNING

FINAL EXAMINATION, DECEMBER 2010

B. Sc., B.Ed

TITLE OF PAPER: **AGRICULTURAL SYSTEMS**

COURSE NUMBER: **GEP 326**

TIME ALLOWED: **THREE (3) HOURS**

INSTRUCTIONS:
1. **ANSWER FOUR (4) QUESTIONS**
2. **CHOOSE TWO (2) FROM EACH SECTION**
3. **ILLUSTRATE YOUR ANSWERS WITH EXAMPLES AND CLEARLY DRAWN DIAGRAMS WHERE APPROPRIATE**

ALLOCATION OF MARKS: **EACH QUESTION CARRIES 25 MARKS**

THIS PAPER SHOULD NOT BE OPENED UNTIL PERMISSION IS GRANTED BY THE INVIGILATOR

GEP 326 – AGRICULTURAL SYSTEMS – DECEMBER 2010

SECTION A: ANSWER ANY TWO (2) QUESTIONS

QUESTION 1

Using the weather probabilities and crop returns shown in table 1, calculate and identify the crop (s) a farmer is likely to produce under the following situations:

a) Risk aversion.

(5 marks)

b) Risk aversion with minimum regret.

(5 marks)

c) Expected average weather conditions

(5 marks)

d) Highest expected income.

(5 marks)

e) Decisions under uncertainty

(5 marks)

(25 marks)

Table 1 Crop returns under various probable weather conditions

Crop	**Weather probability/crop returns per ha in $**				
	Very dry 0.2	**Dry 0.3**	**Average 0.4**	**Wet 0.3**	**Very wet 0.3**
Maize	15	15	20	22	24
Rice	13	15	21	23	25
Wheat	28	24	20	15	11
Millet	15	20	26	20	14

QUESTION 2

a) Discuss why economic principles are applied in agricultural geography.

(5 marks)

b) Using examples explain why the application of economic principles to agricultural activities must be done very cautiously.

(20 marks)

(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

Explain how you would estimate water requirement for any crop of your choice.
(25 marks)

QUESTION 5

Discuss the factors affecting evapo-transpiration. **(25 marks)**

QUESTION 6

Using examples discuss how solar energy influence plant growth and reproduction.
(25 marks)