UGANDA MARTYRS UNIVERSITY

FACULTY OF SCIENCE

BSC II FINAL ASSESSMENT SEMESTER II 2006 - 2007

BSc II GEN & B.ECON AGRICULTURAL ECONOMICS

DATE: Tuesday 8th May 2007. **TIME: 9:00 AM – 12:00 NOON**

Instructions:

- Attempt any **FOUR** questions
- All questions carry equal marks
- Use of relevant illustrations will be credited.

Question 1

(a) Briefly explain the following:

(i)	The Law of Diminishing Returns	**(3 Marks)**
(ii)	Marginal Rate of Technical Substitution	**(3 Marks)**
(iii)	Least Cost Combination	**(3 Marks)**
(iv)	Elasticity of Production	**(3 Marks)**
(v)	Cobb Douglas Production Function.	**(3 Marks)**

(b) With relevant examples, explain the role of agriculture in Sub-saharan Africa. **(10 Mark)**

Question 2

(a) What is meant by farm management? **(5 Marks)**

(b) Examine various risk management strategies which managers of agro-businesses and farmers should use to sustain their agricultural activities. **(10 Marks)**

(c) Discuss the major cause of Food insecurity in Uganda. **(10 Mark)**

Question 3

(a) Describe the activities involved in the marketing of Agricultural products.**(5Marks)**

(b) (i) Explain the problems encountered in marketing of Agricultural products in Uganda. **(10 Marks)**

(ii) What possible measures should be adopted to promote efficiency in the marketing of agricultural products in Uganda? **(10 Marks)**

Question 4

(a) Briefly explain the classical production function, its assumption and uses in agro business activities. **(10 Marks)**

(b) A Farmer on yearly basis employs some units of Labour on fixed amount of land of 10 acres in order to produce Maize (bags) as shown in the table below.

Amount of Labor (Units per year)	**Total output (bags of maize per year)**
0	0
1	12
2	27
3	42
4	56
5	68
6	76
7	76
8	74

Required:

(i) Find the marginal product (MP) and average product (AP) of labor, and elasticity of production at each level of output. **(10 Marks)**

(ii) Using the above data, indicate the boundaries of the stages of production and with reasons mention one in which the optimum input-output combination lies. **(5 Marks)**

Question 5

(a) The following data has been obtained from an agricultural research done to find out the response of beans production (Y) to the application of chemical fertilizer (X) for a period of seven years as indicated in the table below. Units of X and Y are in thousands of tonnes.

Years	1	2	3	4	5	6	7
X	10.0	20.0	30.0	40.0	50.0	60.0	70.0
Y	100.0	140.0	120.0	130.0	150.0	120.0	130.0

Required:

(i) Using regression analysis, determine the Elasticity of Response of beans output to fertilizer application and describe its economic implication. **(15 Marks)**

(ii) Find the output level of beans (Y) produced without or before using the fertilizer (X). **(5 Marks)**

(iii) State any five applications of regression analysis in economics **(5Marks)**

Question 6

(a) Explain the Linear Programming model and examine its applications in agricultural related businesses. **(10Marks)**

(b) Mehta produces tea and sugarcane using mainly land and labor as cheaper inputs compared to others. He earns a profit of **US$ 30** on each unit of tea produced, and **US$40** on each unit of sugarcane. Each unit of tea requires **3** units of Land and **2** unit of labor, while each unit of sugarcane requires **3** units of Land and **4** units of labor to be produced in a particular period. The maximum available units of land and labour are **18** and **16** respectively.

Required:

(i) Using the given information, formulate the objective function of maximization problem subject to the given constraints. **(5 Marks)**

(ii) Using the graphical method**,** determine the number of units of each product he should produce per period to have the maximum profit. **(10 Marks)**

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