

# **UGANDA MARTYRS UNIVERSITY**

**FACULTY OF SCIENCE  
DEPARTMENT OF ECONOMICS**

**SUPPLEMENTARY EXAMINATIONS, 2013/14**

**FIRST YEAR EXAMINATIONS FOR BACHELOR OF SCIENCE  
(FM, B.ECON & GEN)**

**ECO 2203: ECONOMICS OF AGRICULTURE**

**DATE: Friday, August 08, 2014**

**TIME: 02:00PM – 05:00PM**

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**Instructions:**

- (i) Read the questions carefully.**
  - (ii) Attempt any FOUR questions.**
  - (iii) All questions carry equal Marks.**
  - (iv) Use of relevant illustrations will be credited.**
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### Question One

(a) Briefly explain the following concepts:

(i) Farm management

(02Marks)

(ii) Marginal Rate of Technical Substitution.

(03Marks)

(iii) Least Cost Factor Combination.

(02Marks)

(b) With relevant examples, examine the role of agriculture in an economy.

(10Marks)

(c) Using relevant and current examples, explain why performance of most agribusinesses in Uganda is relatively poor.

(08Marks)

### Question Two

(a) What is meant by risk in economics of agriculture?

(05Marks)

(b) Examine various risks mainly encountered by agro-businesses in developing countries of East Africa.

(10Marks)

(c) What risk mitigating strategies do you suggest for farmers in the EA region?

(10Marks)

### Question Three

A farmer employs 60 units of labor (X) and machine measured in machine hours (Y) to produce 100 of beans by combining such variable factor inputs in certain combinations as given below in the *Table 1* in order to determine the optimal factor combination that can efficiently produce the targeted output. It is given that the unit cost for labor is \$4 and that of machine hour is \$5,

*Table 1*

Units of Labor(X)	10	20	30	40	50	60
Units of machinery hours (Y)	80	51	30	18	10	12

**Required:**

(a) Find the marginal rates of technical substitution and inverse price ratio for factor inputs at each factor combination level.

(08Marks)

(b) Determine the least cost factor combination for producing the targeted output.

(05Marks)

(c) Find the minimum total cost at that least cost factor combination.

(02Marks)

(d) Discuss the application of production functions in Economics of Agriculture.

(10Marks)

#### Question Four

The following data has been obtained from an agro-based firm in East African Community to determine the relationship between fertilizer application and coffee production. The following data was recorded for a period of ten years as shown below.

Units of fertilizers(X)	1.0	1.5	3.5	5.0	0.5	3.1	4.0	2.5	4.5	2.0
Coffee Production (Y)	6.0	5.0	8.0	12.0	4.0	10.0	9.0	7.0	10.0	5.0

#### Required:

- Find using the least squares method the equation of the regression line to predict coffee production from fertilizer application. (10Marks)
- Find the output level of coffee (Y) produced without using fertilizers (X). (05Marks)
- Estimate the coffee production level when 10 units of fertilizers are applied. (05Marks)
- State the applications of the above model in economics of agriculture. (05Marks)

#### Question Five

- Describe the commonly used 4Ps of marketing-mix. (05Marks)
- What is meant by "market failure" and what reasons can you advance as to explain why agricultural markets in Uganda have continuously failed? (10Marks)
- What policy advice can you give to Uganda to stabilize the marketing of agricultural products in her economy? (10Marks)

#### Question Six

- Describe the concept of 'food security' and explain why Uganda experiences food insecurity yet it is well endowed with better agricultural natural resources like fertile land among other factors? (15Marks)
- In your understanding of what food security is, discuss the strategic measures Uganda can adopt to achieve and sustain it in her economy? (10Marks)

END