JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF AGRICULTURAL AND FOOD SCIENCES

UNIVERSITY EXAMINATION FOR DEGREE OF MASTER OF SCIENCE

AGRICULTURAL EXTENSION EDUCATION

FIRST YEAR SECOND SEMESTER 2013/2014 ACADEMIC YEAR

PART TIME

COURSE CODE: AAE 5122

COURSE TITLE: FARM MANAGEMENT

EXAM VENUE: **STREAM: MSc [Agric. Ext. Edu.]**

DATE:26/11/14 **EXAM SESSION: 9.00 – 12.00 NOON**

TIME: 3.00 HOURS

Instructions:

1. **Answer ALL question.**
2. **Candidates are advised not to write on the question paper.**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room.**

Question 1

Production function is a systematic way of showing the relationship between different amounts of resource or input used to produce a product and the corresponding output or yield of that product e.g response curve, yield curve or simply input/output relationship.

a) Given an input price of KES 12/= and output price of KES 2/=, fill in the production function table below. [8 marks]

Table 1: Production Function

Input level	Total physical product (TPP)	Marginal physical product (MPP)	Total revenue (TR) KES	Total input cost (TIC) KES	Marginal revenue (MR) KES	Marginal cost (MC) KES
0	0					
1	12					
2	30					
3	44					
4	54					
5	62					
6	68					
7	72					
8	74					
9	72					
10	68					

b) Determine the optimal level of output level to produce in order to maximize profit. [4 marks]

c) State the "Decision Rule" for determining the optimal level of how much input to use in order to maximize profit. [3 marks]

Question 2

Use your knowledge of Linear Programming as a Farm Planning technique and the basic data give in Table 2 below to answer the following questions:

Table 2. Basic data for Linear Programming.

Resources	Constraints		
	Units/ha	Cotton/ha	Groundnuts/ha
Cropland	180 ha	1.0	1.0
March [Spring] labour	600 hrs	2.0	4.5
August [Summer] labour	600 hrs	3.5	2.5
Operating capital	45,000/=	300/=	350/=
Net Returns/ha		18,000/=	20,000/=

(a) What would be the Production Possibilities schedule, by resource, for Linear programming purposes? [5 marks]
(b) Which is the most limiting resource for Groundnuts production? [1 marks]
(c) Illustrate by way of computation, the implication of producing Cotton only. [3 marks]
(d) Suppose a combination of Cotton and Groundnuts would be profitable, use a graphical presentation to determine the optimum solution for Cotton-Groundnuts production. [3 marks]
(e) With the information obtained in locating the feasible solution in the graphical presentation above, use the "trial and error" method to compute the BEST point/level for the Cotton-Groundnuts production combination. [3 marks]

Question 3

A farmer would like to change from the production of "Commercial Maize" to "Baby Corn". One [1] hectare of Baby corn yields 95 bags of 90 kg each. The market price of a 90 kg bag of Baby Corn is KES 2,225/=. The total variable cost of producing 1 hectare of Baby corn is KES 25,000/=. One [1] hectare of Commercial Maize yields 100 bags of 90 kg each. The market price of Commercial Maize is KES 1,800/= per bag. The total variable cost of producing 1 hectare of Commercial maize is KES 18,000/=.

(a) Using Partial Budgeting as a Farm Planning technique, determine whether it is profitable for the Farmer to introduce the change. Indicate all the necessary steps and assumptions. [13 marks]
(b) Briefly explain the main purpose of a partial budget in farm business planning. [2 marks]

Question 4

The decision environment of agricultural producers is generally multifaceted and complex. Many distinct sources of risk may exist, and many discretionary actions may be available to the decision maker.

a) With the help of a schematic, illustrate and briefly explain possible attitudes towards risk associated with alternatives likely to be selected by different business managers. [6 marks]
b) Discuss any two methods of reducing risk and uncertainty in a business context. [4 marks]
c) Define the following Farm Management terminologies:
   i. The most acceptable definition of Farm Management. [1 mark]
   ii. The Law of diminishing marginal returns. [1 mark]
   iii. Equal marginal principle. [1 mark]
   iv. Economic profit. [1 mark]
   v. Slack variables. [1 mark]