CHUKA  **UNIVERSITY**

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN HORTICULTURE

AGEC 416: AGRICULTURAL ECONOMICS II

STREAMS: BSC (HORT) **TIME: 2 HOURS**

DAY/DATE: TUESDAY05/12/2017 **11.30 A.M. – 1.30 P.M.**

INSTRUCTIONS: ANSWER ALL QUESTIONS

QUESTION ONE

(a) You have been hired as a farm manager for the Chuka farm to plan for over two hundred acres of land. Explain factors to consider when planning for this farm. [10 marks]

(b) In the context of factor-product relationship, draw a clearly labeled diagram to show the three stages of production and explain them. [5 marks]

(c) Why wouldn't a rational farmer operate in the first and third stages of production. [5 marks]

(d) Explain the factors that aid production and their returns. [5 marks]

SECTION B: ANSWER ANSY TWO QUESTIONS

QUESTION TWO

(a) Explain the assumption of linear programming. [5 marks]

(b) The following information was obtainable from the books of Nyangeti farm on 31.12.08

Capital on 1.1.08 ksh 500000

Net prodit for 2008 ksh 121300

Drawing during 2008 ksh 72000

AFC loan payable 2016 ksh150000

ICDC loan payable 2015 ksh 100000

Farm creditors ksh 78,400

Bank overdraft ksh 22300

Premises ksh 300000

Debtorsksh 139000

Machinery ksh 280000

Stock ksh 115400

Motor vehicles ksh 48000

Cash in hand ksh 11000

Furniture and fittings ksh16500

Required:

Prepare a balance sheet for Nyangeti farm. [10 marks]

QUESTION THREE

Chuka farm has the followng production function,$Y = f(X_1/X_2,\ X_{3\ldots.X_n})$. It must pay 10 KES per unit of fertilizer and KES. 100 for the fixed inputs of land.

Output (Y)	Fertilizer (50kg/bag)	Land (hectares)
0	0	15
20	7	15
40	17	15
60	30	15
80	55	15
100	95	15
120	180	15

(a) Determine

(i) Total fixed cost [1 marks]

(ii) Total variable cost [1 mark]

(iii) Total cost [1 mark]

(iv) Average variable cost [2 marks]

(v) Average total cost [2 marks]

(vi) Average total cost [2 marks]

(vii) Marginal cost for each level of output [2 marks]

(b) Draw a cost function curve and show clearly the TC, TVC and TFC [4 marks]

QUESTION FOUR

In the production of milk, the farmer feeds cows hay and concentrates. In order to produce 20 litres of milk, the amount of feed required is as follows:

Kg. hay (x1)	Kg concentrate (x2)
40	34
50	31.5
60	30
70	29
80	28.2
90	27.4
100	27
110	25.5
120	23.8
130	22.5
140	18.5
150	17

(a) Calculate the marginal rate of substitution of hay for concentrates. [12 marks]

(b) Which combination of feed will enable the farmer to minimize costs given that the price of hay is ksh 10 and the price of concentrate is ksh40. [3 marks]

QUESTION 4

(a) Consider the production function and answer the questions that follow:

$Y = x + 8x^2 - 0.1x^3$ where Y is output and x is the input.

(i) Compute average product if x=4, and marginal product if x=8 [5 marks]

(ii) At what value of x is Y a maximum? [5 marks]

(b) Explain five strategies available to the farmer in north Eastern who is seeking to avoid extreme losses in a risky farming situation. 0[5 marks]
