MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF AGRICULTURE AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF AGRIBUSINESS MANAGEMENT and TRADE

DECEMBER SESSION EXAMINATION FOR

BACHELOR OF EDUCATION

KBT 201: AGRICULTURE PRODUCTION ECONOMICS

DATE: SCHOOLBASED　　　　　　　　　　　　　　　　　**TIME:**

INSTRUCTIONS: Answer question one and any other two questions

QUESTION ONE (COMPULSORY)(30 MARKS)

a) Define the following terms:

   i)　Expansion path　　　　　　　　　　　　　　　　　　　　　　　(1 mark)

   ii)　Uncertainty　　　　　　　　　　　　　　(1 marks)

   iii)　Isoquant (1 marks)

   iv)　Production function (1 marks)

   v)　Returns to scale (1 marks)

b) i)　Use a diagram to describe a factor- factor relationship　　　　　　(4 marks)

   ii)　Given that the relationship between the yields from one acre of maize and the amount of Nitrogen (x) applied per acre of land is given by the following production function:

$$Y=0.30x+0.002 x^2 -0.00001x^3$$

Determine the yields of maize(Y) in Kg when 200 Kg of Nitrogen is applied in 1 acre

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(3 marks)

c) i)　Explain two causes of shifts in the production possibility frontiers　　(3 marks)

   ii)　Explain the difference between fixed and variable inputs.　　　　(2 marks)

d) i)　Describe three sources of diseconomies of scale in a farm that is involved in Maize production in Nyahururu　　　　　　　　　　　　　　　　(6 marks)

   ii)　Describe two sources of risk in agriculture production　　　　　(2 marks)

iii) Explain the difference between an implicit cost and an explicit cost in production economics (2 marks)

QUESTION TWO (20 MARKS)

a) i) Explain the significance of the degree of homogeneity in a production function

(5 marks)

ii) Use a diagram to explain the difference between sufficient and necessary conditions in profit maximization (5 marks)

b) Suppose that a production function is given by

$P=200-q_1-q_2$

Complete the given table (10 marks)

Input Fertilizer (Kg)	Total Physical Product(TPP)	Marginal physical product(MPP)	Average physical product(APP)
20			
35			
40			
45			
50			

QUESTION THREE: (20 MARKS)

a) A farm in Nakuru uses a combination of two inputs X_1 and X_2 to produce 200 units of a product Y.

Combinations	Unit of X_1	Unit of X_2
1	60	0
2	40	5
3	25	10
4	15	15
5	7	20
6	3	25
7	0	30

i) Calculate the marginal rate of substitution (10 marks)

ii) The prices of X_1 =Ksh 10 and X_2= Ksh 8.What is the appropriate combination for the two inputs? (5 marks)

b) Explain five conditions of the least cost combination criterion as used in a wheat farm in Nakuru County (5 marks)

QUESTION FOUR (20 Marks)

a) Describe five factors that would influence the adoption of a new wheat variety in Nakuru

(10 marks)

b) Explain five effects of adoption of technology has on the production of a farm which has a competitive market. (10 marks)

QUESTION FIVE (20 MARKS)

a) Explain the main two types of efficiency in relation to a production possibility Frontier. (4 marks)

b) Explain elasticity of factor substitution using a well labeled diagram (4 marks)

c) Explain the differences in the three production areas on a classical production function. Use a sketch graph to illustrate your answer. (12 marks)