

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF DEGREE OF MASTER OF SCIENCE IN
AGRICULTURAL ECONOMICS**

AGEC 841: AGRICULTURAL PRODUCTION ECONOMICS

STREAMS: MSC AGECE

TIME: 2 HOURS

DAY/DATE: TUESDAY 06/08/2019

2.30 P.M. – 4.30 P.M.

INSTRUCTIONS:

- **Answer ALL questions in section A and any other TWO questions in section B**

SECTION A

Answer ALL questions

QUESTION ONE

- Discuss the three stages of production concepts and their associated recommendations. (10 marks)
- Explain why and how the elasticity of production is related to the definition of diminishing returns. (10 marks)

SECTION B: Answer any two questions

QUESTION TWO

- What do you understand by the least cost combination criteria? (5 marks)
- The table below shows the combination of x_1 and x_2 to produce 100 units of cowpeas,

- (a) Calculate the marginal rate of substitution of for (8 marks)

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

- (b) If the price of and are ksh 400 and ksh 500 respectively, determine the appropriate combination of the two inputs to apply and justify your answer. (7 marks)

QUESTION THREE

A farmer in Kitale is capable of producing maize () and Beans () in his 5 Ha parcel of land. The gross margins for maize and beans are Ksh. 800 and Kshs. 500 per Ha respectively. Labour in the farm is most limiting in June and we have only 32 man days available. During this month, the maize enterprise requires 8 man days per Ha while beans requires 4 man days per Ha. Each Ha of maize requires Kshs. 120 for all purchased inputs while beans requires Kshs. 40 for the same. The farmer has Kshs. 480 available and he cannot raise any more.

Required:

- (i) Set up a linear programming problem for the farmer. (5 marks)
- (ii) Using graphical method, determine the combination of two products that will maximize the farmers' profit. (15 marks)

QUESTION FOUR

- (i) Explain the sources of risk and uncertainties faced by farmers in Tharaka Nithi County. (5 marks)
- (ii) Many smallholder farmers in Tharaka Nithi County have been complaining due to frequent droughts that have adversely affected their crops and livestock. Applying the concepts of risk and uncertainty, discuss various strategies you can advise these farmers to employ in order to mitigate these risks. (15 marks)

QUESTION FIVE

Imagine a firm has costs given by: , and revenues given by
is the output)

- (i) At what market price does this firm sells its output (5 marks)
 - (ii) Find the profit maximizing quantity (5 marks)
 - (iii) Explain the causes of diseconomies of scale (5 marks)
 - (iv) Given a two-variable factors production Find the marginal and average physical products. (5 marks)
-