# MACHAKOS UNIVERSITY COLLEGE

**(A Constituent College of Kenyatta University)**

**University Examinations 2015/2016**

**SCHOOL OF AGRICULTURE AND NATURAL RESOURCES MANAGEMENT**

**DEPARTMENT OF ENVIRONMENTAL STUDIES**

**FIRST SEMESTER EXAMINATION FOR DEGREE IN BACHELOR OF EDUCATION**

**KBT 203: AGRICULTURAL PRODUCTION ECONOMICS**

**Date:** **Time:**

**INSTRUCTIONS:**

**Answer question one and two other questions**

**Section A: 30 MARKS**

**QUESTION ONE (COMPULSORY)**

a) Explain the difference between the following:

i) Iso cost lines and Isoclines (3 marks)

ii) Expansion paths and production possibility curve. (3 marks)

iii) Marginal physical product and average physical product. (3 marks)

b) Outline four assumptions of the production functions. (4 marks)

c) Explain the principle of opportunity cost as applied in agricultural production. (4 marks)

d) Explain how a farm manager can use the returns to scale in making decisions on farm enterprises. (5 marks)

e) Explain the principle of diminishing marginal returns. (5 marks)

(f) Explain five assumptions made when analyzing the factor-product relationship in agricultural production. (5 marks)

(g) Outline three goals of production economics. (3 marks)

**SECTION B: 40 MARKS: (ANSWER ANY OTHER QUESTIONS)**

**QUESTION TWO: (20 MARKS)**

(a) Explain marginal rate of technical substitution (MRTS) (5 marks)

(b) Discuss three stages of production and the recommendation related to each stage

(15 marks)

**QUESTION THREE: (20 Marks)**

(a) Describe four factors of production as used in production economics. (8 marks)

(b) Describe three utility functions related to income from agriculture. (12 marks)

**QUESTION FOUR: (20 Marks)**

(a) Outline five assumptions of the production functions. (10 marks)

(b) Suppose the production function for wheat is given by

$$q = kl - 0.8k^2 - 0.2l^2$$

Where q represents the quantity of wheat, k represents annual capital input, and l represents labor input. If k= 10

(i) Calculate the point at which Average productivity of Labour (APL) reaches the maximum point? (5 marks)

(ii) Calculate the point where Marginal product of labour = 0 given that k=10 (5 marks)

**QUESTION FIVE (20 Marks)**

(a) Describe five roles of the agricultural environment in production in agriculture.

(10 marks)

(b) Outline the characteristics of peasant farming in Kenya. (10 marks)