



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2016/2017

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF
BACHELOR OF ECONOMICS, BACHELOR OF ECONOMICS AND FINANCE,
BACHELOR OF ECONOMICS AND STATISTICS AND BACHELOR OF ARTS
EET 300: MICROECONOMICS THEORY III

DATE: Wednesday, 10th May 2017

TIME: 4.30 p.m. - 6.30 p.m.

INSTRUCTIONS:

Answer Question one and any other two questions.

Question One

- a) Clearly distinguish between the following pairs of concepts: **(4 Marks each)**
- (i) Production possibilities set; Input requirement set
 - (ii) Hotelling's lemma; Shepherds lemma
 - (iii) Compensated demand function; Uncompensated demand function
 - (iv) Hicks compensation; Slutsky's compensation
 - (v) Stackelberg equilibrium; Cournot equilibrium
- b) For each of the following statements, state whether it is true, false or uncertain and briefly explain your answer:
- (i) As long as there is a point of tangency between the consumer's budget-line and indifference curve, utility is maximized. **(5 Marks)**
 - (ii) A firm that maximizes revenues will definitely maximize profits. **(5 Marks)**

Question Two

- a) Given the following production function $Y = X^{2/5}$. Obtain the corresponding profit function assuming that w is the price of input x and P is the price of output. **(10 Marks)**
- b) A profit function is said to be convex and positively linearly homogeneous in all prices. From the profit function in (a) above, test for these two properties. **(5 Marks)**
- c) Differentiate between Hicks and Slutsky's compensation **(5 Marks)**

Question Three

A firm's production function is given as: $Q = 10L^{0.75}K^{0.25}$, where L represents Labor input and K represents capital input in the production process.

- a) Would you say that the function above is concave? Show your working. **(5 Marks)**
- b) Suppose the firm plans to lay off 20% of its labor in favor of capital, by how much would the firm increase capital to preserve output. Assume that the firm's efficiency remains unchanged. **(5 Marks)**
- c) Derive the firm's cost function. **(10 Marks)**

Question Four

Consider the following consumer's expenditure function:

$$E(P, U) = UP_1^a P_2^{1-a}$$

Where P_1 and P_2 are the prices for two goods X_1 and X_2 respectively, and U is Utility.

- (a) State and derive the Slutsky's equation. **(10 Marks)**
- (b) Given the expenditure function above, demonstrate the Slutsky's equation. **(10 Marks)**

Question Five

- a) Suppose all firms' in an industry have the following total cost function:

$$C(y) = 0.5Q^2 + 20Q \text{ while the market demand function is } Q = 30 - P.$$

- i) Determine the market supply function. **(3 Marks)**
 - ii) What will be the equilibrium price and quantity in this market? **(3 Marks)**
- b) Carl and Simon are two rival pumpkin growers who sell their pumpkins at the farmers market in the city. They are the only sellers of pumpkins at the market, where the demand function for pumpkins is $Q = 3200 - 1600P$. The total number of pumpkins sold at the market is $Q = Q_c + Q_s$ where Q_c is the number that Carl sells and Q_s is the number that Simon sells. The cost of producing pumpkins for either farmer is \$0.5 per pumpkin no matter how many pumpkins he produces.
 - i) If Carl waits for Simon to decide on how many pumpkins to take to the market in order for him to make a decision how many pumpkins would each have to sell to maximize profits? **(7 Marks)**
 - ii) If they agree to cooperate in their decision making so as to maximize their joint profits, how much would each have to supply? What would be the maximum joint profit? **(7 Marks)**