



MACHAKOS UNIVERSITY

University Examinations for 2016/2017 Academic Year

SCHOOL OF BUSINESS AND ECONOMICS

DEPARTMENT OF ECONOMICS

SECOND YEAR FIRST SEMESTER EXAMINATION FOR BACHELOR OF
EDUCATION(ARTS)

EET 200: MICROECONOMICS THEORY II

DATE: 30/7/2017

TIME: 8:30 – 10:30 AM

INSTRUCTION

Answer Question One and Any Other Two Questions

QUESTION ONE (COMPULSORY) (30 MARKS)

a) Differentiate between the following terms.

- i. Isoquant and indifference curve (2 marks)
- ii. Marginal rate of substitution and marginal rate of technical substitution (2 marks)
- iii. Substitution effect and income effect (2 marks)
- iv. Convex preferences and Max-Leontief preferences (2 marks)
- v. Interior optimum and boundary optimum (2 marks)

b) A community in a Kenyan county derives utility from the consumption of two goods: Good A and Good B. It has a budget of \$1,200 to spend on the two goods. The community's utility functions for the 2 goods is presented as $U(X_A, X_B) = 4.5X_A^{\frac{1}{2}}X_B^{\frac{2}{3}}$, where X_A and X_B are the units of Good A and Good B demanded respectively. Given that the prices of Good A and Good B are \$1 and \$2 respectively, find the community's Marshallian demands for the two goods.

(10 marks)

- c) Consider a monopolist who faces two markets with demand curves given by

$$q_1(p_1) = 100 - p_1$$
$$q_2(p_2) = 100 - 2p_2$$

Assuming that the monopolist marginal costs are constant at KES20, find p_1 and p_2 if the monopolist can price discriminate (10 marks)

QUESTION TWO (20 MARKS)

- a) Jin Cheng is a construction company using a certain type of steel bars for construction of bridges. Its demand for the steel bars is given as $Q = 20 + \frac{M}{10P}$, where Q is the quantity of steel bars in tons. P is the price per bar of steel and M is the amount the company has set aside to spend on the bars and this is equal to \$450,000. If the price per bar changes from \$600 to \$750, calculate the total price effect, substitution effect, and income effect of the price change. (10 marks)
- b) With the aid of a well labeled diagram, explain the income and substitution effects in which the latter outweighs the former. (10 marks)

QUESTION THREE (20 MARKS)

A firm produces and sells a product in both the domestic and foreign market. The market demand functions are given as, $Q_1 = 1200 - 10p_1$ (domestic market) and $Q_2 = 800 - 10p_2$ (foreign market) where Q_1 and Q_2 are the quantities sold in the respective markets at prices P_1 and P_2 respectively. The firm's total cost function is given by $TC = 0.05Q^2 + 10,000$ and $Q = Q_1 + Q_2$

- a) Determine the quantities and prices that maximizes the firm's profits (8 marks)
- b) What is the maximum profit for the firm? (4 marks)
- c) Comment on the relationship between price elasticity of demand and the prices charged in both market (2 marks)
- d) Explain three conditions necessary for the above firm to charge different prices in the two markets for the same products (6 marks)

QUESTION FOUR (20 MARKS)

- a) Define Pareto Efficiency. (3 marks)
- b) Using both the Edgeworth Box Diagram, explain how Pareto efficient allocation is achieved through exchange. (17 marks)

QUESTION FIVE (20 MARKS)

- a) Use a well labeled diagram to demonstrate that monopolies are a cost to the society (12 marks)
- b) Given the demand curve $P = a - bY$ and that the firm is experiencing a constant marginal cost, show that if a tax rate of t is imposed on the monopolist's output, the price would increase by half the amount of the tax. (8 marks)