JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF BUSINESS & ECONOMICS

UNIVERSITY EXAMINATION FOR BACHELOR OF BUSINESS ADMINISTRATION

SECOND YEAR SEMESTER ONE

MAIN CAMPUS (EVENING)

COURSE CODE: AEC 201

COURSE TITLE: INTERMEDIATE MICROECONOMICS

EXAM VENUE: **STREAM:**

DATE: **EXAM SESSION:**

TIME: 2   HOURS

INSTRUCTIONS:

1. **Answer Question ONE (COMPULSORY) and ANY other 2 questions**
2. **Candidates are advised not to write on the question paper.**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room.**

QUESTION ONE (COMPULSORY)   **(30MARKS)**

a) Distinguish between the following;

i) Marginal rate of substitution of product x for y (MRS_{xy}) and Marginal rate of technical substitution of labour for capital ($MRTS_{LK}$)   (2marks)

ii) Income and substitution effect   (2marks)

iii) Increasing return to scale and constant return to scale   (2marks)

iv) Isocost line and budget constraint line   (2marks)

v) Cardinal and ordinal approach in consumer behavior   (2marks)

b) Marginal Product is a measure of the rate of change of total product, Justify.   (5marks)

c) Show that the equilibrium of the consumer is identical in both Cardin Utility and Ordinal Utility theory.   (5marks)

d) Given the following total cost function;

$$TC = 1000 + 200Q - 90Q^2 + 0.25Q^3$$

Find the equations for TVC, FC, AVC, AC and MC.   (10marks)

QUESTION TWO

a) Briefly describe any five shortfalls of the cardinal approach of consumer behavior.   (5mks)

b) (i) John is a CEO of a private company in Nairobi. He spends his weekend by enjoying two types of wine: Grape wine and Pawpaw wine. He has set aside 300/- for this purpose. Grape wine, denoted by x costs 20/- per glass while Pawpaw wine denoted by y costs 4/- per glass. How much of each wine should Jack purchase if his utility is characterized by the following utility function? (8marks)

$$U(X,Y) = X^{\frac{2}{3}} Y^{\frac{1}{3}}$$

ii) In one weekend, Jack visited a wines shop and discovered that the price of Grape wine (x) had fallen to 10 per glass due to the low cost of production. If the price of Pawpaw wine (y) remains stable at 4/- per glass, how much of each wine should Jack purchase to maximize utility under these altered conditions.   (7marks)

QUESTION THREE

a) (i) Explain any five features of a pure monopolist firm.   (5marks)

(ii) Using graphical approach or otherwise, derive the equilibrium conditions of this firm.   (6marks)

b) A monopolist firm has a cost function given by:

$$C = 10 + \frac{Q^2}{2}$$

They face an inverse demand curve given by $P = 20 - Q$. Find the profit maximizing price and quantity for this firm. What is the maximum profit possible? (4marks)

c) If the inverse demand function of a profit maximizing monopolist is given as $P = 200 - 4Q^2$, and the cost function as $C = Q^3 - 15Q^2 + 80Q + 100$, find equilibrium output, monopolist price and profit. (5marks)

QUESTION FOUR

a) Under which conditions is price discrimination possible? (10marks)

b) Suppose the total demand of a discriminating monopoly is given by $Q = 50 - 0.5P$ and the $TC = 50 + 40Q$. The submarket demand function are $Q_1 = 32 - 0.4P_1$ and $Q_2 = 18 - 0.1P_2$. Determine the discriminating price, TR and MR in the two submarkets as well as its total profit (Π). (10marks)

QUESTION FIVE

a) i) State the law of varying proportion and further, using graphical approach or otherwise, explain the stages of production of a firm in the run. (10marks)

ii) Consider the following production function in a hypothetical firm in the short run

$$Q = \frac{1}{3}L^3 - 10L^2 - 50L + 200$$

Where Q is the output quantity produced in the short run
L is the number of laborers engaged.
At what input variable of labor does the law of varying proportion begin taking effect? (5marks)

b) Using indifference curve analysis, demonstrate the income and substitution effect of a price change. (5marks)