JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF BUSINESS AND ECONOMICS
UNIVERSITY EXAMINATION FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION
1ST YEAR 1ST SEMESTER 2013/2014 ACADEMIC YEAR
KISUMU L.CENTRE

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COURSE CODE: MBA 802

COURSE TITLE: MANAGERIAL ECONOMICS

EXAM VENUE:LR   STREAM: (MBA)

DATE: 11/8/14   EXAM SESSION: 2.00 – 5.00PM

TIME: 3 HOURS
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Instructions:

1. **Answer any THREE 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

(a) Marginal utility is a measure of the rate of change of total utility. Using a well labeled diagram, justify this. (5mks)

(b) By focusing on an inferior good, use the indifference curve analysis to demonstrate and explain the income and substitution effects. (10mks)

(c) The consumer utility function of a rational consumer who wants to purchase a combination of two commodities X and Y is given by $U = f(X,Y)$. However, his income, I is limited and therefore subjecting him to a budget constraint governed by the equation, $XP_X + YP_Y = I$, where, P_X and P_Y are prices of commodities X and Y respectively. Show that the marginal rate of technical substitution, MRS is given by $\dfrac{P_X}{P_T}$ (5mks)

QUESTION TWO

(a) Revenue and average cost function for a given firm are given as;

$$AR = 4 - \frac{1}{4}Q$$

$$AC = \frac{4}{Q} + 2 - 0.3Q + 0.05Q^2$$

Where Q = Quantity of commodities produced and sold

Required

(i) Find the level of Q that would maximize the profit and compute the maximum profit. (6mks)

(ii) Determine the value of Q at the breaking even point. (4mks)

(b) A firm has the following short-run production function;

$$Q = 150L + 18L^2 - 1.5L^3$$

Where;

Q = Quantity of output per week

L = Number of workers employed

When does the law of diminishing return take effect? (6mks)

(c) Explain the property of convexity to the origin of an indifference curve (4mks)

QUESTION THREE

(a) According to Robin Marris, managers attempt to maximize a firm's *Balanced Growth Rate*, subject to managerial and financial constraints. Briefly describe what this balanced growth is, as advanced by Robin Marris. (4mks)

(b) Given the Cobb-Douglas production function: $Q = 100K^{0.4}L^{0.6}$, derive mathematically the output elasticities of capital (K) and labour (L), respectively. (6mks)

(c) Briefly describe why a manager may opt to maximize sales at the expense of profit maximization. (10mks)

QUESTION FOUR

You have been hired as a consultant by a firm producing bread to advise on a price strategy that would enable the firm to maximize profits. The firm is a monopolist which sells in two distinct markets, one of which is completely sealed off from the other.

As part of the analysis, you establish that the total demand for the firm's output is given by the following equation:

$$Q = 50 - 5.0P$$

And the demand for the firm's output in the two markets is given by the following equations:

$$Q_1 = 32 - 0.4P_1 \text{ and}$$

$$Q_2 = 18 - 0.1P_2$$

Where Q = total output

P = Price

Q_1 = Output sold in market 1

Q_2 = Output sold in market 2

P_1 = Price charged in market 1

P_2 = Price charged in market 2

The total cost of production is given by $C = 50 + 40Q$, where C = total cost of producing a unit of bread.

Required:

(a) The total output that the firm must produce in order to maximize profits. (3mks)

(b) What price must be charged in each market in order to maximize profits? (2mks)

(c) How much profit would the firm earn if it sold the output at a single price, and if the discriminates? (5mks)

(d) (i) The price elasticity of demand for the two markets at the equilibrium price quantity.

(5mks)

(ii) Comment on how the price elasticity of demand may be used in making economic decisions.

(3mks)

(e) Under what conditions is price discrimination possible? (2mks)

QUESTION FIVE

Mavoko Ltd. manufactures a component known as "Fixit" which is used in the manufacture of locally assembled desktop computers. While the current production capacity is one million units of "Fixit", demand for the computers is expected to be as follows:

Year	1	2	3	4
Demand (Units)	1.4 Million	1.5 Million	1.6 Million	1.7 Million

The company is planning to acquire an additional machine at a cost of 8,000,000 which will have a useful life of 4 years and a maximum output of 600,000. The scrap value after four years will be Sh. 300,000

The current selling price of "fixit" is Sh. 80 per unit and the variable cost is Sh. 50 per unit. Other variable cost of production is Sh. 19. Fixed costs of production associated with the new machine would be Sh. 2,400,000 per year in each subsequent year of production increasing by Sh. 200,000 per year in each subsequent year of operation.

Mavoko Ltd pays tax one year in arrears at an annual rate of 30% and can claim capital allowances on a 25% reducing balance basis. A balancing allowance is claimed in the final year of operation.

The cost of equity for Mavoko Ltd. is 10% while it pays an interest of 8.6% on its debts. Its long term finance is made up of 80% equity and 20% debt.

Required

Calculate the net present value (NPV) for this project and advise the management of Mavoko whether this project is financially viable. (20mks)