UGANDA MARTYRS UNIVERSITY

NKOZI

UNIVERSITY EXAMINATIONS

FACULTY OF BUSINESS ADMINISTRATION

DEPARTMENT OF ECONOMICS

Intermediate / Advanced Microeconomic Analysis

ECO 3101

BSC III ECON, BSC III GEN & EDUC III

DATE: **Wednesday 19 January 2022**

TIME: **09:30AM – 12:30PM**

Instructions:

1. Attempt any **FOUR (04)** questions
2. All questions carry equal points
3. Do not write anything on the questions paper.
4. Carefully read through ALL the questions before attempting.
5. No **names** should be written anywhere on the examination booklet.
6. Ensure your work is **clear** and **readable**. Untidy work shall be penalized.
7. Any type of examination Malpractice will lead to automatic disqualification.
8. Ensure that your **ID number** is indicated on all pages of the examination answer booklet.

Question ONE (25points)

(a) Explain the Various instances that lead to market failure in an economy.
(08points)

(b) As an economist formulate the strategies you are to use when interfering with price mechanism in an economy. **(07points)**

(c) Account for an outward shift of the demand curve at a constant price. **(10points)**

Question TWO (25points)

(a) Explain the need and meaning of the Slutsky Equation in micro economic analysis.
(05points)

(b) Consider the indirect utility function $U(M, P_X, P_Y) = \frac{5M^2}{17P_X P_Y^2}$. Use Roy's identity to obtain the Marshallian demand functions $X(M, P_X, P_Y)$and $Y(M, P_X, P_Y)$ associated with this indirect utility function. **(10points)**

(c) Assume that the consumer's indirect expenditure function is given by $E(U, P_X, P_Y) = 7UP_X^2P_Y^3$. Use Hoteling's lemma to obtain the consumers demand functions.
(10points)

Question THREE (25points)

Jacob consumes only music (x) and movies (y). His preferences can be represented by the following utility function: $U = x^2y$. The price of music is p_x, the price of movies is p_y, and Jacob has an income of m dollars.

(a) Write down Jacob's budget constraint, calculate the Marginal Rate of Substitution (at an arbitrary bundle (x, y)) and compute his demand for music and movies (as a function of p_x, p_y and m). **(05points)**

(b) Compute the price elasticity of the demand for music. Compute the cross-price elasticity of the demand for music with respect to the price of movies.
(05points)

(c) Draw the Engel curve for movies. Are movies an inferior or a normal good? Explain.
(05points)

(d) Suppose that initially the prices are $p_x = p_y = 1$ and income is m = 80. How much music does Jacob buy? Now suppose that the price of music increases to $p_x = 2$, how much music will he buy now? How much of the drop in demand for music is due to the substitution effect and how much is due to the income effect? Calculate this numerically and show it in a graph. **(10points)**

Question FOUR (25points)

(a) How useful are economic models is informing economic policy formulation? (06marks)

(b) How important is mathematics in the analysis of economic theory? (06marks)

(c) If a model comprising demand function given by $Qd = a - bP$ where parameters $a, b > 0$; supply function given by $Qs = c + dP$ where parameters $c, d > 0$ and $Qd = Qs$.

(i) Find the equilibrium price and quantity. (07marks)

(ii) What is the impact of changes, and interpretation thereof, in each parameter in the model on the equilibrium quantity and price? (06marks)

Question FIVE (25points)

Firm Y has the following production function $f(K, L) = (L + K^{2/3})$.

(a) Find the marginal product of labor and capital and the marginal rate of technical substitution (MRTS) and state if the returns to capital and labor are increasing, decreasing or constant. Explain what is "weird" about this MRTS. (08points)

(b) Graph the isoquants of the production function and state whether the production function exhibits constant, increasing or decreasing returns to scale. (08points)

(c) Now suppose that the production function is $f(K, L) = \exp(2t)(L + K^{2/3})$ where t measures years. How does this affect the marginal products of labor and capital, the returns to scale and the MRTS? What is the rate of productivity increase over time? Graph the isoquants for $q = 110$ for $t = 1, 2$. Explain. (09points)

Question SIX (25 points)

A producer has the possibility of discriminating between the domestic and foreign markets for a product where the demands, respectively, are

$$Q_1 = 30 - 0.2P_1$$

$$Q_2 = 45 - 0.5P_2$$

Total cost = $2800 + 14Q$ where $Q = Q1 + Q2$. What price will the producer charge in order to maximize profits

(a) with price discrimination between markets? (10points)

(b) without price discrimination? (10points)

(c) compare the profit differential between discrimination and nondiscrimination. (05points)

END