MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS

2022/2023 ACADEMIC YEAR

THIRD YEAR FIRST SEMESTER

SCHOOL OF BUSINESS AND ECONOMICS

BSC. ECONOMICS, FINANCIAL ECONOMICS &ECONOMICS & STATISTICS

COURSE CODE: ECO 3103-1

COURSE TITLE: ADVANCE MICROECONOMICS

DATE: 6/12/2023 **TIME: 0830-1030 HRS**

INSTRUCTIONS TO CANDIDATES

1. Answer Question **One** and any other **Two**questions**.**

This paper consists of ***Three****printed pages. Please turn over.*

Question One

In this exercise, we consider a utility maximization problem with a utility function that incorporates a taste for status. The utility function is

$$u(x,y) = (\alpha x^{\rho} + \beta y^{\rho})^{1/\rho} + \gamma M$$

That is, the utility function is the sum of a standard CES (Constant Elasticity of Substitution) utility function and the additional term γM. This extra term captures the fact that a higher income M raises *directly* the utility for this consumer by a factor γ, beyond any benefits in terms of allowing for purchases of x and y. (Assume $\gamma > 0$) Think of this as a 'status' effect: a higher income raises utility, for given consumption choices x and y: This function is well-defined for $x > 0$ and for $y > 0$: From now on, assume $x > 0$ and $y > 0$ unless otherwise stated. Assume $\alpha > 0$; $\beta > 0$ and $\rho < 1$: The price of good x is p_x the price of good y is p_y; and the income of the consumer is M.

a) Write down the budget constraint, assuming it is satisfied with equality. **(2 marks)**

b) The consumer maximizes utility subject to the budget constraint as in (a). Write down the maximization problem of the consumer with respect to x and y. **(2 marks)**

c) Write down the Lagrangean function and derive the first order conditions for this problem with respect to x, y; and λ. **(3 marks)**

d) Solve explicitly for x^* as a function of p_x, p_y and M. **(4 marks)**

e) Solve explicitly for y^* as a function of p_x, p_y and M. **(4 marks)**

f) Does the taste for social status γ affect the optimal choice for x^*, that is, does x^* depend on γ? Are you surprised given the assumption of status effects? Provide intuition for this result. **(2 marks)**

g) Using the solution in question (d), what is x^* in the special case $\rho = 0$? What utility function does CES correspond to for $\rho = 0$? In this case, are the goods substitutes or complements (or neither)? **(3 marks).**

Question Two

a) What is meant by homogeneity of degree zero in consumer theory? **(3 marks)**

b) What is money illusion? **(3 marks)**

c) What is the relationship between (a) and (b)? **(4 marks)**

d) Given a Cobb-Douglas utility function below, derive its degree of homogeneity? **(5 marks)**

$$\mu(X_1 X_2) = \mathrm{A} X_1^{\alpha} X_2^{\beta}$$

Question Three

Consider a firm using a technology described by the following production function

$$Q(K, L) = 2K^{1/2} L^{I/2}$$

Where *K* and *L* denote the amount of capital and labor used respectively. Assume that ***r***and ***w*** are the prices of capital and labor respectively. Answer the following questions:

a) Derive the conditional factor demand functions for this technology? (**5 marks)**

b) Derive the cost function of the firm **(5 marks)**

c) Demonstrate whether or not the cost function satisfies the usual properties. **(5 marks)**

Question Four

a) Consumer A derived the following demand function from a utility maximization problem. Calculate its price elasticity of demand. **(3 marks)**

$$X_1 = \frac{1}{2}\frac{Y}{P_1}$$

b) Consumers are assumed to have their self-interest of their own welfare and preference over commodities. Define consumer preference and describe its properties. **(8 marks)**

c) Describe the regularity assumptions of a standard production technology. **(4 marks)**

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