



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
COURSE TITLE: ADVANCE MICROECONOMICS**

DATE: DECEMBER 2022

TIME: 2 HOURS

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 . **(3 marks)**
- c) Write down the Lagrangean function and derive the first order conditions for this problem with respect to x, y ; and λ . **(4 marks)**
- d) Solve explicitly for x^* as a function of p_x, p_y and M . **(5 marks)**
- e) Solve explicitly for y^* as a function of p_x, p_y and M . **(5 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)? **(4 marks).**

Question Two

- a) What is meant by homogeneity of degree zero in consumer theory? **(6 marks)**
- b) What is money illusion? **(4 marks)**
- c) What is the relationship between (a) and (b)? **(5 marks)**

Question Three

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

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

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) What are 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. **(12 marks)**

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