ZIMBABWE EZEKIEL GUTI UNIVERSITY

FACULTY OF LAW, BUSINESS INTELLIGENCE AND ECONOMICS

DEPARTMENT OF ECONOMICS, MARKETING AND ENTREPRENEURSHIP

EXAMINATION PAPER

COURSE CODE	:	CEC 404/414
COURSE TITLE	:	Managerial Economics
SPECIAL REQUIREMENTS	:	
DURATION	:	3 Hours
LEVEL	:	4.1
DATE	:	13 OCT 2023

INSTRUCTIONS TO CANDIDATES:

1. No cell phones are allowed in the examination venue
2. Use of silent, non-programmable calculators is allowed
3. Answer ALL questions in both Section A and Section B.
4. Begin each question on a new page in section B.
5. The number of marks for each question or part question is shown in brackets [ ]

SECTION A

Question 1: Decision-Making Based on Elasticity

At the close of the last century, increases in the price of gasoline led to decreases in demand for products that are complements of gasoline, such as automobiles. The reason was that higher gasoline prices moved consumers to substitute for public transportation, bicycling, and walking. An econometric study by Mundell Karikuni provides quantitative information about the impact of fuel costs on the demand for automobiles.

One of the more important determinants of the demand for automobiles is the fuel operating cost, defined as the cost of fuel per mile driven. The study reveals that for each 1 percent increase in fuel costs, the demand for automobiles will decrease by 0.214 percent. A 10 percent increase in the price of gasoline increases the cost of fuel per mile driven by 10 percent and thus reduces the demand for a given car by 2.14 percent. This information and other related elasticity data assist most managers in profit maximization.

a. Identify and explain two determinants of demand. [6]

b. Determine the priori expectation of cross-price elasticity between the following pairs of products to be positive, negative, or zero. Justify your answer

   i. Gasoline and automobiles

   ii. Bicycling and walking

   iii. Construction of residential housing and furniture. [9]

c. Comment on how the results given by the Econometrician can be used for profit maximisation. [10]

SECTION B

Question 2

a. The problem of heteroscedasticity is common in cross-sectional data analysis. Explain what is meant by the term heteroscedasticity. [7]

b. Justify any three reasons why a manager would be interested in estimating the demand for consumer durable goods (e.g., automobiles, appliances, furniture) and consider which one is the most important. [18]

Question 3

a. Compare and comment on Marginal Rate of Technical Substitution (MRTS) of the following production functions:

i. $Q = AK^{\alpha}L^{\beta}$

ii. $Q = 3K^{\frac{1}{4}}L^{\frac{3}{4}}$

iii. $Q = 50 + 100K^3 + 100L^3$ [12]

b. A manager hires labor and rents capital equipment in a very competitive market. Currently, the wage rate is \$6 per hour and capital is rented at \$12 per hour. If the marginal product of labor is 50 units of output per hour and the marginal product of capital is 75 units of output per hour.

Using appropriate computations, consider whether the firm using the cost-minimizing combination of labor and capital and make appropriate recommendations? [13]

Question 4

The Economist in your organisation came to your office and said, "The demand and cost estimates that were provided at the meeting are very useful

$[Q = 100 - 5.5P$ and $TC = 120 + 2.5Q]$. Unfortunately, what we did not realize at the time was that our fixed costs were underestimated by at least 20 percent. This means that we will have to adjust our price upward by at least 20 percent to cover the added fixed cost. In any case, there is no way in the world that we can survive by charging less than \$8.90 for our product."

Use appropriate computations to evaluate this Economist's statement. [25]

Question 5

a. Explain how cheating on collusive agreements can be justified by the prisoner's dilemma? [7]

b. The equilibrium for two firms Munashe and Angel which are deciding to position a new product in a differentiated product market environment can be presented in the matrix below:

	Angel/ Firm 2

Players' Payoff Matrix		*Strategy A*	*Strategy B*
Munashe/	*Strategy A*	-300;-300	-1 000;0
Firm 1	*Strategy B*	0;-1 000	-800;-800

i. Determine the equilibrium of this game, if any. [8]

ii. Assess whether the equilibrium of this game is Nash or otherwise. Give examples or illustrations whenever possible. [10]

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