



ZIMBABWE EZEKIEL GUTI UNIVERSITY

FACULTY OF BUSINESS, ECONOMICS, AND ACCOUNTING

DEPARTMENT OF BUSINESS ADMINISTRATION AND MANAGEMENT

EXAMINATION PAPER

COURSE CODE	:	CEC 404
COURSE TITLE	:	MANAGERIAL ECONOMICS
DURATION	:	3 Hours
LEVEL	:	4.1

06 OCT 2022

INSTRUCTIONS TO CANDIDATES:

1. No cell phones are allowed in the examination venue.
2. Use of silent, non-programmable calculators is allowed
3. Answer question number **one (1)** in Section A (Compulsory) and any other **three (3)** questions in Section B.
4. Begin each question on a new page.
5. The number of marks for each question or part question is shown in brackets []
6. Show all workings, where applicable.

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 for gasoline, such as automobiles. The reason was that higher gasoline prices moved consumers to substitute toward 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 maximisation.

- a. Explain the motivation for corporate managers not to specifically aim at profit (or wealth) maximization for their companies? [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. White bread and whole wheat bread
 - iii. Construction of residential housing and furniture. [9]
- c. Gasoline has the following demand equation:

$$Q = 20 - 2P$$

- i. What is the meaning of 20 in the demand equation given? [3]
- ii. What is the quantity demand at the price of 8? [3]
- iii. Comment on the point elasticity at a price of \$5. [4]

SECTION B

Question 2

The consumption of hot-dogs, a fast food piece meal, has been growing largely in urban areas in Zimbabwe. A curious managerial economics student at Zimbabwe Ezekiel Guti University (ZEGU) estimated that demand for hot-dogs in Bindura town as follows:

$$Q = 520 - 1.42P + 2PX + 5.2I + 0.20A + 0.35M$$

$$St\ Err \quad (2.002) \quad (0.60) \quad (0.89) \quad (2.5) \quad (0.07) \quad (0.11)$$

$$t\text{-cal} \quad (259.74) \quad (2.36) \quad (2.25) \quad (2.08) \quad (2.86) \quad (3.18)$$

$$R^2 = 0.77 \quad Adj\ R^2 = 0.73 \quad n = 26 \quad F = 20.88$$

a) What proportion of the variation in sales is explained by the independent variables in the equations? How confident are you about this answer? [3]

b) Given the definition of variables used in the model are given as follows:

P (in cents): Price of the product

PX (in cents): Price of leading competitor's product

I (in dollars) : Per capita income of Bindura's residents

A (in dollars) : Monthly advertising expenditure

M : Ratio of Youths to the elderly

- i. Discuss the relative impact that each variable has on the demand. [10]
- ii. Given the following demand conditions, advise hot-dog producers on pricing strategies. [12]

P (in cents): Price of the product = 100

PX (in cents): Price of leading competitor's product = 120

I (in dollars) : Per capita income of Bindura's residents = 500

A (in dollars) : Monthly advertising expenditure = 12 000

M : Ratio of Youths to the elderly = 4.

Question 3

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

i. $Q = K^\alpha L^\beta$

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

iii. $Q = 50 + 100K^2 + 100L^2$ [12]

b. Tim enjoys fishing and goes out about 20 times per year. One day, his wife, Anesu, told him that fishing is simply too expensive a hobby.

"I think that you should stop going fishing," she exclaimed. "I did a little calculation, and I figured that it costs us about \$28.75 for every fish that you catch because you

usually catch about 20 fish per trip. Besides, I always end up having to clean them. We would be much better off buying ready-to-cook fish from the local fish market.”

Comment on Anesu’s remarks. Do you agree with her argument? Justify your answer. (Following below are her cost estimates.)

Boat (Cost=\$30 000, usable for 10 years, 20 outings per year)	150
Boat fuel	45
Dock fees and insurance for the boat (average per trip)	130
Travel expenses to and from the lake ((100 miles @ \$0.25 per mile: gas, oil, and tires, \$0.18, and depreciation and insurance, \$0.07)	25
New fishing equipment purchases this year (prorated over 20 trips)	25
Annual fishing license	35
Bait and miscellaneous expenses	50
Food	40
Beverages	35
Traffic fine received on the way to the lake	<u>40</u>
Total cost per trip	<u>\$575</u>
	[13]

Question 4

You are the manager of College Computers, a manufacturer of customized computers that meet the specifications required by the local university. Over 90 percent of your clientele consists of college students. College Computers is not the only firm that builds computers to meet this university’s specifications; indeed, it competes with many manufacturers online and through traditional retail outlets. To attract its large student clientele, College Computers runs a weekly ad in the student paper advertising its “free service after the sale” policy in an attempt to differentiate itself from the competition. The weekly demand for computers produced by College Computers is given by

$$Q = 1\,000 - P$$

and its weekly cost of producing computers is

$$C = 2\,000 + Q^2$$

If other firms in the industry sell PCs at \$600, what price and quantity of computers should you produce to maximize your firm's profits? Determine long run adjustments you should anticipate. [25]

Question 5

The worker-management negotiation results may be modelled as a dynamic game with imperfect information. The two may resolve to sit on a negotiating table with an aim to get a win-win position though strict personal interests may not be declared outright. This can result in a battle of sexes as simplified below:

A man and a woman are trying to decide what to do in the evening. The man would rather go and watch the boxing, while the woman would rather go shopping. However, they would both rather spend the evening together (doing either activity) than they would to do something separate. If they both go to the boxing, the man gets a payoff of 2, while the woman gets a payoff of 1. If they go shopping, then the woman gets a payoff of 2 and the man gets a payoff of 1. If they do different activities then they both get a payoff of zero.

- a. What do you think is the key element that can make games perfect? [2]
- b. Given that, the rows of the table are the man's possible strategies, and the columns are the woman's, construct the matrix of pay-offs for this game. [8]
- c. What is the difference between this game and the prisoner's dilemma? [5]
- d. What is the dominant strategy of this game? Explain/ Prove. [5]
- e. Is there a Nash equilibrium in this game? Explain/ Prove. [5]

---The End---

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