ZIMBABWE EZEKIEL GUTI UNIVERSITY

FACULTY OF LAW, BUSINESS INTELLIGENCE AND ECONOMICS

DEPARTMENT OF ECONOMICS, MARKETING, AND ENTREPRENEURSHIP

EXAMINATION PAPER

MODULE CODE	:	CEC414
MODULE TITLE	:	Managerial Economics
SPECIAL REQUIREMENTS	:	Graph paper
DURATION	:	3 Hours
LEVEL	:	4.1
DATE	:	25 SEP 2024

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 Section A and any THREE (3) questions in 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 (COMPULSORY)

QUESTION ONE

CASE STUDY

Government intervention

The price of raw sugar recently reached its highest level since 1981 due to problems with supply. Historically, raw sugar has traded at between 10 and 12 cents per pound at the New York Board of Trade. But the price increased to over 18 cents last month. Growing demand in Brazil for sugar to be turned into ethanol for fuel, coupled with a sharp fall in Indian production have both been factors in the price increase. Sugar production in India for 2008-09 fell 45% year-on-year due to less rain in the monsoon season damaging a number of agricultural crops. The London-based International Sugar Organization predicts that global consumption of sugar is likely to outstrip production by 9million tons next year, forcing food companies and governments to dig into stockpiles. In the US, snack producers including Mars, Nestlé and Krispy Kreme Doughnuts put pressure on the US government to relax import controls, warning that otherwise they might run out of sugar. Commentators predict that most shoppers will be unaffected because sugar is such a small part of a consumer's typical spending in a week that no one will notice an increase in price.

Questions

a. Explain, using supply and demand analysis, why the price of sugar has been increasing. **[5 marks]**

b. Do you think the supply and the demand for sugar is price elastic or inelastic? Justify. **[3 marks]**

c. In what ways is the market for sugar used in confectionery related to the market for ethanol? **[2 marks]**

d. How might companies such as Mars and Nestlé react to an increase in the price of sugar? **[4 marks]**

e. The equation for a demand curve has been estimated to be $Q = 100 - 10P + 0.5Y$, where Q is quantity, P is price, and Y is income. Assume $P = 7$ and $Y = 50$.

i. Interpret the equation. **[2 marks]**

ii. At a price of 7, what is price elasticity? **[3 marks]**

iii. At an income level of 50, what is income elasticity? **[3 marks]**

iv. Now assume income is 70. What is the price elasticity at $P = 8$? **[3 marks]**

SECTION B (ANSWER ANY THREE QUESTIONS)

QUESTION TWO

a. Suppose your firm competes against another firm for customers. You and your rival know your products will be obsolete at the end of the year and must simultaneously determine whether or not to advertise. In your industry, advertising does not increase total industry demand but instead induces consumers to switch among the products of different firms. Thus, if both you and your rival advertise, the two advertising campaigns will simply offset each other, and you will each earn $4 million in profits. If neither of you advertises, you will each earn $10 million in profits. However, if one of you advertises and the other one does not, the firm that advertises will earn $20 million and the firm that does not advertise will earn $1 million in profits.

Required:

i. Present this information in an appropriate payoff matrix. **[10 marks]**
ii. Is your profit-maximizing choice to advertise or not to advertise? Explain **[5 marks]**
iii. How much money do you expect to earn? **[2 marks]**

b. Use the following equation to demonstrate why a firm producing at the output level where $MR = MC$ will also be able to maximize its total profit (i.e., be at the point where marginal profit is equal to zero).

$$P = 170 - 5Q$$
$$TC = 40 + 50Q + 5Q^2$$

[8 marks]

QUESTION THREE

a. Consider a company grappling with succession challenges as key leadership positions are nearing retirement. How can the company utilize the five decision-making steps to devise a comprehensive succession plan that ensures a smooth transition of leadership and sustains organizational effectiveness and stability? **[10 marks]**

b. A manager hires labor and rents capital equipment in a very competitive market. Currently the wage rate is $9 per hour and capital is rented at $10 per hour. The marginal product of labor is 50 units of output per hour and the marginal product of capital is 60 units of output per hour. Evaluate if the firm is using the cost-minimizing combination of labor and capital and if not, comment on whether the firm should increase or decrease the amount of capital used in its production process. **[8 marks]**

c. Briefly list and elaborate on the factors that will be affecting the supply of fast food outlets in emerging markets products in the next several years. Do you think these factors will cause the supply to increase or decrease? **[7 marks]**

QUESTION FOUR

a. In the realm of the principal-agent problem, consider a scenario where a principal (P) hires an agent (A) to manage a manufacturing plant. The principal expects the agent to maximize production efficiency and minimize costs while the agent seeks to optimize their own interests. Evaluate the challenges that may arise in this principal-agent relationship, particularly focusing on information asymmetry, moral hazard, and adverse selection. **[10 marks]**

b. Professional analysts have estimated a firm's cost function as $C(Q) = 5 + Q^2$. If the firm sells output in a perfectly competitive market and other firms in the industry sell output at a price of $20:

i. What price should the manager of this firm put on the product? **[2 marks]**
ii. What level of output should be produced to maximize profits? **[4 marks]**
iii. How much profit will be earned? **[3 marks]**

c. Discuss why airports typically charge a higher price for parking during holidays than they do during other times of the year. **[6 marks]**

QUESTION FIVE

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	*(2.002)*	*(0.60)*	*(0.89)*	*(2.5)*	*(0.07)*	*(0.11)*
t-cal	*(259.74*	*(2.36)*	*(2.25)*	*(2.08)*	*(2.86)*	*(3.18*

R^2 = 0.77 *Adj R^2 = 0.73* *n = 26* *F = 20.88*

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

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.

Use model to answer the following decision-making questions:

i. Given that the examiner commented that there could be a considerable number of variables omitted in this model, what will be your response to this? **[3 marks]**

ii. Determine the amount of output, (Q: Quantity) that the firm must produce per month in order to meet demand. **[4 marks]**

iii. Determine statistical significance of the variables that affect demand in this model. **[4 marks]**

iv. Discuss the relative impact that each variable has on the demand of product Q. **[4 marks]**

v. Compute Elasticity Coefficients of the variables that affect demand in this model. **[4 marks]**

vi. Produce an advisory note for managerial decision after conducting this regression analysis. **[6 marks]**

THE END

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