



**ZIMBABWE EZEKIEL GUTI UNIVERSITY**

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**FACULTY OF LAW, BUSINESS INTELLIGENCE AND ECONOMICS**

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**DEPARTMENT OF ECONOMICS, MARKETING, AND ENTREPRENEURSHIP**

**EXAMINATION PAPER**

**MODULE CODE** : CEC414  
**MODULE TITLE** : Managerial Economics  
**SPECIAL REQUIREMENTS** : Graph paper  
**DURATION** : 3 Hours JUN 2025  
**LEVEL** : 4.1  
**DATE** :

**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

Maruti enjoys monopoly in spare parts. Along with dealers, Maruti Ltd is exploiting Maruti vehicle users. Often the vehicle user has to change the clutch plate twice in six months and has to pay US\$50. Maruti Ltd charges the price of clutch at imported cost while clutch plate is actually made by clutch auto private Ltd locally. The replacement of a silencer costs US\$20. The cost of spare parts and repairs by any reckoning is three to four times compared to other auto makers. A random sample indicates that every 8<sup>th</sup> car has faulty clutch. In the context of defective parts and exorbitant cost of repairs, saving in fuel in Maruti Ltd as compared to other auto makers is of little consequence. Maruti vehicle users are in dilemma as they cannot get spare parts or get their cars repaired except through Maruti Ltd or its authorized dealers but both charge huge amounts without giving guarantee for a single day. Maruti Ltd is thus, indifferent to the genuine grievances of its customers.

- Define a monopoly and outline its main features. **[4 marks]**
- In what way do customers suffer from monopoly practices of Maruti Ltd. **[4 marks]**
- Discuss possible remedies to the situation? **[8 marks]**
- Suppose short-run inverse demand in a monopolistically competitive market is represented by:

$$P = 18 - 0.2Q$$

Cost is given by:

$$TC = 300 + 2Q + 0.05Q^2$$

Given these demand and cost conditions, what price, output, and profits result in the short run? **[9 marks]**

### QUESTION TWO

- A manufacturing company is deliberating on whether to outsource its production operations to reduce costs. How could the company employ the five decision-making steps to assess the advantages and disadvantages of outsourcing and make an informed strategic decision? **[10 marks]**
- 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. Provide a detailed analysis of how these issues can impact decision-making, performance, and trust within the principal-agent framework.

[5 marks]

- c. The demand and cost estimates of a monopolistic firm were provided at the meeting as follows:

$$[Q = 100 - 5.5P \text{ and } TC = 120 + 2.5Q]$$

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 statement.

[10 marks]

### QUESTION THREE

The maker of a leading brand of low-calorie microwavable food estimated the following demand equation for its product using data from 26 supermarkets around the country for the month of April:

$$Q = -5200 - 4P + 20P_x + 5.2I + 0.20A + 0.25M$$

$$(2.002) \quad (17.5) \quad (6.2) \quad (2.5) \quad (0.09) \quad (0.21)$$

$$R^2 = 0.55 \quad n = 26 \quad F = 4.88$$

Assume the following values for the independent variables:

- $Q$  Quantity sold per month
- $P$  (in cents) Price of the product = 500
- $P_x$  (in cents) = Price of leading competitor's product = 60
- $I$  (in dollars) Per capita income of the standard metropolitan statistical area (SMSA) in which the supermarket is located = 5,500
- $A$  (in dollars) Monthly advertising expenditure = 10,000
- $M$  Number of microwave ovens sold in the SMSA in which the supermarket is located = 5,000

Use model to answer the following decision-making questions:

- i. What proportion of the variation in low-calorie microwavable food is explained by the independent variables in the equations and how confident are you about this answer? [3 marks]
- ii. Determine the amount of output, (Q: Quantity) that the firm must produce 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 and comment. [7 marks]
- vi. The problem of multicollinearity is common in regression analysis for managerial decisions. Explain what is meant by the term multicollinearity. [3 marks]

#### QUESTION FOUR

- a. Consider a small town that is served by two grocery stores, White and Gray. Each store must decide whether it will remain open on Sundays or whether it will close on that day. If both stores decide to close, then each has monthly profits of \$21,000. However, if one is open and the other is closed, the open one has profits of \$25,000 and the closed one has profits of \$17,000. If both remain open on Sundays, then each has profits of \$20,000.
  - i. Why might profits be lower if both are open on Sundays than if both are closed on Sundays? [2 marks]
  - ii. Place payouts in the appropriate cells of the payoff matrix shown below. [5 marks]

Monthly Profit Payoffs	Gray's Choices	
	Open	Close
White's Choices		

- iii. Does either firm have a dominant strategy? Justify. [3 marks]
- iv. Is there a dominant strategy equilibrium? Justify [2 marks]
- v. Is this an example of a prisoners' dilemma? Explain [5 marks]

b. Compute the Marginal Rate of Technical Substitution (MRTS) of the following production functions and comment.

i.  $Q=75X^{0.15}Y^{0.40}Z^{0.45}$  [4 marks]

ii.  $Q= 50L^{0.9} +50K^{0.6}$  [4 marks]

### QUESTION FIVE

A firm's product sells for \$4 per unit in a highly competitive market. The firm produces output using capital (which it rents at \$25 per hour) and labor (which is paid a wage of \$30 per hour under a contract for 20 hours of labor services).

Capital (K)	Labor (L)	Quantity (Q)
0	20	0
1	20	50
2	20	150
3	20	300
4	20	400
5	20	450
6	20	475
7	20	475
8	20	450
9	20	400
10	20	300
11	20	150

Use this information to answer the following questions:

- a. Identify the fixed and variable inputs. [2 marks]
- b. What are the firm's fixed costs? [2 marks]
- c. What is the variable cost of producing 475 units of output? [3 marks]
- d. How many units of the variable input should be used to maximize profits? [6 marks]
- e. What are the maximum profits this firm can earn? [6 marks]
- f. Over what range of the variable input usage do increasing marginal returns exist? [2 marks]

- g. Over what range of the variable input usage do decreasing marginal returns exist? [2 marks]
- h. Over what range of input usage do negative marginal returns exist? [2 marks]

THE END