



PAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF MANAGEMENT SCIENCES

DEPARTMENT OF ACCOUNTING, ECONOMICS AND FINANCE

QUALIFICATION: BACHELOR OF TECHNOLOGY : ECONOMICS	
QUALIFICATION CODE: 07BECO	LEVEL: 7
COURSE CODE: MEN311S	COURSE NAME: MANAGERIAL ECONOMICS
SESSION: JUNE 2019	PAPER: THEORY
DURATION: 3 HOURS	MARKS: 100

SUPPLEMENTARY / SECOND OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER(S)	Mr. Roberth Disho Kaveto
MODERATOR:	Mr Eden Shipanga

INSTRUCTIONS
<ol style="list-style-type: none">1. Answer ALL the questions.2. Write clearly and neatly.3. Number the answers clearly.

PERMISSIBLE MATERIALS

1. Pens/pencils
2. calculator
3. Ruler

THIS QUESTION PAPER CONSISTS OF 5 PAGES (Including this front page)

Question 1 (25 MARKS)

1. Suppose that a company produces two products and that its Total Cost equals:

$$TC = 4Q_1^2 + 5Q_2^2 - Q_1Q_2$$

Where Q_1 equals its output per hour of the first product and Q_2 equals its output per hour of the second product. Because of the commitments to customers, the number produced of both products combined must not be less than 30 per hour.

(A) What output levels of the two products minimize the firm's costs, given that, the output of the first product plus the output of the second product equals 30 per hour? **(10)**

(B) Find the value of Q_2 that minimizes Total Cost. **(5)**

(C) Find the value of Q_1 that minimizes Total Cost (Hint: given that, the constraint is $Q_1 + Q_2 = 30$). **(4)**

(D) Using your answers above, what is the actual Total Cost given $TC = 4Q_1^2 + 5Q_2^2 - Q_1Q_2$. **(6)**

Question 2 (25 MARKS)

Information Technology, Inc. is a supplier of math coprocessors (Computer Chips) used to speed the processing of data for analysis on personal computers. Based on an analysis of monthly cost and output data, the company has estimated the following relation between the marginal cost production and monthly output.

$$MC = \$100 + \$0.004Q$$

(A) Calculate the marginal cost of production at 2,500, 5,000, and 7,500 units of output. **(3)**

(B) Express output as a function of marginal cost . Calculate the level of output when $MC = \$100$, $\$25$, and $\$150$. **(10)**

(C) Calculate the profit-maximizing level of output if wholesale prices are stable in the industry at $\$150$ per chip and, therefore, $P = MR = \$150$. **(5)**

(D) Derive the company's supply curve for chips assuming $P = i$. express price as a function of quantity and quantity as a function of price. **(5)**

(E) Find the Total Revenue given that $P=10$ and $Q=400$ **(2)**

Question 3 (25 MARKS)

1. A pen manufacturing company estimates fixed cost of \$500 per year and average variable cost of

$$AVC = 0.5 + 0.0025Q$$

Estimate total cost and average variable cost for the projected first year volume 100 units. **(8)**

2. For a perfectly competitive firm, long – run average cost is:

$$LAC = 150 - 10Q + 0.25Q^2$$

(Where Q, denotes the firms output).

Determine the firms long – run profit-maximizing output and price. **(7)**

3. A monopolist faces the price equation:

$$P = 2000 - 0.5Q$$

And total cost

$$TC = 50,000 + 100Q + 0.4Q^2$$

(A) Determine the price and output that maximize total revenue. **(7)**

(B) Determine the amount of profit at the revenue maximizing output level. **(3)**

Question 4 (25 MARKS)

In a perfectly competitive market, industry demand is:

$$P = 850 - 2Q,$$

And industry supply is:

$$P = 250 + 4Q$$

(Please note: supply is the sum of the marginal cost curves of the firms in the industry)

Determine the industry price and output under perfect competition. **(8)**

The kinked demand curve in an oligopolistic market is defined by the equations:

$$P = 200 - 2Q \text{ and } P = 400 - 6Q$$

(A) Derive equations for the marginal revenue curves. **(7)**

(B) Determine the price and quantity at the kink of the demand curve. **(7)**

(C) List three (3) characteristics of Oligopoly market structure. **(3)**

TOTAL MARKS: 100