



**PAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

FACULTY OF MANAGEMENT SCIENCES

DEPARTMENT OF ACCOUNTING, ECONOMICS AND FINANCE

QUALIFICATION: BACHELOR OF ECONOMICS	
QUALIFICATION CODE: 07BECO	LEVEL: 8
COURSE CODE: AMI810S	COURSE NAME: ADVANCED MICROECONOMICS
SESSION: JUNE 2022	PAPER: THEORY
DURATION: 3 HOURS	MARKS: 100

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER(S)	MR. PINEHAS NANGULA
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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. Scientific calculator
2. Pen and Pencil
3. Ruler

THIS QUESTION PAPER CONSISTS OF 4 PAGES (Including this front page)

QUESTION ONE

[25 MARKS]

A bicycle manufacturing company is considering how to allocate a N\$15 million advertising budget between two types of tournaments: NPL football game and Namibian newspaper game. The following table shows the new bicycle that are sold when a given amount of money is spent on advertising during an NPL football game and a Namibian newspaper game. Let P be the amount of money devoted to advertising on NPL football games, T the amount of money spent on advertising on Namibian newspaper game, and $C(P,T)$ the number of new bicycle sold.

Total spent (Millions)	New sales from NPL football game	New sales from Namibian newspaper game	Total Sales
N\$0.00	0	0	
N\$3.00	4	15	
N\$6.00	11	21	
N\$9.00	16	27	
N\$12.00	26	31	
N\$15.00	31	34	

- i) What is the objective function for this problem? [1 mark]
 - ii) What is the constraint? [1 mark]
 - iii) Write a statement of the constrained optimization problem. [2 marks]
 - iv) Calculate total sales associated with each spending on NPL football games and Namibian newspaper game. [6 marks]
 - v) Considering the information in the table, how should the manufacturer allocate its advertising budget? [5 marks]
- b) The demand function for beef is $P = 100 - 0.5Q$ and the supply function for beef is $P = 90 + 0.5Q^2$. Use integration to calculate consumer's surplus and producer's surplus. [10 marks]

QUESTION TWO 2**[25 MARKS]**

You have a choice to make between clothing (C) and food (F), the price of cloth is N\$45.00 per cloth and the price of food is N\$30.00 per kg. Your utility function is $U(F, C) = 20\sqrt{FC}$ and your income is N\$30000.00.

- a) If the price of food increases from N\$30.00 to N\$40.00 while the price of cloth and income remain the same, construct demand curve for food. Use a clear labelled graph to present your answer. Let food be on the x-axis. [12.5 marks]
- b) If the price of cloth increases from N\$45 to N\$55.00 while the price of food and income of consumer remain the same N\$30 and N\$30000.00 respectively, construct demand curve for cloth. Use a clear labelled graph to present your answer. Let food be on the x-axis. [12.5 marks]

QUESTION THREE**[25 MARKS]**

A homogeneous products duopoly faces a market demand function given by $Q = 50 - 0.2P$. Firm A marginal cost is N\$15.00 and firm B marginal cost is N\$15.00.

- a)
- i. What is Firm A's profit-maximizing quantity, given that Firm B produces an output of 45 units per year? [2.5 marks]
 - ii. What is Firm A's profit-maximizing quantity when Firm B produces 40 units per year? [2.5 marks]
- b) Derive the equation of each firm's reaction curve and then graph these curves. [5 marks]
- c) What is the Cournot equilibrium price and quantity per firm in this market? [5 marks]
- d) What would be the equilibrium price in this market if it were perfectly competitive? [5 marks]
- e) What would be the equilibrium price in this market if the two firms colluded to set a monopoly price? [5 marks]

QUESTION FOUR**[25 MARKS]**

Consumers derived utility from consuming good x and good y. Utility function is $U_{X,Y} = 20X^{0.4}Y^{0.4}$ good y is a composite good ($P_y = N\$1$), the price of good x is ($P_x = N\$10.00$) and consumer income is ($I = N\$500$). Government would like to increase the consumption of good x with 60 per cent. Government can achieve this objective by either giving cash subsidy or a voucher that can only be used in the purchasing of good x. Government can only spend N\$300.00.

- a) Use a well labelled graph to represent the above information. [5 marks]
- b) Calculate optimal combination of good x and good y associated with each option. Which option will you recommend and why? [10 marks]
- c) If government has only N\$200.00 to spend to increase the consumption of good x, which option will you recommend? [10 marks]

All the best