



**NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

FACULTY OF HEALTH AND APPLIED SCIENCES

DEPARTMENT OF ACCOUNTING, ECONOMICS AND FINANCE

QUALIFICATION: BACHELOR OF ECONOMICS	
QUALIFICATION CODE: 07BECO	LEVEL: 8
COURSE CODE: AMI810S	COURSE NAME: ADVANCED MICROECONOMICS
SESSION: JULY 2019	PAPER: THEORY
DURATION: 3 HOURS	MARKS: 100

SECOND OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER(S)	MR. PINEHAS NANGULA
MODERATOR:	MRS RUTH EEGUNJOBI

INSTRUCTIONS
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) Suppose a consumer purchases only two types of goods, food and clothing. The consumer must decide how many units of each good to purchase each month. Let F be the number of units of food that she purchases each month, and C the number of units of clothing. She wants to maximize her satisfaction with the two goods. Suppose the consumer's level of satisfaction when she purchases F units of food and C units of clothing is measured by the product FC , but she can purchase only limited amounts of goods per month because she must live within her budget. Goods cost money, and the consumer has a limited income. To keep the example simple, suppose the consumer has a fixed monthly income I , and she must not spend more than I during the month. Each unit of food costs P_F and each unit of clothing costs P_C
- i) What is the objective function for this problem? [2 marks]
 - ii) What is the constraint? [2 marks]
 - iii) Which variables (P_F , F , P_C , C , and I) are exogenous? Which are endogenous? Explain. [2 marks]
 - iv) Write a statement of the constrained optimization problem. [4 marks]
- b) Consider the following four statements. Which might be an example of a positive network externality? Which might be an example of a negative network externality?
- i) People eat hot dogs because they like the taste, and hot dogs are filling. [2 marks]
 - ii) As soon as Zack discovered that everybody else was eating hot dogs, he stopped buying them. [2 marks]
 - iii) Sally wouldn't think of buying hot dogs until she realized that all her friends were eating them. [2 marks]
 - iv) When personal income grew by 10 percent, hot dog sales fell. [2 marks]
- c) Paul, Chris and Jon have different demand curves for popcorn. Paul's demand curve is $P = 10 - 0.5Q$; Chris' demand curve is $P = 8 - 0.4Q$; and Jon's demand curve is $P = 6 - Q$. They are the only consumers of popcorn in the market. Draw Paul, Chris, Jon and market demand curve. Be sure to identify any intercept values as well as any "kink" values in the four graphs [7 marks]

Question Two**[25 marks]**

A homogeneous products duopoly faces a market demand function given by $P = 300 - 3Q$, where $Q = Q_1 + Q_2$. Both firms have a constant marginal cost $MC = 100$.

- a) What is Firm 1's profit-maximizing quantity, given that Firm 2 produces an output of 50 units per year? What is Firm 1's profit-maximizing quantity when Firm 2 produces 20 units per year? [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 quantity per firm and price in this market? [5 marks]
- d) What would the equilibrium price in this market be if it were perfectly competitive? [5 marks]
- e) What would the equilibrium price in this market be if the two firms colluded to set the monopoly price? [5 marks]

Question Three**[25 marks]**

- a) Consider the utility function $U(x, y) = 2x^2y^3 + 4x$
 - i) Is the assumption that more is better satisfied for both goods? [5 marks]
 - ii) Does the marginal utility of x diminish, remain constant, or increase as the consumer buys more x ? Explain. [5 marks]
 - iii) What is $MRS_{x, y}$ and compute it? [3 marks]
 - iv) Is $MRS_{x, y}$ diminishing, constant, or increasing as the consumer substitutes x for y along an indifference curve? [3 marks]
- b) On a graph with x on the horizontal axis and y on the vertical axis, draw a typical indifference curve (it need not be exactly to scale, but it needs to reflect accurately whether there is a diminishing $MRS_{x, y}$). Also indicate on your graph whether the indifference curve will intersect either or both axes. Label the curve U_1 . [5 marks]
- c) What does the assumption that preferences are complete mean about the consumer's ability to rank any two baskets? [2 marks]
- d) Give an example of preferences that do not satisfy the assumption that preferences are transitive. [2 marks]

QUESTION FOUR**[25 marks]**

Suppose Cola and Pepsi's demand curves are given by $Q_1 = (64 + 2P_2) - 4P_1$ and $Q_2 = (50 + P_1) - 5P_2$, respectively. Coca-Cola's marginal cost is \$5 per unit, and Pepsi's marginal cost is \$4 per unit

- a) What is Coca-Cola's profit-maximizing price when Pepsi's price is \$8? [7 marks]
- b) What is the equation of Coca-Cola's price reaction function (i.e., Coca-Cola's profit-maximizing price when Pepsi sets an arbitrary price P_2)? [8 marks]
- c) What are Coca-Cola's and Pepsi's profit-maximizing prices and quantities at the Bertrand equilibrium? [10 marks]

All the best