NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF COMMERCE, HUMAN SCIENCES AND EDUCATION

DEPARTMENT OF ECONOMICS, ACCOUNTING AND FINANCE

QUALIFICATION: BACHELOR OF ECONOMICS HONOURS	
QUALIFICATION CODE: 08BECH	**LEVEL: 8**
COURSE CODE: IEC820S	**COURSE NAME**: INDUSTRIAL ECONOMICS
SESSION: NOVEMBER 2024	**PAPER:** THEORY
DURATION: 3 HOURS	**MARKS:** 100

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER(S)	**Ms K. Kavezeri**
MODERATOR:	**Dr E. Tingum**

INSTRUCTIONS
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 7 PAGES (including this front page)

QUESTION 1 **[10 Marks]**

Select the letter that best represents your answer.

1. **A market with few entry barriers and with many firms that sell differentiated products is:**

a) A) purely competitive.

b) A monopoly.

c) Monopolistically competitive.

d) Oligopolistic.

e) None of the answers above is correct.

2. **When average total cost is at a minimum,**

a) Marginal cost is also at a minimum.

b) The firm is experiencing constant returns to scale.

c) Marginal cost is constant.

d) Average cost is equal to marginal cost.

e) The firm is maximizing its profit.

3. **Oligopoly differs from other forms of market structure (monopoly and perfect competition) because**

a) Firms frequently engage in collusion.

b) Firms are protected by high barriers to entry.

c) Firms' decisions have direct effects on their rivals' profits.

d) Firms' price decisions are extremely limited.

e) All of the answers above are correct.

4. Which of the following is true for both perfectly competitive and monopolistically competitive firms in the long run?

a) P = MC.

b) MC = ATC.

c) P > MR.

e) Profit equals zero

e) Sells differentiated products.

5. The Cournot model concludes that the equilibrium price in a duopoly will be

a) The same as the monopoly price.

b) Higher than the monopoly price.

c) Lower than the competitive-industry price.

d) Set by collusive agreement between the firms.

e) Between the competitive-industry price and the monopoly price.

6. In the Cournot model of quantity competition, as the number of firms increases, total industry output

a) Declines asymptotically.

b) Grows indefinitely.

c) Approaches the equilibrium output of perfect competition.

d) Approaches the profit-maximizing output of a pure monopoly.

e) Approaches the output of a cartel.

7. The model of the kinked demand curve implies that

a) Strong brand loyalty means there is little incentive for firms to cut price.

b) Free entry will eventually reduce economic profits to zero.

c) A firm's competitors will follow it in a price decrease but not in a price increase.

d) Firms will coordinate prices so as to maximize group profit.

e) Rivals will match any price increases but tend to ignore any price cuts a firm makes.

8. **The model of the kinked demand curve is used to explain**

a) Advertising battles to build brand loyalty.

b) Sales maximization.

c) Price wars.

d) Sticky prices in oligopolies.

e) Collusive price agreements.

9. **Under Bertrand competition,**

a) The firm setting the higher price attains a low market share.

b) The firm setting the lower price claims the entire market.

c) The total output supplied by the firms determines the market price.

d) Firms compete on multiple dimensions: quantity, price, and advertising.

e) Firms face kinked demand curves.

10. **In the paradigm of the prisoner's dilemma,**

a) Participants' interests are strictly opposed.

b) Neither side has a dominant strategy.

c) Pursuit of each person's self-interest leads to a poor group outcome.

d) Cooperation is achieved by the freedom to communicate.

e) None of the answers above is correct.

QUESTION 2 **[25 Marks]**

1. A firm's total cost function is given by the equation:

   $TC = 4000 + 5Q + 10Q^2$.

   Write an expression for each of the following cost concepts:

   (a) Total Variable Cost (2)

   (b) Average Variable Cost (2)

   (c) Average Total Cost (2)

   (d) Marginal Cost (2)

2. Suppose the airline industry consisted of only two firms: American and Texas Air Corp. Let the two firms have identical cost functions, $C(q) = 40q$. Assume the demand curve for the industry is given by $P = 100 - Q$ and that each firm expects the other to behave as a Cournot competitor.

   (a) Calculate the Cournot-Nash equilibrium for each firm, if each chooses the output level that maximizes its profits when taking its rival's output as given. First, find the reaction function for each firm; then solve for price and quantity. (12)

   (b) What are the profits of each firm? (2)

   (c) Define the Cournot model. (3)

QUESTION 3 **[25 Marks]**

1. Amore and Joana Airlines (AJ Airlines) fly only one route: Windhoek-Oranjemund. The demand for each flight is $Q = 500 - P$. AJ Airlines' cost of running each flight is **N$30,000** plus **N$100** per passenger.
   (a) What is the profit-maximizing price that AJ Airlines will charge? How many people will be on each flight? What is AJ Airlines' profit for each flight? (10)
   (b) AJ Airlines find out that two different types of people fly to Oranjemund from Windhoek. Type ***A*** consists of business people with a demand of $Q_A = 260 - 0.4P$. Type ***B*** consists of NUST Geology and Mining Engineering students who have to travel regularly for their practical learning. Their total demand is $Q_B = 240 - 0.6P$. Because the students are easy to spot, AJ Airlines decide to charge them different prices.
      i. How many people of each type are on each flight? What price should AJ Airlines charge the students? What price should it charge other customers? (10)
      ii. What would AJ Airlines' profit be for each flight? (3)
   (c) Do you think that it is a good idea for AJ Airlines to use price discrimination? (2)

QUESTION 4 **[40 Marks]**

1. Two computer firms, *A* and *B*, are planning to market network systems for office information management. Each firm can develop either a fast, high-quality system (High), or a slower, low-quality system (Low). Market research indicates that the resulting profits to each firm for the alternative strategies are given by the following payoff matrix:

		Firm *B*	
		High	*Low*
Firm *A*	*High*	50, 40	60, 45
	Low	55, 55	15, 20

(a) If both firms make their decisions at the same time and follow *maximin* (low-risk) strategies, what will the outcome be? (12)

(b) Suppose that both firms try to maximize profits, but that Firm *A* has a head start in planning and can commit first. Now what will be the outcome? (4)

(c) What will be the outcome if Firm *B* has the head start in planning and can commit first? (4)

2. Briefly describe the Structure-Conduct-Performance (SCP) paradigm. (10)
3. Define tying as a pricing strategy and briefly discuss its benefits. (10)

TOTAL = 100 MARKS