



# NAMIBIA UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF COMMERCE, HUMAN SCIENCES & EDUCATION

DEPARTMENT OF ECONOMICS, ACCOUNTING AND FINANCE

BACHELOR OF ECONOMICS HONOURS

(08BECH)

INDUSTRIAL ECONOMICS (IEC8205)

DATE: November 2023  
DURATION: 3 Hours  
MARKS: 100

## FIRST OPPORTUNITY EXAMINATION QUESTION PAPER

EXAMINER	Prof. T. KAULIHOWA (Namibia University of Science and Technology)
MODERATOR	Dr. E. TINGUM (University of Namibia)

1. This paper consists of 4 pages, excluding this cover page.
2. Calculators are allowed.
3. ***There are five (5) questions, answer any 4 questions***
4. Show all your workings and round off only the final answers to 2 decimal places

This paper consists of 5 pages including this cover page and the tables

- a) The Namibia Competition Commission has hired you to analyse the market for rental cars. A survey of clients of the top 2 car rental firms (constituting 60% of all rentals) at Hosea Kutako International Airport reveals significant variation in the rental rates charged to different clients of the same firm. The rental rates vary substantially across various dimensions: across days of the week (with week-end rentals substantially lower than daily rental Monday - Thursday), over rental periods (one-day v. week-end v. weekly v. monthly), and across car models. Furthermore, the car rental industry is characterised by many promotional rates used by different clients (corporate discounts, advertised specials, advance reservation rates, etc.). This implies that car rentals that appear to have identical characteristics (day of week, length of rental, model of car) often entail different prices. Use the Structure-Conduct-Performance paradigm to discuss possible explanations for non-uniform **pricing strategies** and their implication for consumer welfare. [10]
- b) Patents generate monopolies, and society would be better served by eliminating patents for innovations. Discuss if this statement is true /false. [5]
- c) According to the Chicago School of thought, larger firms are unlikely to abuse market power in the long run. Discuss. [5]
- d) Assume a sequential game where two companies, A and B, must decide each month whether to spend \$10 million on advertising or not. If in the first month, one company spends the \$10 million and the other does not, the game is over: the first company becomes a monopolist worth \$100 million, and the second company looks for something else to do. If neither company invests \$10 million in the first month, the game is likewise over, with neither company losing or making money. However, if both companies spend \$10 million in the first month, neither one wins anything. We then move to the second month, where again each company must decide whether to spend \$10 million. If both companies again spend \$10 million, we move to the third month, and so on. If, at the start of some month, one of the companies spends \$10 million and the other does not, the first company wins the \$100 million prize. But of course, many months (and much money) could go by before this happens. Suppose you are Company A and one of your classmates is Company B. Collusion is not permitted. All you can do is decide whether (and how) to play the game. What should you do in this situation?

[5]

**Question 2**

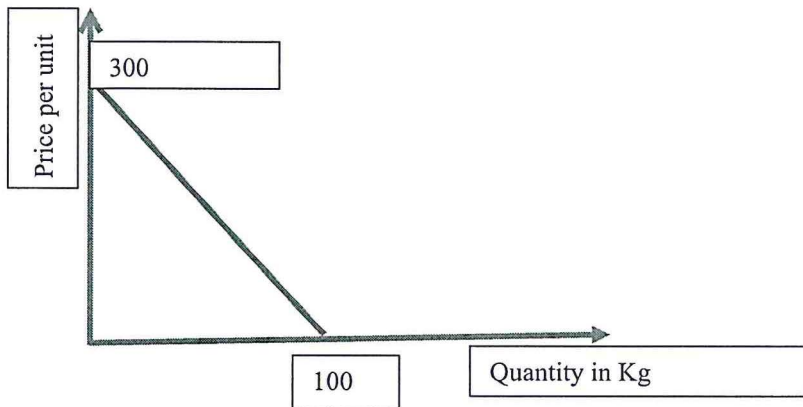
**25 Marks**

- a) Assume that Namibia’s telecommunication Industry is represented by the following cost function.  $C(q_1, q_2) = 10 + q_1 + 5q_2 - 4q_1 q_2$ . Where  $q_1$  denotes MTC output and  $q_2$  represents Telecom Namibia output. Further to this, assume that Ray’s average costs (RAC) adopt  $\lambda_1 = 0.6$  production ratio. Use Ray’s average cost of multi-product firms to determine if the telecommunication industry exhibits a global economy or diseconomies of scale. Where . Show all your steps. [10]
  
- b) Consider an industry with 6 firms. There are 2 firms, each with a 30% market share, with 4 firms sharing the remainder. Assume that the Total Industry output measured using revenue is approximately N\$ 1 million. Calculate the Herfindahl-Hirschman Index (HHI) and discuss any two demerits of using this method to measure Market Concentration. Where; . [10]
  
- c) Use the information in 2 above to calculate and interpret the CR2. Where [5]

**Question 3**

**25 Marks**

- 1. A new local green hydrogen company XYZ has market power and is characterized by the downward-sloping demand curve depicted below. It’s marginal cost identity is expressed; . Answer the following questions.



- a) Calculate XYZ profit-maximizing output and price. [5]
  
- b) Due to supply chain disruptions, XYZ demand decreases to . Calculate XYZ profit-maximizing level of output and price. Comment on how this compares with your answer in a) above. [5]

- c) Draw a diagram showing the above two outcomes. Holding the marginal cost constant, discuss how the shape of the demand curve affects XYZ's ability to exercise market power (i.e. charge high price). [5]
2. Suppose that the Bank Windhoek Ltd made an offer to acquire Letshego Bank that consists of the purchase of 4 million shares at \$10 per share. The value of Letshego Bank shares before the bid was made public was \$8 per share. Bank Windhoek shares are trading at \$20 per share, and there are 8 million shares outstanding. Bank Windhoek estimates that it is likely to reduce costs through economics of scale with this merger of \$1 million per year, forever. The appropriate discount rate for these gains is assumed to be 10%. Answer the following question.
- a) Calculate the synergistic gains from this merger? [2]  
 b) What is the estimated value of the Bank Windhoek post-merger? [5]  
 c) Briefly discuss if this proposed merger is likely to be approved/rejected by the regulator [3]

**Question 4**

**25 Marks**

1. Assume an oligopolistic industry with two identical firms (MTC-Namibia & Paratus) with inverse demand function  $P = 62 - 2Q$  and total cost functions , . Where  $q_1$  &  $C_1$  are the quantity and cost for MTC-Namibia and  $q_2$  &  $C_2$  represent quantity & cost for Paratus respectively. Answer the following questions.
- a) Assume MTC has a first-mover advantage to set prices and Paratus follows. What are the equilibrium values of profit and quantities for each firm? [10]
- b) Use the Lerner index to determine the level of market power and discuss its implication to the Structure Contact Performance Paradigm. [3]
- c) Calculate the welfare loss (WL) arising from market power, where ; and represents price elasticity of demand. [4]
2. Consider a differentiated product duopoly game in which firms have three price strategies: C=collusion, B=Bertrand and W= price war. Pay-offs for the two firms are given below in order. Where; denotes profit. Answer the subsequent questions.

	<b>Firm<sub>2</sub> strategies</b>
--	------------------------------------

Firm <sub>1</sub> strategies	C	B	W
C	2; 2	0; 5	-1; 5
B	5; 0	2; 2	-1; 1
W	5, -1	2; -1	0; 0

- a) What is the dominant strategy for each player? [2]
- b) What is the Nash Equilibrium/equilibria if the game is played only once? [2]
- c) Is there any sub-perfect equilibrium? Motivate your answer. [4]

---

**Question 5**

**25 marks**

1. Namib Poultry PTY LTD wants to impose an exclusive dealing clause with retailers. Discuss the market power effects of this practice on both the consumer and upstream competition. [9]
2. Explain the basic determinants of market structure and key issues for competition policy and regulation. [8]
3. It is often argued that monopoly firms are bad due to their inability to ensure allocative and productive efficiencies. Discuss the implications of National utility companies such as NAMPOWER & NAMWATER on static and dynamic efficiencies. [8]

\*\*\*\*