



“Investing in Africa’s future”

COLLEGE OF BUSINESS, PEACE, LEADERSHIP AND GOVERNANCE

NMEC 101: ECONOMIC PRINCIPLES 1

END OF SEMESTER EXAMINATION

NOVEMBER 2021

LECTURER: MR T. MASESE

DURATION: 5 HOURS

INSTRUCTIONS

Answer any two questions

DO NOT repeat material.

Credit is given to application of theory and practice

Question 1

- a. Assume that Zimbabwe produces only military goods and consumer goods, which are referred to as ‘guns’ and ‘butter’.
- Draw a production possibilities frontier for guns and butter. Explain why it most likely has a bowed out shape **(4 marks)**
 - Show point M that is impossible for the economy to achieve. Show a point U that is feasible but inefficient. **(2 marks)**
 - Zimbabwe has two political parties, called the Hawks (who want a strong military) and the Doves (who want a smaller military). Show a point Z on your production possibilities frontier that the Hawks might choose and a point D the Doves might choose **(2 marks)**
 - Imagine that an aggressive neighboring country reduces the size of its military. As a result, both the Hawks and the Doves reduce their desired production of guns by the same amount. Which party would get the bigger “peace dividend,” measured by the increase in butter production? Explain. **(4 marks)**
 - How would the Production Possibility Frontier (PPF) model illustrate scarcity, opportunity cost, efficiency discovery of new resources and improved technology in the production of guns whilst the technology for butter remains constant? **(5 marks)**
- b. What is price discrimination? Give two examples of price discrimination. In each case, explain why the monopolist chooses to follow this business strategy. Under what conditions is price discrimination possible **(8 marks)**
- c. With the aid of an appropriate demand and supply diagram explain each of the following scenarios:
- Beer and pizza are complements because they are often enjoyed together. When the price of beer rises, what happens to the supply, demand, quantity supplied, quantity demanded, and the price in the market for pizza? **(4 marks)**
 - Popeye’s income declines and, as a result, he buys more spinach. Is spinach an inferior or a normal good? What happens to Popeye’s demand curve for spinach? **(4 marks)**
 - When a cold snap hits Beit Bridge, a citrus growing area, the price of orange juice rises in supermarkets throughout the country **(3 marks)**
 - When a war breaks out in the Middle East, the price of petrol rises, while the price of a used cars falls **(4 marks)**

Question 2

- a. Consider the market for minivans. For each of the events listed here, identify which of the determinants of demand or supply are affected. Also indicate whether demand or supply is increased or decreased. Using a demand and supply diagram, show the effect of each event on the price and quantity of minivans.
- i. People decide to have more children. **(3 marks)**
 - ii. A strike by steelworkers raises steel prices. **(3 marks)**
 - iii. Engineers develop new automated machinery for the production of minivans **(3 marks)**
 - iv. The price of station wagons rises **(3 marks)**
 - v. A stock-market crash lowers people's wealth **(3 marks)**
- b. An article in *The Zimbabwean Times* described a successful marketing campaign by the Zimbabwean wine industry. The article noted that "many executives felt excited about the very wine prices. But they also feared that such sharp price increases would cause demand to decline, which would then cause prices to fall sharply." What mistake are the executives making in their analysis of the situation? What should be the correct analysis? Illustrate your answer with a graph **(6 marks)**
- c. Suppose the Clean Springs Water Company has a monopoly on bottled water sales in Mutare. If the price of tap water increases, what is the change in Clean Springs' profit-maximizing levels of output, price, and profit? Explain in words and with a graph. **(5 marks)**
- d. Bob's lawn-mowing service is a profit-maximizing, competitive firm. Bob mows lawns for \$27 each. His total cost each day is \$280, of which \$30 is a fixed cost. He mows 10 lawns a day. What can you say about Bob's short-run decision regarding shut down and his long run decision regarding exit? What are the main characteristics of a perfectly competitive market? **(8 marks)**
- e. The government has decided that the free-market price of cheese is too low.
- i. Suppose the government imposes a binding price floor in the cheese market. Use a supply-and demand diagram to show the effect of this policy on the price of cheese and the quantity of cheese sold. Is there a shortage or surplus of cheese? **(3 marks)**
 - ii. Farmers complain that the price floor has reduced their total revenue. Is this possible? Explain. **(1 mark)**
 - iii. In response to farmers' complaints, the government agrees to purchase all of the surplus cheese at the price floor. Compared to the basic price floor, who benefits from this new policy? Who loses? **(2 marks)**

Question 3

- a. Define natural monopoly? What barriers to entry help maintain a monopoly? What does the size of a market have to do with whether an industry is a natural monopoly? Draw the demand, marginal-revenue, and marginal-cost curves for a monopolist. Show the profit-maximizing level of output. Show the profit-maximizing price.

(10 marks)

- b. Suppose that a market is described by the following supply and demand equations:

$$Q_S = 2P$$

$$Q_D = 300 - P$$

- i. Solve for the equilibrium price and the equilibrium quantity (4 marks)
- ii. Suppose that a tax of T is placed on buyers, so the new demand equation is: $Q_D = 300 - (P - T)$. Solve for the new equilibrium. What happens to the price received by sellers, the price paid by buyers, and the quantity sold? (4 marks)
- c. Nimbus, Inc., makes brooms and then sells them door-to-door. Here is the relationship between the number of workers and Nimbus's output in a given day:

Workers	Output	Marginal Product	Total Cost	Average Total Cost	Average Total Cost	Marginal Cost
0	0					
1	20					
2	50					
3	90					
4	120					
5	140					
6	150					
7	155					

- i. Fill in the column of marginal products. What pattern do you see? How might you explain it? (4 marks)
- ii. A worker costs \$100 a day, and the firm has fixed costs of \$200. Use this information to fill in the column for total cost. (4 marks)
- iii. Fill in the column for average total cost. What pattern do you see? (4 marks)
- iv. Now fill in the column for marginal cost. What pattern do you see? (4 marks)
- v. Compare the column for marginal product and the column for marginal cost. Explain the relationship. (2 marks)
- vi. Compare the column for average total cost and the column for marginal cost. Explain the relationship. (2 marks)
- d. Is the price elasticity of supply usually larger in the short run or in the long run? Why? (2 marks)

Question 4

- a. *The Herald* reported (Feb. 17, 2020, p. 25) that ZUPCO ridership declined after a fare increase: “There were nearly four million fewer passengers in December 2019, the first full month after the price of a ticket increased 25 cents to \$1.50, than in the previous December, a 4.3 percent decline.”
- Use these data to estimate the price elasticity of demand for subway rides.
(3 marks)
 - According to your estimate, what happens to the ZUPCO’s revenue when the fare rises? Why might your estimate of the elasticity be unreliable? (3 marks)
 - Explain the relationship between total revenue and the price elasticity of demand
(3 marks)
- b. Consider public policy aimed at smoking.
- Studies indicate that the price elasticity of demand for cigarettes is about 0.4. If a pack of cigarettes currently costs \$2 and the government wants to reduce smoking by 20 percent, by how much should it increase the price? (3 marks)
 - If the government permanently increases the price of cigarettes, will the policy have a larger effect on smoking one year from now or five years from now? Explain
(3 marks)
 - Studies also find that teenagers have a higher price elasticity than do adults. Why might this be true?
(3 marks)
- c. Consider total cost and total revenue given in the table below:

Quantity								
	0	1	2	3	4	5	6	7
Total Cost	8	9	10	11	13	19	27	37
Total Revenue	0	8	16	24	32	40	46	56

- Calculate profit for each quantity. How much should the firm produce to maximize profit?
(8 marks)
 - Calculate marginal revenue and marginal cost for each quantity. Can you tell whether this firm is in a competitive industry? If so, can you tell whether the industry is in a long-run equilibrium?
(8 marks)
- d. Economists have observed that spending on restaurant meals declines more during economic downturns than does spending on food to be eaten at home. How might the concept of elasticity help to explain this phenomenon?
(4 marks)
- e. If demand is elastic, how will an increase in price change total revenue? Explain.
(2 marks)

END OF EXAMINATION
