S5 Economics Practice Paper: Price Elasticity and Total Revenue, Price Ceiling and Shortage, Costs and Economies of Scale, Monopoly Profit Maximisation, Real GDP Growth, Unit Tax and Subsidy

S5 | Economics | Time: 75 minutes | Total: 100 marks | 24 questions

Section A: Price elasticity and total revenue

Answer all parts and show your working.

1. A good's price falls from $20 to $18 and quantity demanded rises from 100 to 120 units. Using the initial-value method, calculate the price elasticity of demand (PED) and state whether demand is elastic or inelastic.

2. Using the same figures, calculate total revenue (TR) before and after the price cut, and explain the change in TR using the elasticity value.

3. For another good, price rises by 10% and quantity demanded falls by 4%. Find its PED, state the elasticity, and calculate the percentage change in total revenue.

4. Explain why demand is usually more elastic in the high-price range of a straight-line demand curve, and state the implication for a firm's pricing.

Section B: Price ceiling and shortage

In a market, demand is Qd = 120 - 2P and supply is Qs = 20 + 2P (quantity in thousand units, price in dollars).

5. Find the equilibrium price and quantity.

6. If the government sets a price ceiling of $20, find quantity demanded, quantity supplied and the size of the shortage.

7. Under the ceiling, what quantity is actually traded and what is consumers' total spending?

8. State two forms of non-price competition that a price ceiling may cause, and explain its efficiency (deadweight loss) effect.

Section C: Costs, average cost and economies of scale

A firm's total cost function is TC = 500 + 20Q + 0.5Q^2 (in dollars).

9. State the fixed cost, and calculate total cost and average cost at Q = 20.

10. Calculate average cost at Q = 40 and use the two average cost figures to explain economies of scale.

11. Derive the marginal cost (MC) function and calculate MC at Q = 20 and Q = 40.

12. If the market price is $55, should the firm expand output at Q = 20? Explain with marginal analysis.

Section D: Profit maximisation of a monopolist

A monopolist faces demand P = 100 - 2Q and has total cost TC = 20Q + 100 (in dollars).

13. Derive the total revenue (TR) and marginal revenue (MR) functions.

14. Find the profit-maximising output and price, stating the condition used.

15. Calculate total profit at that output.

16. If the market were perfectly competitive (pricing at P = MC), find output and the deadweight loss relative to the monopoly outcome.

Section E: Nominal and real GDP

An economy's nominal GDP was 2,800 billion dollars in 2023 and 3,024 billion in 2024; the GDP deflator was 100 in 2023 and 105 in 2024; population in 2024 was 7.2 million.

17. Calculate real GDP for 2024 (base year 2023).

18. Calculate the real GDP growth rate from 2023 to 2024 (to two decimal places).

19. Calculate real GDP per capita in 2024.

20. Calculate the nominal GDP growth rate and explain why it differs from the real growth rate.

Section F: Unit tax and subsidy

In a market, demand is Qd = 200 - 5P and supply is Qs = 10 + 5P (quantity in thousand units, price in dollars).

21. Find the equilibrium price and quantity before any tax.

22. The government imposes a unit tax of $4 per unit on sellers. Find the new market price and quantity traded.

23. Calculate the per-unit tax burden borne by consumers and by producers, and the government's tax revenue.

24. Suppose instead the government pays sellers a unit subsidy of $3. Find the new market price, quantity traded and the government's subsidy outlay.

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