S6 Economics Practice Paper (Set 2)

S6 | Economics | Time: 75 minutes | Total: 100 marks | 24 questions

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Part A Elasticity of Demand and Supply (16 marks)

Answer all questions and show your working.

1. The price of a good falls from $20 to $18 and quantity demanded rises from 100 to 120 units. Using the arc (midpoint) formula, calculate the price elasticity of demand and state the effect of the price cut on total revenue. [4]

Answer: Ed = (0.1818) / (-0.1053) = 1.73, elastic (>1); total revenue rises from $2000 to $2160, so the price cut raises revenue.

2. A consumer's income rises by 6%% and quantity demanded of a good rises by 9.6%%. Find the income elasticity and classify the good. [4]

Answer: YED = 9.6% / 6% = 1.6, a normal luxury good (YED > 1).

3. The price of good B rises by 12%% and quantity demanded of good A falls by 4.8%%. Find the cross elasticity and state the relationship between A and B. [4]

Answer: XED = -4.8% / 12% = -0.4; the negative sign means A and B are complements.

4. The price of a good rises from $40 to $50 and quantity supplied rises from 180 to 240 units. Use the arc formula to find the price elasticity of supply. [4]

Answer: Es = (0.2857) / (0.2222) = 1.29, supply is elastic (>1).

Part B Price Ceiling, Per-unit Tax, Quota and Subsidy (16 marks)

In a market, demand is Qd = 300 - 4P and supply is Qs = -40 + 6P (price in dollars, quantity in units).

5. Find the equilibrium price and quantity. [4]

Answer: 300 - 4P = -40 + 6P gives 10P = 340, so P = $34 and Q = 164 units.

6. The government imposes a price ceiling of $30. Find the shortage. [4]

Answer: Qd = 180, Qs = 140, so the shortage is 40 units.

7. In another market, Qd = 500 - 5P and Qs = -100 + 5P. The government levies a per-unit tax of $8 on sellers. Find the new price, quantity, tax revenue and deadweight loss. [4]

Answer: New supply is Qs = -140 + 5P, so P = $64, Q = 180; tax revenue = 8 x 180 = $1440; deadweight loss = 0.5 x 8 x 20 = $80.

8. In the same market (Qd = 500 - 5P, Qs = -100 + 5P) a quota of 150 units is imposed instead. Find the quota price and total quota rent. [4]

Answer: From demand, 150 = 500 - 5P, so P = $70; quota rent = (70 - 60) x 150 = $1500.

Part C Subsidy, Short-run Costs and Profit Maximisation (17 marks)

Answer all questions showing your calculations.

9. In the same market (Qd = 500 - 5P, Qs = -100 + 5P) the government gives sellers a subsidy of $6 per unit. Find the new consumer price, quantity traded and total subsidy cost. [5]

Answer: New supply Qs = -70 + 5P, so P = $57.0 and Q = 215; subsidy cost = 6 x 215 = $1290; consumers gain $3 per unit (50% of the subsidy).

10. A firm has total fixed cost $600; at 20 units total variable cost is $1400; at 19 units total cost is $1,900. Find average fixed cost, average variable cost, average cost and marginal cost at 20 units. [4]

Answer: TC = $2000; AFC = $30, AVC = $70, AC = $100; MC = 2000 - 1900 = $100.

11. A firm has total cost $TC = 200 + 20Q + 2Q^2$ and sells in a market where the price is $100 (the firm is a price taker). Find the profit-maximising output and profit. [4]

Answer: MC = 20 + 4Q = 100, so Q = 20; TC = $1400, TR = $2000, profit = $600.

12. A firm faces a price of $15, average variable cost of $18, total fixed cost of $800 and current output of 40 units. Should it keep producing or shut down in the short run? Find the loss on shutdown. [4]

Answer: P < AVC (15 < 18), so the firm should shut down; the loss from producing is 800 + (18 - 15) x 40 = $920, worse than the $800 loss on shutdown.

Part D Market Structure and Concentration (17 marks)

Answer all questions.

13. A monopolist has marginal cost of $60 and faces a price elasticity of demand (absolute value) of 4. Using the markup formula P = MC / (1 + 1/Ed), find the profit-maximising price. [4]

Answer: P = 60 / (1 - 0.25) = $80, a markup of $20 over marginal cost.

14. The market shares of the five firms in an industry are 40%%, 25%%, 20%%, 10%% and 5%%. Calculate the Herfindahl-Hirschman Index (HHI). [4]

Answer: HHI = 1600 + 625 + 400 + 100 + 25 = 2750, which indicates a highly concentrated market (HHI > 2,500).

15. If the firms with 10%% and 5%% shares merge, find the new HHI and the change. [4]

Answer: After the merger the shares are 40%, 25%, 20% and 15%: HHI = 2850, up 100 points (below the 200-point safe harbour).

16. A firm practises third-degree price discrimination with constant marginal cost of $20; the absolute elasticity is 2 in market A and 5 in market B. Find the price in each market. [5]

Answer: Market A: P = 20 / (1 - 0.5) = $40; market B: P = 20 / (1 - 0.2) = $25; the less elastic market pays more.

Part E National Income and the Multiplier (17 marks)

Assume a closed economy with a marginal propensity to consume of 0.8.

17. Autonomous investment rises by $50. Find the expenditure multiplier and the change in national income. [4]

Answer: k = 1 / (1 - 0.8) = 5; ΔY = 50 x 5 = $250.

18. The government cuts taxes by $25. Find the tax multiplier and the change in national income. [4]

Answer: Tax multiplier = -0.8 / 0.2 = -4; a tax cut of 25 gives change in Y = 25 x 4 = $100.

19. Potential output is $1200 and actual output is $1100. Find the deflationary gap and the rise in autonomous spending needed to close it. [5]

Answer: Gap = 1200 - 1100 = $100; required injection = 100 / 5 = $20.

20. The consumer price index rises from 105 to 109.2. Find the inflation rate. [4]

Answer: Inflation = (109.2 / 105 - 1) x 100% = 4.0%.

Part F Money, Banking and Inflation (17 marks)

Answer all questions.

21. The banking system receives $1000 of new deposits. The required reserve ratio is 20%, with no cash leakage or excess reserves. Find total deposits and newly created deposits. [4]

Answer: Total deposits = 1000 / 0.2 = $5000; new deposits = 5000 - 1000 = $4000.

22. An economy has $300 of cash, $700 of demand deposits, $500 of savings deposits and $800 of time deposits. Find M1 and M2. [4]

Answer: M1 = 300 + 700 = $1000; M2 = 1000 + 500 + 800 = $2300.

23. The nominal interest rate is 6.5% and inflation is 4.0%. Use the exact formula to find the real interest rate. [4]

Answer: Real rate = (1.065 / 1.04 - 1) x 100% = 2.40% (approximately 6.5% - 4.0%).

24. A person deposits $100000 at 3% a year while inflation is 5%. Find the real purchasing power after one year and the loss of purchasing power. [5]

Answer: Real value = 100000 x 1.03 / 1.05 = $98095.24; loss = 100000 - 98095.24 = $1904.76.
