S5 Economics Practice Paper: Basic Economic Concepts and Opportunity Cost, Demand, Supply and Elasticity, Market Structure and Firm Behaviour, Production Costs and Economies of Scale, National Income and Macroeconomic Policy, Money, Banking and International Trade

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

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Part A: Basic Economic Concepts and Opportunity Cost (18 marks)

Show your working and include units.

1. A student earns $60 per hour and gives up two hours of part-time work to study for three hours. Find the opportunity cost of studying in money terms. [5]

Answer: Opportunity cost = 2 x 60 = $120; the length of study time affects time use only, not the money value of the cost.

2. A machine costs $80,000, has a useful life of 4 years and a scrap value of $8,000. Find the annual depreciation using the straight-line method. [5]

Answer: Annual depreciation = (80,000 - 8,000) / 4 = $18,000.

3. An investor buys shares for $5,000, sells them a year later for $5,600 and receives $150 of dividends. Find the rate of return. [4]

Answer: Return = (5,600 - 5,000) + 150 = $750; rate of return = 750 / 5000 x 100% = 15.0 percent.

4. Explain the difference between a free good and an economic good, and give one example of each. [4]

Answer: A free good is so abundant that all wants for it can be met at zero cost, so its opportunity cost is zero, for example sunlight or air. An economic good is scarce relative to wants, so resources must be given up to obtain it and its opportunity cost is positive, for example a textbook or a smartphone.

Part B: Demand, Supply and Price Elasticity (17 marks)

Give elasticity answers to two decimal places.

5. The price of a good falls from $20 to $16 and quantity demanded rises from 100 to 130 units. Using the arc (midpoint) formula, find the price elasticity of demand, in absolute value. [5]

Answer: Percentage change in quantity = 30 / 115 = 0.2609; percentage change in price = 4 / 18 = 0.2222; elasticity = 0.2609 / 0.2222 = 1.17, so demand is elastic.

6. The price elasticity of demand for a good is 2.5 in absolute value. If price rises by 8 percent, find the percentage change in quantity demanded and its direction. [4]

Answer: Change in quantity = -2.5 x 8 percent = 20 percent, so quantity demanded falls by 20 percent.

7. The price rises from $40 to $56 and quantity supplied rises from 200 to 260 units. Using the arc formula, find the price elasticity of supply. [4]

Answer: Percentage change in quantity supplied = 60 / 230 = 0.2609; percentage change in price = 16 / 48 = 0.3333; elasticity = 0.78, which is inelastic (below 1).

8. The government sets a price ceiling for a good below the equilibrium price. Explain two effects on the market. [4]

Answer: First, excess demand (a shortage) appears because quantity demanded exceeds quantity supplied. Second, queuing, rationing or black markets may emerge, allocation is no longer guided by price, and producers may cut quality.

Part C: Market Structure and Firm Behaviour (17 marks)

State profit with its sign.

9. A perfectly competitive firm produces 500 units at a price of $12. Total cost is $6,400, of which $900 is fixed cost. Find its profit and decide whether it should keep producing in the short run. [5]

Answer: Total revenue = 12 x 500 = $6,000; profit = 6,000 - 6,400 = -$400 (a loss of $400). Average variable cost = 5,500 / 500 = $11, below the price of $12, so revenue still covers variable cost and the firm should keep producing in the short run.

10. A monopolist faces the demand curve P = 100 - 2Q. Find the output and price at which total revenue is maximised. [4]

Answer: Total revenue TR = 100Q - 2Q squared, so marginal revenue MR = 100 - 4Q. Setting MR = 0 gives Q = 25 and P = 100 - 2 x 25 = $50, where TR = $1,250.

11. A firm has fixed cost of $1,200, variable cost of $8 per unit and sells at $14 per unit. Find the break-even output. [4]

Answer: Contribution per unit = 14 - 8 = $6; break-even output = 1,200 / 6 = 200 units.

12. Explain why firms in an oligopoly watch rivals' reactions closely when setting prices. [4]

Answer: An oligopoly has only a few firms whose strategies are interdependent: a price cut by one firm takes market share from rivals, who are likely to match it, starting a price war that lowers profits for all. Firms therefore prefer non-price competition such as branding, advertising and after-sales service, and they anticipate rivals' reactions before setting prices.

Part D: Production, Costs and Economies of Scale (16 marks)

Include units in your answers.

13. A firm produces 60 units with 4 workers and 72 units with 5 workers. Find the marginal product of the fifth worker. [4]

Answer: Marginal product = 72 - 60 = 12 units.

14. A firm has total fixed cost of $600 and total cost of $2,200 at an output of 200 units. Find average total cost and average variable cost. [4]

Answer: Average total cost = 2,200 / 200 = $11; total variable cost = 2,200 - 600 = $1,600; average variable cost = 1,600 / 200 = $8.

15. When a firm doubles all its inputs, output rises from 100 to 250 units. Find the percentage increase in output and state the type of returns to scale. [4]

Answer: Increase in output = (250 - 100) / 100 x 100 percent = 150 percent. Output rises by 150 percent while inputs rise by 100 percent, so this is increasing returns to scale (economies of scale).

16. Explain how division of labour raises productivity, and give one production example. [4]

Answer: Division of labour lets each worker specialise in one task, so skill and speed improve; time lost in switching tools and tasks is cut; specialised machinery can be used; and standardised tasks are easier to control for quality. Example: a garment factory separates cutting, sewing, buttoning and pressing among different workers, giving higher output per worker than each person making a whole shirt.

Part E: National Income and Macroeconomic Policy (16 marks)

All amounts are in $100 million; give whole numbers.

17. An economy has consumption C = 200 + 0.8Y, investment I = 300 and government spending G = 250. Find the equilibrium national income Y. [4]

Answer: Y = C + I + G = 200 + 0.8Y + 300 + 250; Y - 0.8Y = 750; 0.2Y = 750; so Y = 3750 hundred million dollars.

18. The marginal propensity to consume is 0.8. Find the expenditure multiplier and the total rise in national income if investment increases by 500 hundred million dollars. [4]

Answer: Multiplier = 1 / (1 - 0.8) = 5; rise in national income = 500 x 5 = 2500 hundred million dollars.

19. Nominal GDP in a year is 1,200 hundred million dollars and the price index is 125 (base year = 100). Find real GDP. [4]

Answer: Real GDP = nominal GDP / (price index / 100) = 1,200 / 1.25 = 960 hundred million dollars.

20. An economy has a labour force of 400 people (in tens of thousands) and 24 unemployed. Find the unemployment rate and explain why hidden unemployment is not counted in it. [4]

Answer: Unemployment rate = 24 / 400 x 100 percent = 6 percent. Hidden unemployment, such as people forced into part-time work or discouraged workers who have left the labour force, does not meet the official definition of unemployment, so the unemployment rate understates how much labour is idle.

Part F: Money, Banking and International Trade (16 marks)

Include units in your answers.

21. The required reserve ratio is 0.2 and the banking system holds 1,000 hundred million dollars of initial deposits. Find the maximum total deposits that can be created and the new deposits created. [4]

Answer: Maximum total deposits = 1,000 / 0.2 = 5,000 hundred million dollars; new deposits = 5,000 - 1,000 = 4,000 hundred million dollars.

22. The exchange rate moves from 7.80 to 7.75 Hong Kong dollars per US dollar. Find the percentage appreciation of the Hong Kong dollar, to two decimal places. [4]

Answer: Fewer Hong Kong dollars are needed per US dollar, so the Hong Kong dollar has appreciated. Appreciation = (7.80 - 7.75) / 7.80 x 100 percent = 0.64 percent.

23. A economy exports 3,200 hundred million dollars of goods and imports 3,500 hundred million dollars. Find the trade balance and state whether it is a surplus or a deficit. [4]

Answer: Trade balance = 3,200 - 3,500 = -300 hundred million dollars; exports are less than imports, so there is a trade deficit of 300 hundred million dollars.

24. Explain why, under a linked exchange rate system, Hong Kong interest rates broadly follow US interest rates. [4]

Answer: The linked rate keeps the Hong Kong dollar within a narrow band against the US dollar. If Hong Kong rates fell clearly below US rates, funds would leave the Hong Kong dollar for higher returns, pushing it to the weak-side convertibility undertaking; the monetary authority would then sell US dollars, buy Hong Kong dollars, drain the aggregate balance and push local rates back up. If local rates were too high, inflows would pull them down again, so rates broadly track the United States.
