HE1001 Microeconomics

Final Examination – Question Paper

Academic Year 2025/2026, Semester 1

Compiled and typeset by QRS

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Reconstructed from memory only — not an official exam paper or answer key.

Instructions:

- This reconstructed examination contains **4 questions** worth a total of **100 marks**:
  - Question 1: 20 marks
  - Question 2: 40 marks
  - Question 3: 20 marks
  - Question 4: 20 marks
- This practice examination contains **3 questions** worth a total of **100 marks**.
- Answer **all questions**.
- Show all working clearly. Partial credit may be awarded for correct methods.
- Write your answers in the spaces provided or on additional paper as needed.
- Calculators are permitted.
- Time: 2 hours.

Question 1 — Multiple Choice Questions (20 marks)

1.1 A non-refundable concert ticket costs \$80. On the day of the concert, you are offered a part-time job that pays \$100, but you would need to spend \$20 on transport to take the job. Consider the following statements:

(A) The \$80 concert ticket is a sunk cost.

(B) The \$100 from the part-time job is an implicit cost of attending the concert.

(C) The \$20 transport cost is an explicit cost.

(D) The economic cost of attending the concert is \$120.

(E) All of the above statements are correct.

1.2 Which of the following statements about an Engel curve is correct?

(A) An Engel curve shows combinations of income and prices.

(B) An Engel curve can be positively or negatively sloped.

(C) An Engel curve shows combinations of income and quantity demanded of a good.

(D) An Engel curve is always positively sloped.

(E) Both B and C are correct.

(F) Both C and D are correct.

(G) Both A and B are correct.

(H) Both A and C are correct.

1.3 Suppose the U.S. demand curve for gasoline shifts rightward while the U.S. supply curve for gasoline remains unchanged. As a result, the price of gasoline increases by 9%, and the equilibrium quantity increases by 3%. Which of the following is true based on this information?

(A) The price elasticity of supply for gasoline is roughly 3.

(B) The price elasticity of supply for gasoline is roughly 0.33.

(C) The price elasticity of demand for gasoline is roughly 0.33.

(D) The price elasticity of demand for gasoline is roughly -3.

1.4 Indifference curves are typically convex to the origin because of:

(A) Transitivity.
(B) Diminishing marginal rate of substitution (MRS).
(C) Non-satiation.
(D) Completeness.

1.5 Which of the following is a key assumption of a perfectly competitive market?

(A) Firms are price-makers.
(B) Commodities have not many sellers.
(C) It is difficult for new sellers to enter the market.
(D) Each seller has a small share of the market.
(E) Buyers have bargaining power.
(F) Both A and B.
(G) Both A and C.
(H) Both B and D.
(I) A, B, and C.

1.6 In class, marriage was discussed as an example where one standard preference assumption may fail. Which assumption is most clearly violated in the case of altruistic preferences in marriage?

(A) Completeness.
(B) Non-satiation ("more is better").
(C) Self-interest.
(D) Transitivity.

1.7 Which of the following is **least likely** for a monopoly?

(A) The monopolist is the sole producer in the market.
(B) Monopoly price is solely determined from the demand curve.
(C) The monopolist can charge as high a price as it likes to maximize its profit.
(D) The monopolist typically faces a downward-sloping demand curve.
(E) All of the above are likely.

1.8 For a monopolist, suppose the firm is currently producing at a quantity where $P = MC$. Which statement is correct?

(A) Profit is maximized at this output.

(B) Profit is not maximized; the firm should increase output.

(C) Profit is not maximized; the firm should decrease output.

(D) The firm must be earning positive economic profit at this output.

1.9 John loves hamburgers and soft drinks and insists on consuming exactly **1 soft drink for every 2 hamburgers**. His utility function can be expressed as:

$$u(D, H) = ?, \quad \text{where } D \text{ is soft drinks and } H \text{ is hamburgers.}$$

(A) $u(D, H) = D + 2H$

(B) $u(D, H) = D + H$

(C) $u(D, H) = 2D + H$

(D) $u(D, H) = \min(2D, H)$

(E) $u(D, H) = \min(D, H)$

(F) $u(D, H) = \min(D, 2H)$

(G) None of the above.

1.10 Which of the following statements about Nash equilibrium (NE) and dominant strategy equilibrium (DSE) is correct?

(A) In a Nash equilibrium, each player's strategy is optimal regardless of the opponent's action.

(B) A Nash equilibrium is a set of mutual best responses to each other's actions.

(C) Every Nash equilibrium is also a dominant strategy equilibrium.

(D) All of the above.

Question 2 — Mutiple Choice Questions with Justifications (40 marks)

2.1 [10 marks]

Sarah quits a job that paid her $36,000 per year and starts her own business. To finance the business, she uses $12,000 of her own savings (which could have earned 10% annual interest) and borrows another $12,000 from a bank at 10% interest. Over the year, her *variable costs* of running the business (wages to staff, materials, etc.) are $20,000, and her *total revenue* is $50,000.

Based on the shutdown and exit conditions, which of the following best describes her decision?

(A) She should shut down immediately in the short run.

(B) She should continue in the short run, but (if conditions do not improve) may exit in the long run.

(C) She should continue in both the short run and the long run.

(D) She should exit immediately in both the short and long run.

2.2 [10 marks]

A monopolist produces quantity $Q_m = 10$ and charges price $P_m = 12$. Marginal cost is constant at $MC = 6$. Under perfect competition with the same cost conditions, the equilibrium quantity would be $Q_c = 12$ at price $P_c = 6$.

Assuming the demand curve is linear between these points, what is the deadweight loss (DWL) associated with monopoly?

(A) \$4

(B) \$6

(C) \$8

(D) \$10

(E) \$12

(F) None of the above

2.3 [10 marks]

Consider a perfectly competitive firm and a monopolist, each producing at its profit-maximizing output level Q^*. Which of the following statements are correct?

(A) For a competitive firm, if it produces an additional unit beyond Q^*, the increase in total cost exceeds the increase in total revenue.

(B) For a monopolist, if it produces an additional unit beyond Q^*, the increase in total cost exceeds the increase in total revenue.

(C) For both market structures, price equals average revenue (AR) at every quantity.

(D) A and B only.

(E) A and C only.

(F) B and C only.

(G) A, B, and C.

2.4 [10 marks]

Consider the Cournot and Stackelberg duopoly models.

(A) In the Stackelberg model, the follower ends up in a better position than the leader.

(B) The strategic choice variable in both Cournot and Stackelberg models is the **quantity (output)** of each firm.

(C) The Stackelberg equilibrium is a **subgame-perfect equilibrium**.

(D) The Cournot equilibrium is a dominant strategy equilibrium and therefore a Nash equilibrium.

(E) A and B only.

(F) B and C only.

(G) B and C and no others.

Question 3 — Short Answer Questions (20 marks)

3.1 Political advertising game [10 marks]

Two political candidates, A and B, choose among three levels of campaign spending: Low (L), Medium (M), and High (H). The payoffs represent each candidate's share of the popular vote, and in every outcome the shares sum to 100. Candidate A moves first, then candidate B observes A's choice and chooses L, M, or H.

A payoff matrix consistent with the exam's description is:

	B:L	B:M	B:H
A:L	(40, 60)	(30, 70)	(20, 80)
A:M	(60, 40)	(45, 55)	(35, 65)
A:H	(70, 30)	(65, 35)	(50, 50)

In particular, when both choose High, the outcome is $(50, 50)$.

Task: Find the equilibrium of this game, given that A moves first.

3.2 Market demand from heterogeneous consumers [10 marks]

There are two groups of consumers, G and B, each of size 100.

Group G:

$$U_G(x, y) = 4x^{0.5}y^{0.5}, \qquad m_G = 750.$$

Group B:

$$U_B(x, y) = x^{0.4}y^{0.4}, \qquad m_B = 500.$$

The price of good x is P_x, and the price of good y is $P_y = 50$. Derive the **market demand function for good** x as a function of P_x.

Question 4 — Short Answer Questions (20 marks)

4.1 [20 marks]

A firm has **fixed cost** $FC = 16$. Its average variable cost at discrete output levels is given by:

$$AVC(Q) = Q, \qquad Q = 1, 2, 3, 4, 5, 6.$$

The firm operates in a perfectly competitive market.

The (incomplete) cost table is:

Q	AVC	MC	ATC
1	1		
2	2		
3	3		
4	4		
5	5		
6	6		

(a) Complete the table for MC and ATC.

(b) If the market price is $P = 10$, how many units will the firm supply in the **short run**? (Assume it can only choose integer output levels.)

(c) In the **long run**, what happens to market price P, total market quantity demanded Q_D, and each firm's quantity supplied q_i? State whether each rises, falls, or remains the same, under the assumption of a *constant-cost industry*.

(d) Draw the **long-run industry supply curve** for this constant-cost industry?