



Final Exam Q&A Guide - Economics

Complete question bank with answers based on the Economics course notes

Work through each question, select your answer, then check against the provided solution.

PART I: TRUE/FALSE QUESTIONS

State "True" if the statement is correct and "False" if the statement is wrong. (1 point each)

Question 1

If two commodities are perfect substitutes their indifference curve is L-shaped.

Your Answer: _____

✓ ANSWER: False

An L-shaped indifference curve represents **perfect complements** (goods that must be consumed together in fixed proportions).

Perfect substitutes have a **straight-line indifference curve** because the consumer is willing to trade them at a constant rate.

Question 2

Comparison of utility in absolute magnitude is possible under ordinal utility approach.

Your Answer: _____

✓ ANSWER: False

The ordinal utility approach only **ranks preferences** (1st, 2nd, 3rd, etc.) without assigning numerical values.

Absolute magnitude comparison belongs to the **cardinal utility approach**, which assigns specific utility numbers (e.g., 10 utils, 20 utils).

Question 3

Isoquant can be linear when two inputs are perfectly substituting each other.

Your Answer: _____

✓ **ANSWER: True**

When two inputs are perfect substitutes, they can be used in any ratio to produce the same output, resulting in a **linear (straight-line) isoquant curve**.

Question 4

A firm operating in a perfectly competitive market is a price taker.

Your Answer: _____

✓ **ANSWER: True**

In perfect competition, individual firms **cannot influence the market price** due to many sellers offering identical products. They must accept the **market-determined price**.

Question 5

When TP increases at an increasing rate, MP increases.

Your Answer: _____

✓ **ANSWER: True**

When Total Product (TP) is **increasing at an accelerating rate**, the Marginal Product (MP) is increasing. This is **Stage I of production** where each additional input produces more output than the previous unit.

Question 6

Short run production of a particular firm is a period of time less than 10 years.

Your Answer: _____

✓ **ANSWER: False**

The short run is **NOT about calendar time**. It is defined as a period where **at least one factor of production is fixed** (cannot be changed).

It could be weeks, months, or even years depending on the industry.

Question 7

The shape of the short-run average cost curve reflects the law of diminishing returns.

Your Answer: _____

✓ **ANSWER: True**

The U-shaped short-run average cost (SAC) curve is caused by the **law of diminishing returns**.

- Initially, costs fall due to **increasing returns**
 - Eventually, costs rise due to **diminishing returns**
-

Question 8

Marginal cost is the slope of both TVC and TC.

Your Answer: _____

✓ **ANSWER: True**

Both Total Fixed Cost (TFC) and Total Variable Cost (TVC) curves are **parallel** (same slope) because TFC is constant.

MC is the slope of the TC curve, which has the same slope as TVC since: **$TC = TFC + TVC$**

Question 9

Increase in income of a consumer always results in rise in quantity demanded.

Your Answer: _____

✓ **ANSWER: False**

For **normal goods**, higher income leads to higher quantity demanded.

However, for **inferior goods** (like cheap ramen when you're poor), higher income leads to lower demand as consumers switch to better alternatives.

Question 10

Price elasticity of demand of a product with many close substitutes is elastic.

Your Answer: _____

✓ **ANSWER: True**

When many substitutes exist, consumers are **sensitive to price changes**.

If price rises, they easily switch to alternatives, making demand **elastic (price-sensitive)**.

PART II: MULTIPLE CHOICE QUESTIONS

Choose the best answer from the given alternatives. (1.5 marks each)

Question 1

If the marginal utility (MU) of Y is half of the marginal utility (MU) of the last unit of X, the equilibrium of consumer is achieved if:

- A) The price of X is twice the price of Y
- B) The price of Y is twice the price of X
- C) Both X and Y have the same price
- D) The ratio of prices is 1:2

Your Answer: _____

✓ **CORRECT ANSWER: B**

At consumer equilibrium: $\frac{MU_X}{P_X} = \frac{MU_Y}{P_Y}$

Given: $MU_Y = \frac{1}{2}MU_X$

Substituting: $\frac{MU_X}{P_X} = \frac{\frac{1}{2}MU_X}{P_Y}$

Solving: $P_Y = 2P_X$

Therefore, **the price of Y is twice the price of X.**

Question 2

The marginal rate of substitution of one good for another is measured by moving:

- A) From one indifference curve to another
- B) Along an indifference curve
- C) Along a budget line
- D) Away from the equilibrium point

Your Answer: _____

✓ **CORRECT ANSWER: B**

MRS is calculated by **moving along a single indifference curve.**

It shows the rate at which a consumer is willing to trade one good for another **while maintaining the same level of satisfaction**.

Question 3

Which of the following costs can be positive when output is zero?

- A) Average cost
- B) Average variable cost
- C) Total fixed cost
- D) Marginal cost

Your Answer: _____

✓ **CORRECT ANSWER: C**

Fixed costs (like rent, salaries, insurance) exist even when **output is zero**.

- Variable costs = 0 when $Q = 0$
 - Marginal cost = 0 when $Q = 0$
 - Average variable cost = 0 when $Q = 0$
 - **Total fixed cost = remains positive always**
-

Question 4

Marginal rate of substitution between two goods is measured by:

- A) The slope of the indifference curve
- B) The ratio of the marginal utility of commodities
- C) The price ratio of commodities
- D) A and B only

Your Answer: _____

✓ **CORRECT ANSWER: D**

The **MRS** can be measured as:

1 Slope of the indifference curve: $MRS_{X,Y} = -\frac{dY}{dX}$

2 Ratio of marginal utilities: $MRS_{X,Y} = \frac{MU_X}{MU_Y}$

Both statements are equivalent and correct.

Question 5

After a consumer maximizes his utility, how much income is left?

- A) Some income remains unspent
- B) The entire income is spent on one good
- C) Half the income is spent
- D) No income is left

Your Answer: _____

✓ **CORRECT ANSWER: D**

A rational consumer **maximizes utility by spending their entire budget.**

They choose quantities where: $\frac{MU_X}{P_X} = \frac{MU_Y}{P_Y}$

And satisfy the budget constraint: $P_X \cdot Q_X + P_Y \cdot Q_Y = Income$

Therefore, **no income is left unspent.**

Question 6

Assume that the marginal rate of substitution between commodities X and Y (MRS_{XY}) is 0.5. If the marginal utility of X is 4, determine the marginal utility of Y:

- A) 8
- B) 2
- C) 0.5
- D) 4

Your Answer: _____

✓ **CORRECT ANSWER: A**

Using the formula: $MRS_{X,Y} = \frac{MU_X}{MU_Y}$

Given:

- $MRS_{X,Y} = 0.5$

- $MU_X = 4$

Solving:

$$0.5 = \frac{4}{MU_Y}$$

$$MU_Y = \frac{4}{0.5} = 8$$

Therefore, **$MU_Y = 8$** .

Question 7

Which of the following is true:

- A)** Tangency between indifference curve and budget line represents producer's optimum
- B)** An isocost line represents all combinations of inputs that cost the same
- C)** Production in the short run is characterized by the existence of at least one fixed factor of production
- D)** C only

Your Answer: _____

✓ **CORRECT ANSWER: D**

Statement C is correct. The short run is defined by the presence of at least one **fixed input**.

- Statement A is wrong: Tangency represents **consumer's optimum**, not producer's
- Statement B is vague and incomplete
- **Statement C is definitionally correct:** At least one fixed factor must exist in the short run

Question 8

Which of the following is always true of the relationship between average and marginal costs?

- A)** The marginal cost curve always lies above the average cost curve
- B)** The marginal cost curve intersects average cost at its maximum
- C)** Average cost is always increasing when marginal cost is positive
- D)** Average variable costs are increasing when marginal costs are higher than average variable costs

Your Answer: _____

✓ **CORRECT ANSWER: D**

When $MC > AVC$: The marginal cost **pulls AVC upward** (AVC is increasing)

When $MC < AVC$: The marginal cost **pulls AVC downward** (AVC is decreasing)

When $MC = AVC$: The AVC is at its **minimum point** (MC intersects AVC at the bottom)

Question 9

The law of diminishing returns states that:

- A) Total output always decreases with more input
- B) Marginal product is always negative
- C) As a firm produces more, its marginal product decreases
- D) Average product always exceeds marginal product

Your Answer: _____

✓ **CORRECT ANSWER: C**

The **law of diminishing returns** states:

As you add more of **one variable input** while holding others fixed, the **marginal product eventually declines**.

This occurs after the marginal product reaches its maximum in Stage I of production.

Question 10

According to the law of variable proportions, what happens when one factor of production is increased while others are held constant?

- A) Total production always increases indefinitely
- B) Total production initially decreases
- C) Total production initially increases but then decreases
- D) Total production remains constant

Your Answer: _____

✓ **CORRECT ANSWER: C**

This describes the **three stages of production**:

- **Stage I:** Both TP and MP increase (increasing returns)

● **Stage II:** TP increases but MP decreases (diminishing returns begin)

● **Stage III:** TP decreases and MP becomes negative (negative returns)

Question 11

Point of tangency between Isocost and Isoquant curve represents:

- A) Maximum output with unlimited budget
- B) Least cost way of producing a given output
- C) The consumer's equilibrium point
- D) The point of maximum profit

Your Answer: _____

✓ **CORRECT ANSWER: B**

The tangency point between an **isoquant** (constant output) and **isocost** (constant cost) represents the:

Least-cost combination of inputs to produce a given output level.

At this point:
$$\frac{MP_K}{MP_L} = \frac{P_L}{P_K}$$

Question 12

The efficient stage of production in the short run is between:

- A) Maximum MP and maximum AP
- B) Minimum AP and minimum AP
- C) Where TP = MP
- D) Where MC = AC

Your Answer: _____

✓ **CORRECT ANSWER: A**

Stage II (the efficient stage) occurs:

- **Starts:** Where MP is at its maximum (end of Stage I)
- **Ends:** Where AP is at its maximum (where MP = AP)
- **Why efficient?** This is where firms typically operate to maximize profit while avoiding the inefficiency of later stages

Question 13

Suppose that the 4th worker causes output to increase from 60 to 66. Which one of the following is true?

- A) The marginal product of the 4th worker is 6 units
- B) The average product of 4 workers is 16.5 units
- C) The total product of 4 workers is 66 units
- D) All of the above

Your Answer: _____

✓ **CORRECT ANSWER: D**

Verification:

✓ **Statement A:** $MP_{4th\ worker} = 66 - 60 = 6\ units$ ✓

✓ **Statement B:** $AP_{of\ 4\ workers} = 66 / 4 = 16.5\ units$ ✓

✓ **Statement C:** $TP_{of\ 4\ workers} = 66\ units$ ✓

All three statements are correct.

Question 14

Which of the following represents a movement along the demand curve?

- A) A change in consumer income
- B) A change in the price of the commodity
- C) A change in consumer preferences
- D) A change in the price of related goods

Your Answer: _____

✓ **CORRECT ANSWER: B**

A **movement along the demand curve** occurs when only **price changes** (quantity demanded responds to price change).

- Changes in A, C, D cause **shifts of the entire curve**, not movement along it
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Question 15

What is the price elasticity of demand if a 10% increase in price causes a 5% decrease in quantity demanded?

- A) 0.5 (Inelastic)
- B) 1.0 (Unit elastic)
- C) 2.0 (Elastic)
- D) -2.0 (Elastic)

Your Answer: _____

✓ CORRECT ANSWER: A

Formula: $E_d = \frac{\% \Delta QD}{\% \Delta P}$

Calculation: $E_d = \frac{-5\%}{+10\%} = -0.5 = 0.5$

Conclusion: Demand is **inelastic** ($|E_d| < 1$) - consumers are not very responsive to price changes.

Question 16

In perfect competition, firms have:

- A) Significant control over prices
- B) No control over prices
- C) Complete ability to set prices
- D) Ability to influence prices slightly

Your Answer: _____

✓ CORRECT ANSWER: B

In **perfect competition**:

- Many firms producing **identical products**
 - Firms are **price takers**
 - **No individual firm** can influence price
 - Each firm must accept the **market-determined price**
-

Question 17

At the profit-maximizing level of output, the firm should produce where:

- A) $MR = MC$
- B) Price = Average Cost

C) Total Revenue = Total Cost

D) Price = Marginal Cost

Your Answer: _____

✓ **CORRECT ANSWER: A**

First-Order Condition (FOC): At profit maximization: **MR = MC**

Second-Order Condition (SOC): The MC curve must be **rising** (slope of MC > slope of MR)

This applies to all market structures (perfect competition, monopoly, etc.).

Question 18

A firm should shut down immediately if:

A) Price < Average Total Cost (AC)

B) Price < Average Variable Cost (AVC)

C) Economic profit is negative

D) Accounting profit is negative

Your Answer: _____

✓ **CORRECT ANSWER: B**

Shutdown Rule: A firm should shut down when:

Price < Minimum Average Variable Cost

- If $P > AVC$: Firm continues production (covering variable costs)
 - If $P = AVC$: Firm is indifferent (break-even on variable costs)
 - If $P < AVC$: **Firm shuts down** (can't even cover variable costs)
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Question 19

When average product is decreasing, marginal product is:

A) Increasing

B) Also decreasing

C) Zero

D) Less than Average Product

Your Answer: _____

✓ **CORRECT ANSWER: D**

Relationship between AP and MP:

- When AP is at maximum: **MP = AP**
 - When AP is decreasing: **MP < AP** (MP pulls AP downward)
 - When AP is increasing: **MP > AP** (MP pulls AP upward)
-

Question 20

The long-run average cost curve shows:

- A)** The minimum average cost at each level of output when all inputs are variable
- B)** The average cost when some inputs are fixed
- C)** The total cost divided by output
- D)** The cost when only one input is variable

Your Answer: _____

✓ **CORRECT ANSWER: A**

The **LRAC (Long-Run Average Cost)** curve shows:

- Minimum average cost **for each output level**
 - When **all inputs are variable**
 - Firm can fully adjust scale of operations
 - Envelope of all possible short-run average cost curves
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PART III: SHORT ANSWER QUESTIONS

Answer in your own words. (2 marks each)

Question 1

Explain the difference between a normal good and an inferior good with economic examples.

✓ **SAMPLE ANSWER:**

Normal Good: When consumer income increases, demand for the good increases.

- *Examples:* High-quality beef, electronics, cars, branded products, education

Inferior Good: When consumer income increases, demand for the good decreases.

- *Examples:* Instant noodles, second-hand clothes, cheap bread, public transportation

Economic Reasoning: Consumers switch to better alternatives as their purchasing power improves.

Question 2

Why does a firm operating in perfect competition earn zero economic profit in the long run? Explain with reference to market entry and exit.

✓ **SAMPLE ANSWER:**

In **long-run perfect competition equilibrium:**

1. **Market Entry:** Initially, when firms earn positive economic profit ($P > AC$):

- New firms enter the market
- Market supply increases
- Price falls due to increased supply

2. **Market Exit:** If firms incur losses ($P < AC$):

- Unprofitable firms exit the market
- Market supply decreases
- Price rises due to reduced supply

3. **Equilibrium:** Entry/exit continues until **$P = AC$ (minimum)**

- All remaining firms earn **zero economic profit**
 - No incentive to enter or exit
-

Question 3

What is meant by economies of scale? Under what conditions do they occur?

✓ **SAMPLE ANSWER:**

Economies of Scale: When **long-run average cost (LRAC) decreases** as output increases.

Conditions where they occur:

1. **Specialization of Labor:** Workers become more skilled at specific tasks
2. **Indivisibilities:** Large fixed costs (machinery, equipment) spread over more units
3. **Technology:** Advanced equipment only economical at large scale
4. **Purchasing Power:** Buy inputs in bulk at discounts
5. **Integration:** In-house production of components reduces costs

Result: Larger firms can produce at **lower per-unit costs** than smaller competitors.

PART IV: WORKOUT PROBLEMS

Show all work and calculations. (3 marks each)

Problem 1: Consumer Utility Maximization

Given Information:

- Income (M) = 20 Birr
- Price of Good X = 2 Birr
- Price of Good Y = 4 Birr
- Utility Function: $U = 2X \cdot Y$

Required:

1. Find the utility-maximizing quantities of X and Y
 2. Calculate the maximum utility level
-

✓ SOLUTION:

Step 1: Find Marginal Utilities

$$MU_X = \frac{\partial U}{\partial X} = 2Y$$

$$MU_Y = \frac{\partial U}{\partial Y} = 2X$$

Step 2: Apply Equilibrium Condition

$$\frac{MU_X}{P_X} = \frac{MU_Y}{P_Y}$$

$$\frac{2Y}{2} = \frac{2X}{4}$$

$$Y = \frac{X}{2}$$

Step 3: Use Budget Constraint

$$P_X \cdot Q_X + P_Y \cdot Q_Y = M$$

$$2X + 4Y = 20$$

Substitute $Y = \frac{X}{2}$:

$$2X + 4\left(\frac{X}{2}\right) = 20$$

$$2X + 2X = 20$$

$$X = 5 \text{ units}$$

$$Y = 2.5 \text{ units}$$

Step 4: Calculate Maximum Utility

$$U_{max} = 2 \times 5 \times 2.5 = 25 \text{ utils}$$

Answer: Consumer should buy **5 units of X** and **2.5 units of Y** to achieve maximum utility of **25 utils**.

Problem 2: Production Function Analysis

Given Information:

- Production Function: $TP = 6L^2 - 0.5L^3$
- Where L = Labor units, TP = Total Product

Required:

1. Find the Marginal Product (MP) function
 2. Find output level where MP is maximized
 3. Determine the stage of production where AP is maximized
-

✓ SOLUTION:

Step 1: Find Marginal Product Function

$$MP = \frac{dTP}{dL} = 12L - 1.5L^2$$

Step 2: Find where MP is Maximum

Set the derivative of MP equal to zero:

$$\frac{dMP}{dL} = 12 - 3L = 0$$

$$L = 4 \text{ units}$$

$$\text{Maximum MP} = 12(4) - 1.5(16) = 48 - 24 = \mathbf{24 \text{ units}}$$

Step 3: Find where AP is Maximum

Average Product: $AP = \frac{TP}{L} = 6L - 0.5L^2$

AP is maximum when $AP = MP$:

$$6L - 0.5L^2 = 12L - 1.5L^2$$

$$L^2 - 6L = 0$$

$$L(L - 6) = 0$$

L = 6 units (excluding $L = 0$)

Answer: MP is maximized at **4 units of labor**. AP is maximized at **6 units of labor**, marking the boundary between Stage I and Stage II.

Problem 3: Cost Analysis and Profit Maximization

Given Information:

- Market Price (P) = 10 Birr per unit
- Cost Function: $TC = 100 + 2Q + 0.5Q^2$
- Where Q = quantity, TC = Total Cost

Required:

1. Find the profit-maximizing quantity
 2. Calculate profit at this quantity
 3. Determine if the firm should operate or shut down
-

✓ SOLUTION:

Step 1: Find Marginal Cost

$$MC = \frac{dTC}{dQ} = 2 + Q$$

Step 2: Set $MR = MC$ (Profit Maximization)

In perfect competition, $MR = P = 10$

$$10 = 2 + Q$$

Q = 8 units (profit-maximizing quantity)

Step 3: Calculate Costs and Revenue at $Q = 8$

$$TC = 100 + 2(8) + 0.5(64) = 100 + 16 + 32 = 148 \text{ Birr}$$

$$TR = P \times Q = 10 \times 8 = 80 \text{ Birr}$$

Step 4: Calculate Profit/Loss

$$\pi = TR - TC = 80 - 148 = -68 \text{ Birr}$$

Step 5: Check Shutdown Condition

$$AVC = \frac{TVC}{Q} = \frac{2Q + 0.5Q^2}{Q} = 2 + 0.5Q = 2 + 4 = 6 \text{ Birr}$$

- $P = 10 > AVC = 6$ ✓

Conclusion:

- Profit-maximizing output: **Q = 8 units**
- Economic profit/loss: **Loss of 68 Birr**
- **Decision: CONTINUE OPERATING** (because $P > AVC$, firm covers variable costs and contributes to fixed costs)

EXAM TIPS & STRATEGIES

✓ Read all questions carefully before answering ✓ Show all steps and calculations for problem questions
✓ Check your budget constraint and equilibrium conditions ✓ Remember: Economic profit ≠ Accounting profit
✓ $MR = MC$ for profit maximization (universal principle) ✓ Use proper units and clearly label your answers
✓ Practice identifying which stage of production a firm is in ✓ Understand the relationship between production curves and cost curves

Good luck with your final exam! Study hard and understand the concepts, not just memorize answers.