Review Questions

Part I. Economic Terms and Concepts; Production Possibilities

1. How does Macroeconomics differ from Microeconomics? What topics are studied under each discipline?

2. Define the Fallacy of Composition and give three examples. Why does the Fallacy of Composition exist?

3. Make two positive economic statements and two normative economic statements. Are positive statements always true? Are statements containing the word "should" always normative? How can you differentiate between positive and normative statements?

4. What is centralized decisionmaking? Should positive or normative economics be used in centralized decisionmaking? Should positive or normative economics be used in individual decisionmaking?

5. Why do we use models? What is a model? How do we judge whether a model is good and useful?

6. What is a stock variable? Give five economic examples.

7. What is a flow variable? Give five economic examples.


9. Why are expectations so important in economics? Why are expectations even more important in Macroeconomics than in Microeconomics?

10. What is meant by scarcity?

11. Why are choices necessary? Can decisionmakers avoid making choices?

12. What does it mean when we say that economic problems are interdependent? Give two examples of interdependent economic problems.

13. List and define the four categories of factors of production. What are two other words that can be used in place of "factors of production"?

14. Graph and carefully label a production possibilities curve.
   A. What are the assumptions of this model?
   B. How does the model demonstrate scarcity?
   C. How does the model illustrate choice, trade-offs, and opportunity cost? Is opportunity cost constant? Why or why not?
   D. What would it tell you if the economy moved along the production possibilities curve?
   E. What is true of points outside the production possibilities curve?
   F. What does it mean if an economy moves from a point on its production possibilities curve to a point inside the curve? How could an economy producing inside the curve move to a position on the curve?
   G. What variables determine the position of the curve? What could cause the curve to shift outwards? What could cause the curve to shift inwards?
   H. What variables determine the shape of the curve? Why is the curve usually bowed outwards rather than a straight line? Under what circumstances might a production possibilities curve be a straight line?

15. Define the product market. Who are the primary buyers and sellers in those markets?
16. Define the factor market. Give two other names for the factor market. Who are the primary buyers and sellers in those markets?

17. What are the characteristics of free-market economies? What are the characteristics of command economies? How do real-world economies fit into these classifications? How would you describe the United States economy?


Part II. Supply and Demand

19. What does the price system do? What does the price system fail to do, and what can be done to correct these problems? What consequences of the price system are sometimes felt to be unacceptable, and what can be done to correct these problems?

20. Describe two alternatives to the price system.

21. Carefully explain the difference between "demand" and "quantity demanded". Carefully explain the difference between "supply" and "quantity supplied".

22. Define the following, and give an example for each:
   A. Substitutes in consumption.
   B. Complements in consumption.
   C. Substitutes in production.
   D. Complements in production.

23. What will happen to demand if:
   A. tastes change in favor of the good?
   B. the price of a substitute in production increases?
   C. there is an important technological advance in the industry?
   D. the average level of income increases?
   E. population in the market area doubles?
   F. all low-income households in the area are relocated elsewhere?
   G. the price of the good increases?
   H. the price of a substitute in consumption decreases?
   I. factor prices increase?
   J. the price of a complement in production increases?
   K. producers decide to decrease their pollution emissions, caused by producing the good?
   L. the price of a complement in consumption decreases?
   M. buyers expect a future increase in income?
   N. sellers expect a future decrease in factor prices?
   O. buyers expect a future shortage?
   P. sellers expect a future surplus?
   Q. half of the sellers leave the industry?

24. What will happen to supply if:
   (A.) through (Q.) above.

25. Describe in words what happens to the graph of a supply curve when supply increases.

26. Define equilibrium. When is a given market in equilibrium?

27. What is the effect of excess demand in a market? What is the effect of excess supply in a market?
28. What will happen to equilibrium price and equilibrium quantity if:
   A. supply increases?
   B. supply decreases?
   C. demand increases?
   D. demand decreases?

29. What is the relationship between "equilibrium" price and actual price in a market?

30. What is a price ceiling? What might result if a price ceiling is set above the equilibrium price? What might result if a price ceiling is set below the equilibrium price? What is a real world example of a price ceiling? What are the effects of this real-world price ceiling?

31. What is a price floor? When would a price floor be ineffective? What is the effect of an effective price floor? What is a real world example of a price floor? What are the effects of this real-world price floor?

Part III. Elasticity

32. Define elasticity in general. Why is elasticity important?

33. Define price elasticity of demand. State a formula for calculating price elasticity of demand. In calculating price elasticity of demand, why do we always use average values for price and quantity?

34. Explain the difference between elasticity and slope. Give a numerical example. Can you ever make statements about price elasticity of demand simply from looking at a graph of the demand curve?

35. Define the five categories of price elasticity of demand.

36. Assume there is a sudden increase in supply. How do the effects on equilibrium price and equilibrium quantity differ, depending on whether demand is elastic or inelastic?

37. Assume there is a sudden decrease in supply. How do the effects on equilibrium price and equilibrium quantity differ, depending on whether demand is elastic or inelastic?

38. Do demand curves have a positive or negative slope? Is price elasticity of demand positive or negative?

39. What do we know about the slope of a straight-line demand curve? What do we know about its elasticity?

40. Explain in detail the variables which affect price elasticity of demand, giving several examples for each.

41. How is price elasticity of demand related to changes in total expenditures (or total revenue)? Demonstrate this relationship in a table and in a graph.

42. Define income elasticity of demand. Give the formula. What does negative income elasticity of demand mean?

43. How might you expect income elasticity of demand to differ between luxuries and necessities? Would you expect a difference in their price elasticities of demand?

44. What is cross elasticity of demand? Give the formula. What if it is positive? What if it is negative? What cross elasticity might you expect for unrelated goods?

45. Define price elasticity of supply. Give the formula. Can you ever make statements about price elasticity of supply just from looking at a graph of the supply curve?

46. What is the price elasticity of supply for a vertical supply curve? Give an example of a product with a vertical supply curve.

47. What are the main determinants of price elasticity of supply?
Part IV. Household Consumption Behavior and Rational Choice

48. What is “utility”? What constraints affect consumers as they try to maximize their utility?

49. Define and clearly distinguish between total utility and marginal utility. Are most choices affected by total utility or marginal utility?

50. The basic hypothesis of utility theory is the Law of Diminishing Marginal Utility. What is this Law, and what does it mean? Using a chart (naming the good, quantity bought, total utility, and marginal utility), illustrate how your consumption of a certain good follows the Law (assume utility can be measured). Is utility actually measurable?

51. Is marginal utility ever negative? What would this mean?

52. Give the equation demonstrating the utility-maximizing condition for a consumer. Explain why a consumer does not maximize utility simply by equating the marginal utilities of all the goods consumed.

53. Using the above equation, suppose the price of one good falls. Explain why and how a utility-maximizing consumer will alter his or her consumption pattern.

54. If a household’s income increases, what is likely to happen to its spending pattern? What will this do to the equilibrium marginal utilities it receives from each good? What will happen to total utility?

55. If a commodity is free, how much do consumers want of it? Unlimited amounts? Infinite amounts? Explain your answer in terms of marginal utility and total utility.

56. Using the concepts of “income effect”, “substitution effect”, and “diminishing marginal utility”, explain why most demand curves slope downwards from left to right.

57. Is market demand simply the sum of the individual demands, or is this an example of the Fallacy of Composition? Can market demand be estimated by summing the demands for individual brands of the general product?

58. What is the Paradox of Value? Why does it exist?

59. How is price elasticity of demand related to marginal utility? How is price elasticity of demand related to total utility?

Part V. Theory of the Firm

60. What questions must be answered by producers/suppliers in a free-market economy?

61. What is the standard assumption in economics regarding the primary goal of a firm? Does this mean that goal is the only influence on the behavior of business firms?

62. How do we represent the “state of technology” in our model of a firm?

63. What is meant by “labor-intensive”? What is meant by “capital-intensive”?
64. What is “technological efficiency”? Why may there be several technologically efficient production processes? Examine the following chart and explain which methods are technologically efficient.

Number of units of inputs required to produce 100 units of output, using various production processes:

<table>
<thead>
<tr>
<th>Method</th>
<th>Capital</th>
<th>Labor</th>
<th>Raw Material</th>
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<tbody>
<tr>
<td>A</td>
<td>50</td>
<td>400</td>
<td>150</td>
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<tr>
<td>B</td>
<td>50</td>
<td>600</td>
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<td>C</td>
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<td>200</td>
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</table>

What if a new process, G, is developed which uses 25 units of capital, 500 units of labor, and 100 units of raw material to produce 100 units of output? What if Method G uses 25 capital, 400 labor, and 100 raw material?

65. What is “economic efficiency”, and how does it differ from technological efficiency? Can a technologically inefficient production process ever be economically efficient? If so, give a numerical example. Can a technologically efficient production process ever be economically inefficient? If so, give a numerical example. Can there be more than one method at the same time which is economically efficient? If so, give a numerical example.

66. What are explicit costs? What are implicit costs? What is opportunity cost?

67. What is “economic profit”? If a firm is earning zero economic profit, should it shut down? Should it leave the industry? How do economic profits and losses act as signals in a free-market system?

68. What is the difference between fixed inputs and variable inputs? What happens to these definitions as the length of the time period under consideration is increased?

69. What differentiates the “short run” from the “long run”? Just how long is the short run? What kinds of decisions are made in the short run? What kinds of decisions are long-run decisions?

70. What is a production function? What information does a production function convey?

71. Define “total product”, “average product of an input”, and “marginal product of an input”. What can cause these quantities to change? Graph the curves for all three variables.

72. What is the law of diminishing marginal returns? Is it ever possible to have increasing marginal returns? If so, under what conditions? What assumptions are the basis of this law?

73. What is the marginal/average rule? Give two simple examples of how it works. Graph a firm’s product curves and use them to demonstrate the marginal/average rule.

74. What information is given by short-run cost functions? What determines a firm’s costs? What are average costs, and why are they important? Define the following short-run cost functions: total fixed cost (TFC), total variable cost (TVC), total cost (TC), average fixed cost (AFC), average variable cost (AVC), average total cost (ATC or AC), and marginal cost (MC). Graph each of these curves. How does the law of diminishing marginal returns apply to (or affect) cost functions? Apply the marginal/average rule to a firm’s cost curves.
75. Given the following production function, fill in the average product of labor and marginal product of labor columns:

<table>
<thead>
<tr>
<th>LABOR INPUT</th>
<th>TOTAL PRODUCT</th>
<th>AVERAGE PRODUCT</th>
<th>MARGINAL PRODUCT</th>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
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<tr>
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<td>3</td>
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<td>1170</td>
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<td>9</td>
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<td>13</td>
<td>1820</td>
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</table>

Are there ever increasing marginal returns in this example? Where do diminishing returns begin? How does this production function illustrate the marginal/average rule? What does negative marginal product mean?

76. Given the following production function, fill in the total product of labor and the marginal product of labor columns:

<table>
<thead>
<tr>
<th>LABOR INPUT</th>
<th>TOTAL PRODUCT</th>
<th>AVERAGE PRODUCT</th>
<th>MARGINAL PRODUCT</th>
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</table>
77. Given the following production function, fill in the total product of labor and the average product of labor columns:

<table>
<thead>
<tr>
<th>LABOR INPUT</th>
<th>TOTAL PRODUCT</th>
<th>AVERAGE PRODUCT</th>
<th>MARGINAL PRODUCT</th>
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<td>6</td>
<td>-3</td>
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</table>

78. Take a production relationship from #75, #76, or #77 above. Assume fixed costs are $27,720 and the price of labor is $60 per unit. Fill in the following chart for each quantity of labor:

<table>
<thead>
<tr>
<th>L</th>
<th>Q</th>
<th>TFC</th>
<th>TVC</th>
<th>TC</th>
<th>AFC</th>
<th>AVC</th>
<th>ATC</th>
<th>MC</th>
</tr>
</thead>
</table>

(Note: You will not get whole numbers for your average and marginal costs.)

You can also try different prices for labor and different fixed costs. On your table, indicate the amount of labor input at which AVC and ATC are at their respective minimums.

79. Describe in detail the relationships between product curves and cost curves.

80. In the long-run, how does a firm minimize the cost of producing at a given rate of output? Explain the long-run cost-minimizing equation,

\[
\frac{MP_x}{P_x} = \frac{MP_y}{P_y} = \frac{MP_z}{P_z}
\]

Suppose a firm is minimizing costs, so that

\[
\frac{MP_a}{P_a} = \frac{MP_b}{P_b}
\]

and then the price of Input A increases? How should the firm respond?

81. What is long-run total cost (LRTC)? What is long-run total variable cost?

82. What is long-run average cost (LRAC)? What determines the shape of the long-run average cost curve? Why is the shape of the LRAC curve an important factor influencing market structure?

83. What is meant by “returns to scale”? Define increasing returns to scale, constant returns to scale, and decreasing returns to scale. How do returns to scale affect costs? What are the causes of increasing or decreasing returns to scale?

84. Do profit-maximizing firms try to produce where short-run average cost is lowest? Do they try to produce where long-run average cost is lowest? Do they try to produce where demand is unit elastic?

Part VI. Market Structure and Firm Behavior; Profit-Maximization Rules

85. Why is market structure important? What does it affect? Why do we use four simple models of market structure which only approximate the fine gradations found in real-world markets?
86. Distinguish between “competitive market structure” and “competitive behavior by firms”.

87. What is an industry? What is an industry supply curve?

88. In what ways do market structures differ? What are the main characteristics we compare?

89. Explain in detail the three rules which ANY firm would follow to maximize short-run profit. How do these rules differ in perfect competition?

90. Explain the rule which any firm would follow to maximize long-run profit.

Part VII. Perfect Competition

91. Explain the model of perfect competition. Describe the demand, average revenue, marginal revenue, and total revenue curves for a perfectly competitive firm. What determines the price of the product? How does the total revenue curve change if the price of the product decreases?

92. Fill in the following table for a perfectly competitive firm:

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<th>TFC</th>
<th>TVC</th>
<th>TC</th>
<th>AFC</th>
<th>AVC</th>
<th>ATC</th>
<th>MC</th>
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Now make a table for the same perfectly competitive firm, showing total revenue and profit at each of the following output prices: $0.30, $0.35, $0.50, $1.00, and $1.67. Indicate how the firm can maximize profit at each price (use the rules from #89 above).

Use your tables to answer the following questions. Keep output decisions and profit in mind.

A. Compare minimum AVC and minimum ATC. What is your conclusion?

B. Compare minimum AVC with each price. What is your conclusion?

C. Compare minimum ATC with each price. What is your conclusion?

D. Compare MC with each price of output. What is your conclusion?

93. Describe the supply curve for a perfectly competitive firm. What is the market supply curve in a perfectly competitive industry?

94. Explain the conditions for short-run equilibrium in a perfectly competitive industry. Are economic profits and losses possible in short-run equilibrium?

95. Explain the conditions for long-run equilibrium in a perfectly competitive industry. Are economic profits and losses possible in long-run equilibrium?

96. Start with a perfectly competitive industry in long-run equilibrium. Explain the results of the following changes, while carefully differentiating between short-run and long-run effects:

A. Incomes increase, and the product is a normal good.

B. The price of a complement in consumption increases.

C. Input prices decrease.

D. Input prices increase.
97. What are some real world examples of perfect competition?

98. *Optional
   A. Define a constant-cost industry. What kinds of industries are likely to be constant-cost industries (give examples)?
   B. Define an increasing-cost industry. What are the causes of increasing-cost industries (give examples)?
   C. Define a decreasing-cost industry. What are the causes of decreasing-cost industries (give examples)?

Part VIII. Monopoly

99. Describe the characteristics of a monopoly. Does a monopolist have absolute control to set price and quantity? What limitations make monopoly power a matter of degree?

100. How do monopolies arise and persist? What keeps potential competitors from entering the industry, particularly if the monopolist is earning positive economic profit?

101. Why is marginal revenue less than price for a monopolist, while marginal revenue and price are equal in perfect competition?

102. How are the revenue curves (total revenue, average revenue, and marginal revenue) of a monopolist all related through the concept of price elasticity of demand?

103. How does a monopolist find the profit-maximizing output and price?

104. In what region of its demand curve will a profit-maximizing monopolist always produce and why?

105. Do monopolists earn positive economic profit in the short run and in the long run?

106. What is the supply curve of a monopolist?

107. How is monopoly similar to perfect competition? How is monopoly different from perfect competition?

Part IX. Monopolistic Competition

108. Explain the characteristics of monopolistic competition. Is the model of monopolistic competition more similar to perfect competition or to monopoly?

109. Describe the demand, average revenue, marginal revenue, and total revenue curves for a monopolistically competitive firm. How does a monopolistic competitor find the profit-maximizing output and price?

110. What exactly is product differentiation?

111. Explain the conditions for short-run equilibrium in a monopolistically competitive industry. Are economic profits and losses possible in short-run equilibrium?

112. Explain the conditions for long-run equilibrium in a monopolistically competitive industry. Are economic profits and losses possible in long-run equilibrium?

113. Compare the efficiency of monopolistic competition with that of perfect competition.

114. What are some real world examples of monopolistic competition?

Part X. Oligopoly
115. Describe the characteristics of oligopoly.

116. How do oligopolies arise and persist? What keeps potential competitors from entering the industry, particularly if oligopolists are earning positive economic profit?

117. Why are there so many different models of oligopoly?

118. What is the “kinked demand curve model” and what does it explain about oligopoly?

119. What is “game theory”?

120. What is collusion? What are its advantages? Why are collusive agreements difficult to accomplish and maintain?

121. What is “non-price competition” and why is it important in most oligopolies?