Unit 3 Practice Questions

2001 FRQ: Perfect Competition

1. (a) Assume that a profit-maximizing firm in a perfectly competitive industry is earning economic profits. For a given market price, draw a correctly labeled graph and show each of the following for a typical firm in this perfectly competitive industry.
   (i) Marginal revenue
   (ii) Output
   (iii) Economic profits

   (b) Using the information in (a), draw correctly labeled side-by-side graphs for the industry and a typical firm.
   (i) Given the existence of economic profits of the typical firm, show on the graphs how the industry adjusts in the long run and explain the process that leads to the long-run equilibrium.
   (ii) Show on the graphs each of the following for the industry and for the typical firm in long-run equilibrium.
   - Price
   - Output

   (c) Now assume that the government sets a price that is less than the equilibrium price but greater than average variable cost. Indicate how each of the following will change for the typical firm and explain why the change occurs.
   (i) Marginal revenue
   (ii) Level of output
   (iii) Short-run total cost
   (iv) Short-run total revenue

2005 AP Micro Question #1: Perfectly Competitive Firm

FRQ #1

Assume that in a perfectly competitive industry with equilibrium price of $25, a firm has the following characteristics:

Marginal Cost = Average Variable Cost at $20
Marginal Cost = Average Total Cost at $30
Output = 100 Units

a. Draw a graph for the industry and the firm
   i. Label AVC, ATC, MC, and MR
   ii. Label Short-run supply curve
   iii. Label shut down price
   iv. Approximately how much is the total profit or loss? How do you know?
b. With a new set of graphs, explain what you would expect to happen to this industry in the long-run.
   i. Explain what happens to price, quantity, and profit/loss for the firm in the long-run.
   ii. Explain what happens to price and quantity for the industry in the long-run.

Accounting vs economic Costs

A firm pays $200,000 in wages, $50,000 in interest on borrowed money capital, and $70,000 for the yearly rental of its factory building. If the entrepreneur worked for somebody else as a manager he would earn at most $40,000 per year, and if he lent out his money capital to somebody else in a similarly risky business, he would at most receive $10,000 per year. He owns no land or building.

- Calculate the entrepreneur's profit if he received $400,000 from selling his year's output.
- How much profit is the entrepreneur earning from the point of view of the man in the street (accounting profit)? To what is the difference in the results due?
- What would happen if the entrepreneur's total revenue were $360,000? What advice would you give to this business person? What would this mean in terms of supply?

Micro AP FRQ 2011B

1. Suppose that roses are produced in a perfectly competitive, increasing-cost industry in long-run equilibrium with identical firms.

   (a) Draw correctly labeled side-by-side graphs for the rose industry and a typical firm and show each of the following.

   (i) Industry equilibrium price and quantity, labeled P_m and Q_m, respectively

   (ii) The firm's equilibrium price and quantity, labeled P_f and Q_f, respectively

   (b) Is P_m larger than, smaller than, or equal to P_f?

   (c) Assume that there is an increase in the demand for roses. On your graphs in part (a), show each of the following.

   (i) The new short-run industry equilibrium price and quantity, labeled P_{m2} and Q_{m2}, respectively

   (ii) The new short-run profit-maximizing price and quantity for the typical firm, labeled P_{f2} and Q_{f2}, respectively

   (d) As the industry adjusts to a new long-run equilibrium,

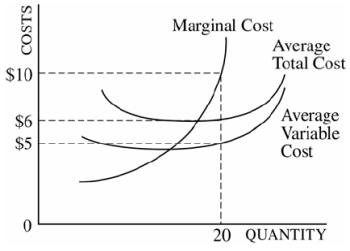
   (i) what will happen to the number of firms in the industry? Explain.

   (ii) will the firm's average total cost curve shift upward, shift downward, or remain unchanged?

   (e) In the long run, compare the firm's profit-maximizing price to each of the following.

   (i) P_f in part (a)(ii)

   (ii) P_{f2} in part (c)(ii)



50. The graph above shows the cost curves for a competitive firm that produces 20 units of output. What are the total cost and the total fixed cost of producing 20 units of output?

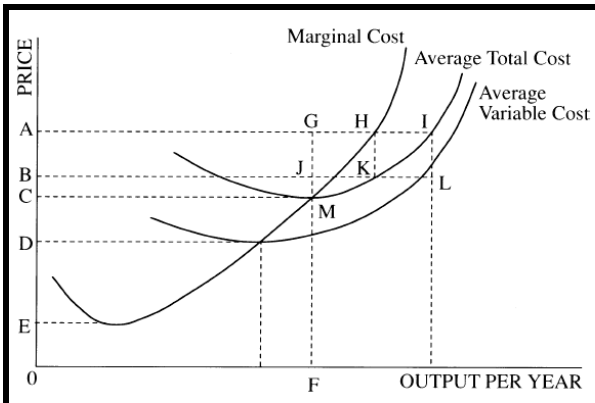
	Total Cost	Total Fixed Cost
(A)	$10	$0
(B)	$120	$100
(C)	$120	$20
(D)	$200	$100
(E)	$200	$20

23. If a firm's average total cost decreases as the firm increases its output, the firm's marginal cost must be

(A) greater than the average variable cost
(B) less than the average fixed cost
(C) less than the average total cost
(D) decreasing
(E) negative

38. The short-run supply curve for a firm in a perfectly competitive industry is

(A) its entire marginal cost curve
(B) its average variable cost curve above its marginal cost curve
(C) its average total cost curve above its marginal cost curve
(D) its marginal cost curve above the minimum point of its average total cost curve
(E) its marginal cost curve above the minimum point of its average variable cost curve



At the price 0A, economic profits are
(A) ABJG (B) ABKH (C) ABLI (D) ACMG (E) C0FM

In the short run, the firm will stop production when the price falls below
(A) 0A (B) 0B (C) 0C (D) 0D (E) 0E

Which of the following is always true of the relationship between average and marginal costs?
(A) Average total costs are increasing when marginal costs are increasing.
(B) Marginal costs are increasing when average variable costs are higher than marginal costs.
(C) Average variable costs are increasing when marginal costs are increasing.
(D) Average variable costs are increasing when marginal costs are higher than average variable costs.
(E) Average total costs are constant when marginal costs are constant.

If a perfectly competitive industry is in long-run equilibrium, which of the following is most likely to be true?
(A) Some firms can be expected to leave the industry.
(B) Individual firms are not operating at the minimum points on their average total cost curves.
(C) Firms are earning a return on investment that is equal to their opportunity costs.
(D) Some factors are not receiving a return equal to their opportunity costs.
(E) Consumers can anticipate price increases.

A market is clearly NOT perfectly competitive if which of the following is true in equilibrium?
(A) Price exceeds marginal cost.
(B) Price exceeds average variable cost.
(C) Price exceeds average fixed cost.
(D) Price equals opportunity cost.
(E) Accounting profits are positive.

As its output increases, a firm's short-run marginal cost will eventually increase because of
(A) diseconomies of scale
(B) a lower product price
(C) inefficient production
(D) the firm's need to break even
(E) diminishing returns

Output	Total Cost
0	$13
1	20
2	25
3	28
4	32
5	43
6	60

The marginal cost of producing the fourth unit of output is
(A) $ 4
(B) $11
(C) $19
(D) $32
(E) impossible to determine from the information given

26. Assume that a firm that produces a good in a constant-cost perfectly competitive industry is in long-run equilibrium. If the demand for the good increases, the profit-maximizing output by the firm will change in which of the following ways in the short run and long run?

	Short Run	Long Run
(A)	Return to original level	Return to original level
(B)	Increase	Increase
(C)	Increase	Return to original level
(D)	Decrease	Decrease
(E)	Decrease	Return to original level

The total variable cost of producing five units of output is
(A) $ 6
(B) $11
(C) $30
(D) $43
(E) impossible to determine from the information given

Perfect Competition
Price=$70

Output	Total Cost	TFC	TVC	AFC	AVC	ATC	MC	MR	TR	Profits/ Losses
0	$120									
1	$180									
2	$200									
3	$210									
4	$225									
5	$260									
6	$330									

A. Complete the table showing total cost, total average cost, total fixed cost, average fixed cost, total variable cost, average variable cost, and marginal cost
B. At what points does diminishing returns set in?
C. Why are the MC, AVC, and ATC curves U shaped?
D. Why does the MC curve intersect the AVC and ATC curve at their respective lowest points?
E. Draw a hypothetical "mirror" graph of the production, using the same quantity "x-axis" to complete B Remember these significant questions: (a) where is MP when MC is at its minimum (b); where is AP and MP when MC=AVC?

Total, Marginal, and Average Costs

TP	TFC	TVC	TC	MC	AFC	AVC	ATC
0			$ 6.00				
1			$ 11.00				
2			$ 14.00				
3			$ 17.00				
4			$ 22.00				
5			$ 29.00				
6			$ 38.00				
7			$ 49.00				

Perfectly Competitive Firm

Q	Price	TR	TC	Profit	MR	MC
0	$ 11		$ 16.00			
1			$ 22.00			
2			$ 27.50			
3			$ 34.00			
4			$ 42.00			
5			$ 53.00			
6			$ 65.00			