

Name: _____

Unit IV: Imperfect Competition Problem Set #4

1. Practice FRQ

2. Use the chart to complete the following:

- a. Explain why the MR curve less than the demand curve for all imperfectly competitive firms. Use a SPECIFIC numerical example from the chart in your explanation. (____/5)
- b. On a large graph, PLOT the demand and marginal revenue curves. On a new graph below, plot the Total Revenue. Use the total revenue test to EXPLAIN the elastic and inelastic range of the demand curve. Be sure to identify the elastic and inelastic ranges. (____/5)

Price	Quantity Demanded	Total Revenue	Marginal Revenue
\$11.00	0		
10	1		
9	2		
8	3		
7	4		
6	5		
5	6		
4	7		
3	8		
2	9		

3. Complete the following paragraphs:

- a. Compare Monopolistic Competition and Perfect Competition.
- b. Explain Oligopoly.

4. (____/40 Points Total) Create a well-organized **study guide** that includes the essential concepts and graphs for each of the four market structures. Points will be awarded according to the following criteria:

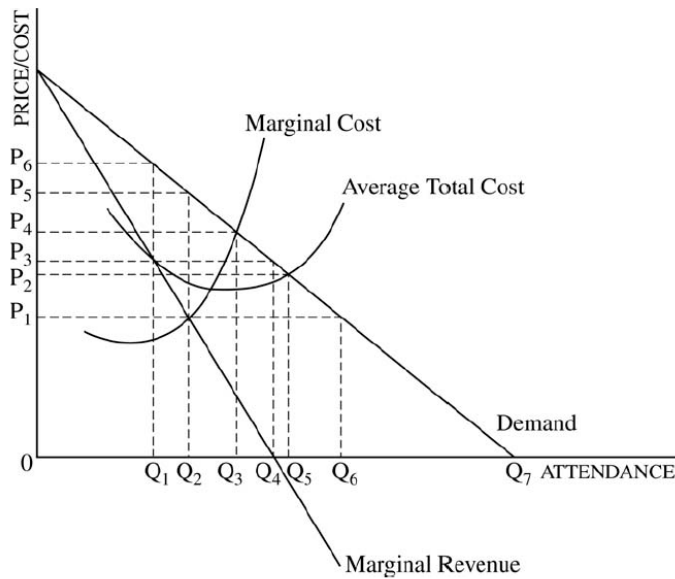
- a. Structure
 - i. Well organized information that is easily accessible (____/5)
 - ii. Clear and well drawn graphs (____/5)
- b. Explanation of General Concepts: (____/5)
 - i. Profit Maximizing Rule
 - ii. Short-Run Supply Curve and Shut-down Point
 - iii. Productive Efficiency
 - iv. Allocative Efficiency
 - v. Excess Capacity
- c. Inclusion of key graphs
 - i. Costs of Production (____/6)
 - 1. Production Function TP, MP, and AP (Graph with three stages)

2. TC, VC, FC (Definitions)
3. MC, ATC, AVC, AFC (Formulas and Graph)
4. Long-Run ATC (Graph showing Economies and Diseconomies of Scale)
- ii. Perfect Competition (____/5)
 1. Characteristics
 2. Firm and Industry in Short-Run Making Profit (Graph)
 3. Firm and Industry in Short-Run Making Loss (Graph)
 4. Firm and Industry in Long-Run equilibrium (Graph)
 5. How economic profit and loss disappear in the Long-Run (Graph)
- iii. Monopolies (____/5)
 1. Characteristics
 2. Demand and MR for imperfectly competitive firms (Elastic and Inelastic range)
 3. Monopoly making a profit (Graph-label Profit, Consumers Surplus, and DWL)
 4. Perfectly Price Discriminating Monopoly (Graph)
 5. Regulated Monopolies (Fair Return and Socially Optimal)
- iv. Monopolistic Competition (____/5)
 1. Characteristics
 2. Firm Making Short-Run Profit (Graph)
 3. Firm Making Short-Run Loss (Graph)
 4. Firm in Long-Run Equilibrium (Graph)
 5. How economic profit and loss disappear in the Long-Run (Graph)
- v. Oligopolies (____/4)
 1. Characteristics
 2. Game-Theory Model (Matrix)
 3. Kinked Demand Curve (Graph)
 4. Profit maximization with Collusion (Graph)

PRACTICE FRQs

Market structures differ from one another in many respects. Consider two profit-maximizing firms that earn short-run economic profits. One is a perfectly competitive firm and the other is a monopoly.

- (a) For each firm, draw a correctly labeled graph showing the following.
 - (i) Price
 - (ii) Quantity of output
 - (iii) Area of economic profits
- (b) For each firm, explain the relationship between price and marginal revenue.
- (c) For each firm, explain how the economic profits would most likely change in the long run.
- (d) Label the area that represents the deadweight loss on the graph for the monopoly firm drawn in (a). Explain what this deadweight loss represents.



There is one art museum on the island of Watsonia. The museum's demand and cost curves are shown in the graph above. The museum currently relies on an admission charge for some of its funding. Its directors are debating about how to set the admission charge.

- (a) Using the labeling of the graph above, identify the price and quantity associated with the following objectives.
- (i) The museum maximizes its profit.
 - (ii) The museum maximizes its total revenue.
 - (iii) The museum maximizes the sum of consumer and producer surplus.
 - (iv) The museum maximizes its attendance, as long as it breaks even.
- (b) When the attendance is Q_1 , is the demand price elastic, inelastic, or unit elastic? Explain.
3. Assume that a profit-maximizing firm in a monopolistically competitive industry is in long-run equilibrium.
- (a) Draw a correctly labeled graph that shows the profit-maximizing firm's price and output.
 - (b) Assume that the city in which this industry operates eliminates the business license fee (a fixed cost) for all firms in this industry. How does the elimination of the license fee affect each of the following for the individual firm in the short run? Explain your answers.
 - (i) Output
 - (ii) Economic profits

Assume that two firms are operating with identical cost schedules, but one firm is in a perfectly competitive industry, and the other is in a monopolistically competitive industry.

- (a) Using two correctly labeled graphs, show the long-run equilibrium price and output levels for each of these two firms.
- (b) Compare the long-run equilibrium price and output levels for these two firms.
- (c) What level of economic profit will each firm earn in the long run? Why do these results occur?
- (d) For each of the two firms at the equilibrium quantity, indicate whether the firm's demand curve is perfectly elastic, elastic, unit elastic, inelastic or perfectly inelastic. How can you tell?

Claire invented product X and obtained a patent to prevent other firms from producing X. She is currently producing product X and earning positive economic profits.

- (a) Using a correctly labeled graph, show each of the following for Claire if she maximizes profits.
 - (i) Output
 - (ii) Price
 - (iii) Economic profits
- (c) Assume now the patent expires and many firms produce the identical product that Claire produces. Using correctly labeled side-by-side graphs for the industry and the firm, show each of the following in long-run equilibrium.
 - (i) Industry price and output
 - (ii) The typical firm's price and output

Due to a new technology, Brunelle Inc. enjoys monopoly power. Brunelle does not engage in price discrimination.

- (a) Explain why the demand curve lies above the marginal revenue curve for Brunelle.
 - (b) Assume that Brunelle is earning short-run economic profits. Using a correctly labeled graph, show the following for Brunelle.
 - (i) Profit-maximizing level of output, labeled as Q^*
 - (ii) Profit-maximizing price, labeled as P^*
 - (iii) Economic profits, as a shaded area
 - (c) If Brunelle wants to maximize its total revenues instead of profits, using the graph from part (b) show the following.
 - (i) Revenue-maximizing level of output, labeled as Q^r
 - (ii) Revenue-maximizing price, labeled as P^r
 - (d) Given your answer in part (b), indicate whether Brunelle is producing the allocatively efficient level of output. Explain.
 - (e) Explain what will happen to Brunelle's demand curve as other firms adopt the same technology.
-

Assume that Clark Electronics has a monopoly in the production and sale of a new device for detecting and destroying a computer virus. Clark Electronics currently incurs short-run losses, but it continues to operate.

- (a) What must be true for Clark to continue to operate in the short run?
- (b) Draw a correctly labeled graph, and show each of the following for Clark.
 - (i) The profit-maximizing price and output
 - (ii) Area of loss
- (c) Assume Clark is maximizing profit. What will happen to its total revenue if Clark raises its price? Explain.
- (d) If demand for the new device increases, explain what will happen to each of the following in the short run.
 - (i) Profit-maximizing output
 - (ii) Total cost

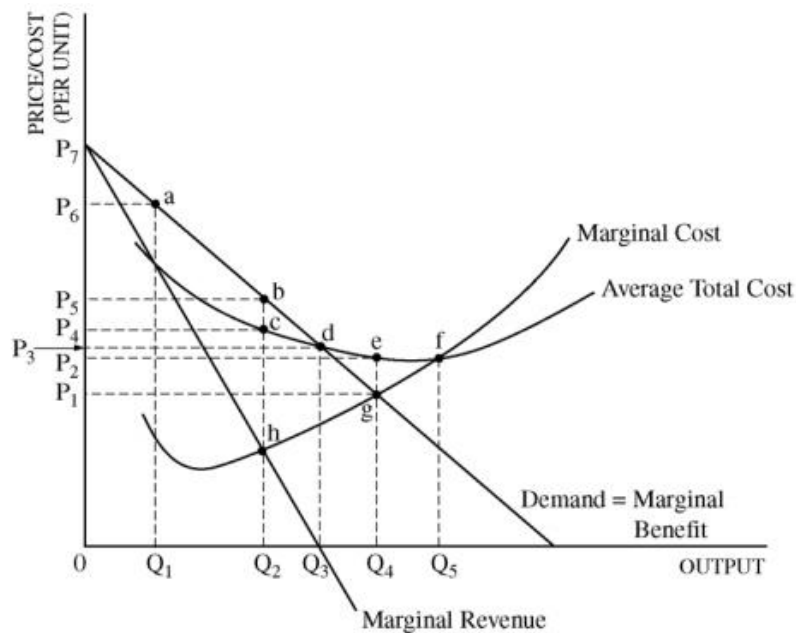
Assume that the cellular telephone industry is monopolistically competitive.

- (a) Assume that cellular telephone manufacturers are earning short-run economic profits. Draw a correctly labeled graph for a typical firm in the industry and show each of the following.
 - (i) The profit-maximizing output and price
 - (ii) The area representing economic profit
- (b) At the profit-maximizing price you identified in part (a), would the typical firm's demand curve be price inelastic? Explain.
- (c) Given the information in part (a), what happens to the demand curve for the typical firm in the long run? Explain.
- (d) Using a new correctly labeled graph, show the profit-maximizing output and price for the typical firm in the long run.
- (e) Does the typical firm produce an output level that minimizes its average total cost in the long run?
- (f) In long-run equilibrium, does the typical firm produce the allocatively efficient level of output? Explain.

Two competing retail firms, Red Shop and Blue Mart, are studying potential locations for new stores in the suburbs of a major city. Each firm must choose between a location north of the city and a location south of the city. The payoff matrix is shown below, with the first entry in each cell indicating Red Shop's daily profit and the second entry indicating Blue Mart's daily profit. Both firms know all of the information in the payoff matrix.

		Blue Mart	
		North	South
Red Shop	North	\$900, \$1,800	\$3,000, \$3,500
	South	\$5,000, \$4,000	\$1,500, \$1,000

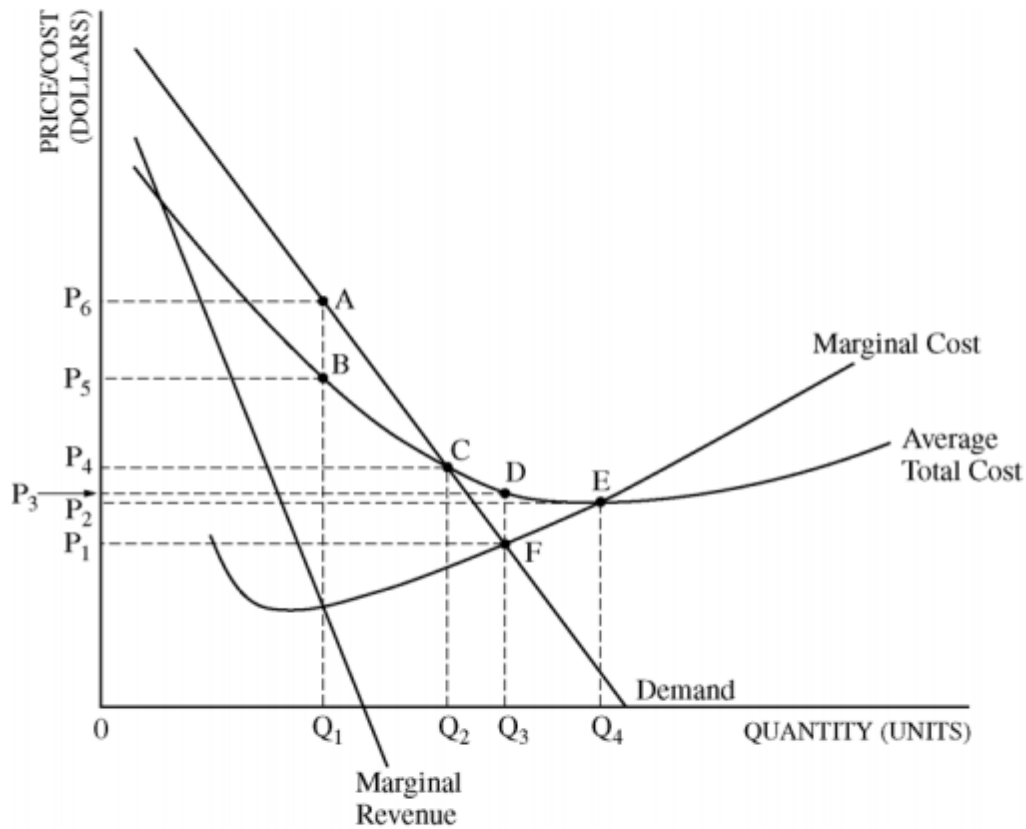
- (a) If Red Shop chooses a location south of the city, which location is better for Blue Mart? Explain.
- (b) Is choosing a location to the south of the city a dominant strategy for Red Shop? Explain.
- (c) If the two firms cooperate in choosing locations, where will each firm locate?
- (d) Assume that the south suburb has enacted an incentive package to attract new business. Any firm that locates south of the city will receive a subsidy of \$2,000 per day. Redraw the payoff matrix to include the subsidy.



1. The graph above shows the demand and cost curves of a firm that does not price discriminate.
 - (a) Suppose the firm produces at the profit-maximizing output. Using the labeling on the graph, identify each of the following.
 - (i) Level of output. Explain.
 - (ii) Price
 - (b) Suppose the firm produces at the revenue-maximizing output. Using the labeling on the graph, identify each of the following.
 - (i) Level of output. Explain.
 - (ii) Price
 - (c) Suppose the government regulates the firm's price to produce the allocatively efficient level of output. Using the labeling on the graph, identify each of the following.
 - (i) The price the government would require the firm to set
 - (ii) The allocatively efficient level of output
 - (d) Suppose the firm produces at the allocatively efficient level of output.
 - (i) Would it be earning a profit or incurring a loss? Explain.
 - (ii) Using the labeling on the graph, identify the area of the profit or loss at the allocatively efficient level of output.
 - (e) Using the labeling on the graph, identify the consumer surplus at the allocatively efficient level of output.
 - (f) Suppose the regulators establish a price that allows the firm to just cover all its opportunity costs. Using the labeling on the graph, identify the price the regulators would set to achieve this objective.
-

Social efficiency is affected by government policy and the structure of markets.

- (a) For a competitive market for which there is a binding (effective) price ceiling, draw a correctly labeled graph and label the price ceiling " P_C ", the quantity sold " Q_A ", and the socially efficient output " Q_B ".
- (b) The graph below shows a natural monopoly.



- (i) Using the labeling in the graph, identify each of the following.
- (1) The profit-maximizing output
 - (2) The socially efficient output
- (ii) At the socially efficient output, is the monopoly making a profit or incurring a loss? Using the labels on the graph, identify the area of profit or loss.
-