Problem Set 5

(due at the beginning of class May 24, 1999)

I. Multiple Choice Questions

For each of the following questions, choose the best answer and explain clearly why you chose that answer over the other choices.

1. and 2. Currently, a firm is in short run equilibrium, producing 1000 units at a total cost of $3500. Price is $7 and marginal cost is $3.50. When a long run equilibrium is established, they produce 500 units at a total cost of $3000. Price is $6 and marginal cost is $3.

1. Based on this information, we can be sure of the following
   a) Marginal revenue in the short run is $7
   b) Marginal revenue in the long run is $3
   c) Minimum short run average total cost is $3.50
   d) All of the above

2. We can predict that this firm is
   a) a monopoly
   b) an oligopoly
   c) monopolistically competitive
   d) perfectly competitive

3. A firm is profit maximizing, selling its product for $2 and paying its workers $10. If the marginal product of labor is 10, and the marginal cost of labor is $20, then we can be certain that this firm is
   a) a monopolist in the output market
   b) a monopsonist in the labor market
   c) both a) and b)
   d) neither a) nor b)

4. A monopolistically competitive firm is currently operating at its minimum average total cost of $12 and is producing 50 thousand units of output. If the market price is $14, then we can be sure
   a) the firm may be in long run equilibrium
   b) the firm may be in short run equilibrium
   c) both a) and b)
   d) none of the above

5. A natural monopoly will be unwilling to charge an output price equal to marginal cost because, at that output level
   a) the firm's average fixed costs are high.
   b) the firm may have excess capacity compared to it's preferred output level.
   c) marginal revenue is likely to be greater than marginal cost
   d) average total cost is likely to be greater than price.
II. Short Answer Questions

1. Suppose that there is a natural monopoly with revenue and cost curves as shown below. If the table below gives the exact demand curve that is graphed below, explain how a block pricing regulatory scheme can allow this firm to produce at the socially efficient level of output and still make profits, even though average cost is always above the demand curve.

<table>
<thead>
<tr>
<th>MR</th>
<th>PQ</th>
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<tbody>
<tr>
<td>$1501</td>
<td>$1252</td>
</tr>
<tr>
<td>$1003</td>
<td>$754</td>
</tr>
</tbody>
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III. In-depth Problem

Suppose supply and demand in the sandwich market are as shown below.

a) Suppose that a price ceiling of $3 is imposed on this perfectly competitive market. How many sandwiches are sold? Is this more or less than would be sold without a price ceiling? Briefly explain how you obtained your answers.

b) Suppose that the sandwich market is monopolized, but there is no price ceiling. Add the marginal revenue curve to the diagram. How many thousands of sandwiches are sold? At what price? Briefly explain how you obtained your answers.

c) Suppose that the price ceiling of $3 is imposed on the monopolized market. How many thousands of sandwiches are sold? Briefly explain how you obtained your answers.

d) Suppose that a price ceiling of $5 is imposed on the monopolized market. Are more, less or the same number of sandwiches sold as in c)? Are more, less or the same number of sandwiches sold as would be the case if the market were perfectly competitive and had a price ceiling of $5? Briefly explain how you obtained your answers.