Rose-Hulman Institute of Technology
Department of Humanities & Social Sciences / K. Christ
SL151, Principles of Economics

Sample Exam 2

Part 1: Terms, Numeric Solutions, and Short Answer

1. Terms:

   a. The change in total output associated with one additional of a production input.

   b. Reductions in minimum average costs that come about through increases in all production imputs.

   c. A market structure characterized by competition among a small number of sellers.

   d. Obstacles that make it difficult or impossible for would-be producers to enter a market.

   e. The ability to alter the market price, to raise and sustain it above marginal cost.

2. Consider the following cost and revenue information about a privately owned business:

   - Daily operating expenditures are $150 for wages and salaries, $200 for materials, and $100 for equipment rental.
   - The owner-manager of the firm owns the building in which it operates. If the firm were not operating in the building, the owner could rent the building for $50 per day.
   - The owner-manager does not draw a salary but could receive income of $200 per day by working elsewhere.
   - Total daily revenue is $600.

   a. What is daily accounting profit?

   b. What is daily economic profit?

3. Consider the following hypothetical cost function:

$$C(q) = 200 + 40q - 0.15q^2 + 0.001q^3$$

a. Write out an expression for average total cost.

b. Write out an expression for marginal cost.

c. If this is the cost function for a firm operating in a perfectly competitive market, and the market price is 40, what is the firm's optimum level of output?

4. Refer to figure at right and then identify the requested numeric values.

a. Marginal cost of the 125th unit of output: _____

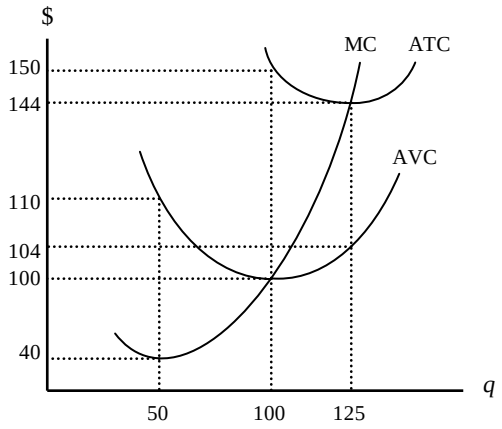
b. The *total cost* of 100 units of output: _____

c. The short-run shut down price: _____

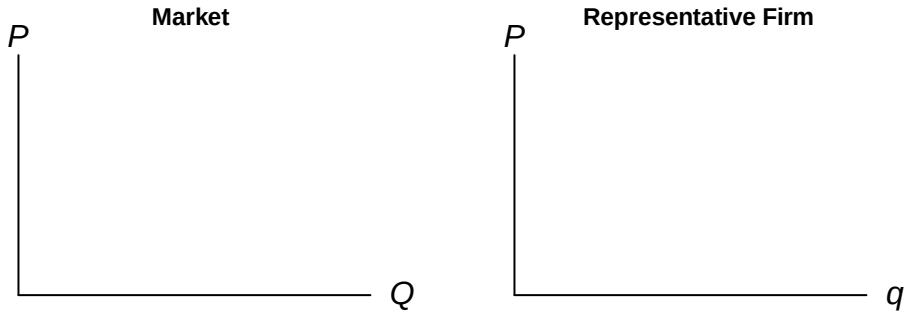
d. The *total fixed cost* for the firm: _____

e. The output level at which the underlying production technology begins to exhibit

diminishing marginal returns: _____



5. Modify the diagram below to illustrate a perfectly competitive market that is in long run equilibrium.

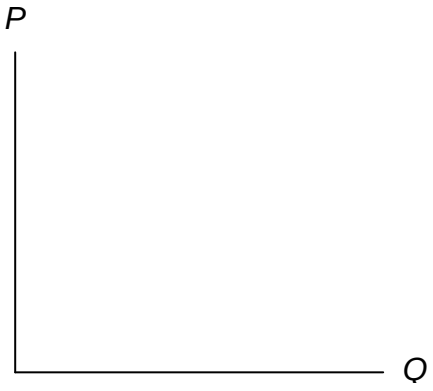


6. If market demand is given by $P = 60 - 0.25Q$, and the cost function for suppliers is $c(q) = .025q^2$,

   a. What is the market outcome $\{P, Q\}$ if the market is monopolized?

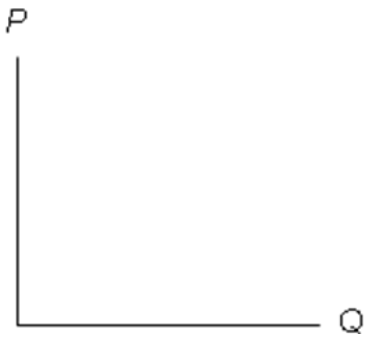
   b. What is the market outcome $\{P, Q\}$ if the market is perfectly competitive?

   c. In the space below, construct a diagram illustrating and comparing these outcomes.



7. What is consumer surplus, and how is it measured? Other things equal, what happens to consumer surplus if the price of a good falls? Why?

8. Modify the diagram below to illustrate the effects of a negative externality, and briefly explain how the government could use a Pigouvian solution to improve market efficiency.



Part 2: Multiple Choice

1. Suppose that the equilibrium price in the market for some good is $5. If a law increased the minimum legal price to $6
   a. the resulting increase in consumer surplus would be larger than any possible loss of producer surplus.
   b. the resulting increase in consumer surplus would be smaller than any possible loss of producer surplus.
   c. any possible increase in producer surplus would be larger than the loss of consumer surplus.
   d. any possible increase in producer surplus would be smaller than the loss of consumer surplus.

2. Suppose a tax of $1 per unit is imposed on a good. The more elastic the supply of the good, other things equal, the
   a. smaller is the response of quantity supplied to the tax.
   b. larger is the tax burden on sellers relative to the tax burden on buyers.
   c. larger is the deadweight loss of the tax.
   d. All of the above are correct.

3. Suppose that policymakers are considering placing a tax on either of two markets. In Market A, the tax will have a significant effect on the price consumers pay, but it will not affect equilibrium quantity very much. In Market B, the same tax will have only a small effect on the price consumers pay, but it will have a large effect on the equilibrium quantity. Other factors are held constant. In which market will the tax have a larger deadweight loss?
   a. Market A
   b. Market B
   c. The deadweight loss will be the same in both markets.
   d. There is not enough information to answer the question.

4 Trade raises the economic well-being of a nation in the sense that?
   a. The gains of the winners exceed the losses of the losers.
   b. Everyone in an economy gains from trade.
   c. Since countries can choose what products to trade, they will pick those products that are most beneficial to society.
   d. The nation joins the international community when it begins to engage in trade.

5. Turkey is an importer of wheat. The world price of a bushel of wheat is $7. Turkey imposes a $3-per-bushel tariff on wheat. Turkey is a price-taker in the wheat market. As a result of the tariff,
   a. Turkish consumers of wheat and Turkish producers of wheat become worse off.
   b. Turkish consumers of wheat become worse off and Turkish producers of wheat become better off.
   c. Turkish consumers of wheat become better off and Turkish producers of wheat become worse off.
   d. Turkish consumers of wheat and Turkish producers of wheat become better off.

6. In economic terms, the number of sellers in a market is considered to be large when
   a. the total exceeds 100
   b. they cannot be easily counted
   c. no single seller can affect the price by changing its level of output
   d. no seller controls more than 20 percent of the total market supply

7. If, at its current level of production, a competitive firm finds that price is greater than marginal cost, the firm should:
   a. decrease output because marginal costs are increasing.
   b. increase output because additional units of output will add to the firm's profits (or reduce losses).
   c. increase output because the price it receives for its product is increasing.
   d. decrease output because marginal costs are decreasing.

8. Ken's Lawn Service Co. operates in a perfectly competitive market. Why doesn't Ken try to increase his revenue by lowering his price below the prevailing market price?
   a. he can sell as much as he wishes to at the market price
   b. he faces a perfectly inelastic demand curve, so a price change will have no impact on revenue
   c. if he lowers his price, he will lose all his sales since he faces a horizontal demand curve
   d. agreements with other lawn service companies require him to sell at the market price

9. For a monopolist, the demand curve facing the firm is:
   a. Flatter or more horizontal than in a competitive market.
   b. The same as the market-demand curve.
   c. Always below *MR*.
   d. Used to determine the output level to produce.

10. A monopoly realizes larger profits than a comparable competitive market by:
   a. Setting a higher price at the competitive level of output, thereby increasing total revenue.
   b. Producing a greater quantity at the competitive price, thereby increasing profits.
   c. Producing at output levels with more favorable cost structures and charging the competitive market price, thereby increasing profits per unit.
   d. Reducing production and pushing prices up.

11. Predatory pricing is a term that describes a practice where
   a. A firm lowers price temporarily to drive out competitors.
   b. Firms agree to fix prices.
   c. A firm sets its price at minimum average total cost.
   d. Two firms agree to work together to keep a rival firm out of the industry.

12. When firms in a competitive market are experiencing zero economic profits, this is an indication that:
   a. they should be producing a different product.
   b. they are using society's scarce resources in the best way.
   c. accounting losses are being experienced by these firms.
   d. they need to hang on a bit longer until some other firms leave the market.

Sample Exam 2 -- Solutions

Part 1: Terms, Numeric Solutions, and Short Answer

1. Terms:

   a. The change in total output associated with one additional of a production input.

      Marginal Product

   b. Reductions in minimum average costs that come about through increases in all production imputs.

      Economies of Scale

   c. A market structure characterized by competition among a small number of sellers.

      Oligopoly

   d. Obstacles that make it difficult or impossible for would-be producers to enter a market.

      Barriers to Entry

   e. The ability to alter the market price, to raise and sustain it above marginal cost.

      Market power (or monopoly power)

2. Consider the following cost and revenue information about a privately owned business:

   - Daily operating expenditures are $150 for wages and salaries, $200 for materials, and $100 for equipment rental.
   - The owner-manager of the firm owns the building in which it operates. If the firm were not operating in the building, the owner could rent the building for $50 per day.
   - The owner-manager does not draw a salary but could receive income of $200 per day by working elsewhere.
   - Total daily revenue is $600.

   a. What is daily accounting profit? *150*

   b. What is daily economic profit? *- 100*

3. Consider the following hypothetical cost function:

$$C(q) = 200 + 40q - 0.15q^2 + 0.001q^3$$

d. Write out an expression for average total cost.

ATC = 200/q + 40 – 0.15q +0.001q²

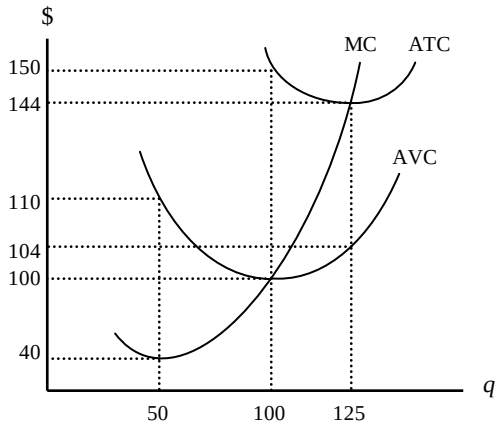
e. Write out an expression for marginal cost.

MC = 40 – 0.3q +0.003q²

f. If this is the cost function for a firm operating in a perfectly competitive market, and the market price is 40, what is the firm's optimum level of output?

Set MC = Price (the competitive market outcome) and solve for q: q = 100

4. Refer to figure at right and then identify the requested numeric values.



a. Marginal cost of the 125th unit of output: *144*

b. The *total cost* of 100 units of output: *15,000*

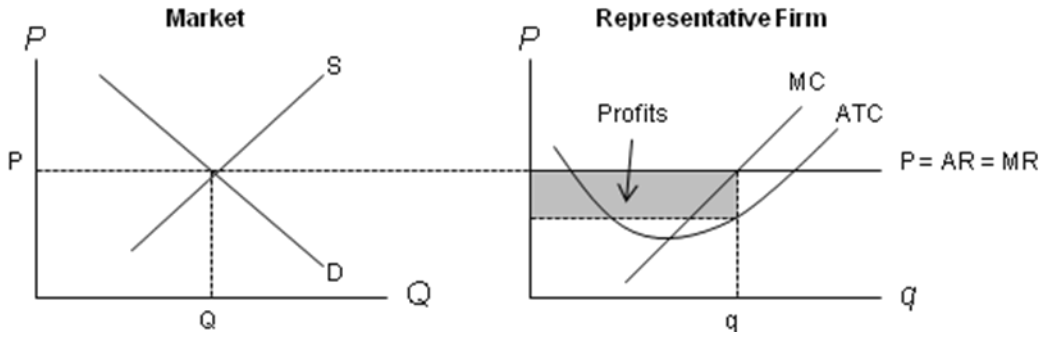
c. The short-run shut down price: *100 (min. AVC)*

d. The *total fixed cost* for the firm: *5,000*

e. The output level at which the underlying production technology begins to exhibit

diminishing marginal returns: *q = 50 (min. MC)*

5. Modify the diagram below to illustrate a perfectly competitive market in which positive economic profits exist.



See Mankiw's Figure 5 on p. 276, panel (a) for the right-hand side of this diagram. Draw a standard supply and demand curve in the left-hand side, with the price corresponding to P = AR = MR for the firm.

6. If market demand is given by $P = 60 - 0.25Q$, and the cost function for suppliers is $c(q) = .25q^2$,

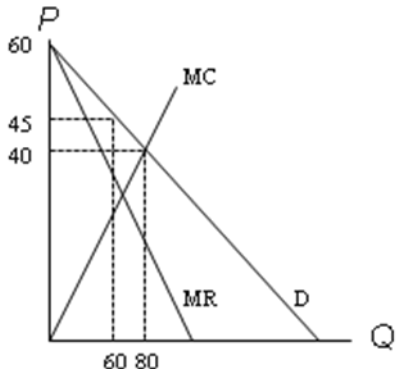
   a. What is the market outcome {*P*, *Q*} if the market is monopolized?

      MR = MC, 60 – 0.5Q = 0.5Q,
      Q = 60, P = 45

   d. What is the market outcome {*P*, *Q*} if the market is perfectly competitive?

      P = MC, 60 - .25Q = 0.5Q,
      Q = 80, P = 40

   e. In the space below, construct a diagram illustrating and comparing these outcomes.

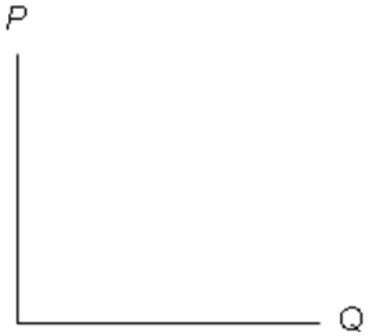


7. What is consumer surplus, and how is it measured? Other things equal, what happens to consumer surplus if the price of a good falls? Why?

   Consumer surplus measures the benefit to buyers of participating in the market. It is measured as the difference between a buyer's willingness to pay and the market price. For a market as a whole, it is the area under the demand curve and above the price.

   When the price of a good falls, consumer surplus increases for two reasons. Existing purchasers now get the good for a lower price and new customers enter the market because the price is now lower than their willingness to pay.

8. Modify the diagram below to illustrate the effects of a negative externality, and briefly explain how the government could use a Pigouvian solution to improve market efficiency.



   See Mankiw's Figure 2 on p. 206. A Pigouvian solution would be a tax that approximates the value of the social or external cost.

Part 2: Multiple Choice

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