ECB 201: Principles of Microeconomics, Midterm Exam 2 Answers

November 16, 2023

Name and section: ____________________

Instructions: There are three sections to this exam worth 70 points in total:

- 10 multiple choice questions, (20 points)
- 10 True/false questions, (20 points)
- 5 short answer questions, (30 points)

Clearly mark your answers in the exam book. For True/False questions, if the answer if false, briefly explain why. You may use a calculator but no other resources are permitted.

Multiple choice section: Clearly circle the most correct answer for each question.

1. A firm is earning positive economic profits in a monopolistically competitive market. In the long run:
   - A. Other firms will sell substitutes, decreasing demand
   - B. **Other firms sell identical products, increasing supply**
   - C. They will continue to earn positive economic profits
   - D. Their market power will decrease, causing them to make negative economic profits
   - E. Their marginal revenue will be equal to price

   In monopolistically competitive markets, each frim sells a differentiated product so other firms sell substitutes, but not perfect substitutes. This decreases demand as they enter seeking the excess profits in the industry.

2. In the long run, firms operating under monopolistic competition:
   - A. Are subject to barriers to exit
   - B. Are allocatively efficient but not productively efficient
   - C. Are both allocatively and productively efficient
   - D. **Are productively efficient but not allocatively efficient**
   - E. Are neither allocatively nor productively efficient

   In teh long run, firms earn zero economic profit, making them productively efficient but they still produce less than would be produced under perfect competition.

3. A firm will produce in the short run but exit the market in the long run if:
   - A. $ATC < P < AVC$
   - B. $\mathbf{AVC < P < ATC}$
   - C. $AVC < ATC < P$
   - D. $P < AVC < ATC$
   - E. $ATC < P < AVC$

   Firms operate in the short run if their price is greater than their average variable costs, (making their operating profits positive,) but they will exit the market in the long run as they are still earning a negative profit overall.

4. If a market is allocatively efficient:
   - A. Producers earn positive economic profits
   - B. Firms earn only normal profits
   - C. All surplus goes to consumers
   - D. The quantity supplied equals the quantity demanded
   - E. **The marginal benefit of the last unit consumed is equal to the marginal cost to produce it**

5. The restaurant industry is characterized by many small firms which sell differentiated products with free entry and exit of firms. In the long run, firms in the restaurant industry will:

   A. **Earn zero economic profit**

   B. Earn positive economic profits

   C. leave the industry

   D. Produce output at the minimum average cost

   E. Diversify their output

   With free entry and exit, firms will enter or exit until there is no incentive to do so. If there are positive economic profits to be had, firms will have incentive to enter; if there are negative profits, there is incentive to leave.

6. Which of the following industries is most likely to support a natural monopoly

   A. Smartphone apps

   B. Coffee beans

   C. **Electricity transmission**

   D. Hotels

   E. Clothing

   Electrical transmission requires a massive upfront investment and high fixed costs so it is likely that the industry structure would only allow one firm to operate profitable.

7. Relative to an otherwise identical firm operating in a perfectly competitive market, a firm with market power

   A. Produces a lower quantity and charges a lower price

   B. **Produces a lower quantity and charges a higher price**

   C. Producer a higher quantity and charges a lower price

   D. Produces a higher quantity and charges a higher price

   E. There is no consistent pattern.

8. If a firm has market power:

   A. Demand is perfectly elastic

   B. They can force other firms to leave the market

   C. They can increase their customers' demand

   D. **Their marginal revenue is less than the price**

   E. They will always earn a positive profit

   If a firm has market power, their choice of output quantity affects the price they can sell it for. This means Mr is lower than price

9. Under which market structures do firms earn zero economic profit in the long run?

   A. Perfect Competition

   B. Monopolistic Competition

   C. Monopoly

   D. **Both Perfect Competition and Monopolistic Competition**

   E. All market structures

10. The market for banjos in initially in equilibrium. After this, several manufacturers of banjos exit the market and the price of large copper kettles, (a complement to the consumption of banjos,) falls. Relative to the initial equilibrium, the new equilibrium in the banjo market will have:

    A. **Higher prices but we cannot predict the quantity**
    B. Lower prices but we cannot predict the quantity
    C. Higher quantity but we cannot predict the price
    D. Lower quantity but we cannot predict the price
    E. We cannot predict the change in either price or quantity

    The firms exiting the market will decrease supply and the decrease in a price of complements will increase demand. Both factors raise the equilibrium price but their impacts on quantity are in opposite directions, making the final impact ambiguous.

True or False section. For each question, indicate whether the statement is true or false; if false, briefly explain why.

1. A monopolist's market power guarantees that they earn a positive economic profit.

   False. If there is little or no demand for a product, it does not matter that a firm has a monopoly.

2. If a firm in a perfectly competitive market is producing a quantity where their marginal costs exceed their marginal revenue, they should increase their production to increase their profit.

   False. They should decrease their output as the last units produced cost more to produce than they brought in as revenue.

3. A monopolist will never choose a price and quantity on the inelastic portion of the demand curve for their product.

   True. They could reduce their quantity and raise their price which both increases their revenue and decreases their costs.

4. A store announces that they will have a 50% off sale in December. This will cause demand for their product in November to increase.

   False. Demand for their product will decrease. Consumers will delay their purchase if they learn that it will be cheaper in the near future.

5. A perfectly inelastic demand curve is vertical.

   True

6. Monopolists' market power allows them to charge whatever price they please for their output.

   False. Monopolists are still constrained by the demand for their product. In order to charge a higher price the firm must reduce the quantity they intend to sell.

7. Economic costs are always higher than accounting costs.

   False. Economic costs would not include sunk costs while accounting costs would. this may make accounting costs higher.

8. Monopolies are illegal under federal law in the United States.

   False. Monopolies are not illegal as a general rule. Anti-trust legislation is written to address specific cases where monopolists use their size to artificially restrict competition.

9. The Long Run is defined by time and is several years in the future for most industries.

   False. The short run versus long run is defined by whether or not there are fixed costs. In the long run, there are no fixed costs and firms can change anything about their production plan and choice of inputs

10. Firms do not want to continue operating in a market if they are earning zero economic profits.

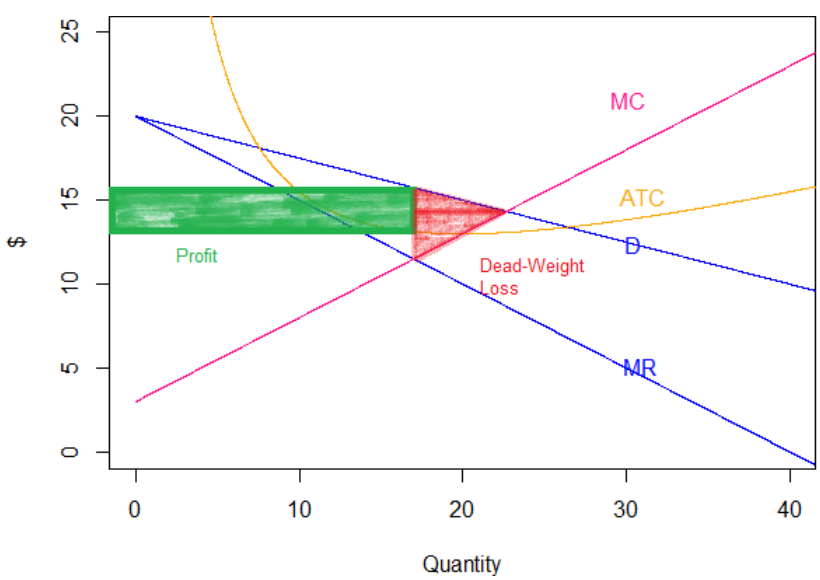
    False. Zero economic profits are normal profits and they are being appropriately compensated for their resources. They cannot leave the industry and make more in another.

Short answer section. Briefly address each question; a sentence or two is sufficient

1. *Perfect Competition:* Briefly explain why $P = MR$ causes efficient outcomes under perfect competition

   Under perfect competition, $P = MR = AR$. The price measures the willingness to pay for the last buyer of the good and the marginal revenue measures the benefit to the firm from producing that last unit. This means that the incentives for the firm, maximizing their profit, coincide with the wants of the consumers.

2. *Monopoly* A monopolist holds a patent for a new prescription drug and faces the cost and demand curves depicted below:



   Shade in the areas representing **A) the firm's profit or loss** and **B) dead-weight loss** in this market relative to a firm with the same cost structure operating under perfect competition.

3. *Welfare Analysis:* Suppose that, to maintain their monopoly, the firm in the previous question engages in lobbying to extend the length of their patent protection. This costs the firm a great deal of money and results in no utility gains to consumers. What does this mean for our welfare analysis in this market; is the area of dead-weight loss you indicated overestimating, underestimating, or accurately estimating the true social cost of the barrier to entry? Why?

The dead-weight loss likely underestimates the true social cost if it does not account for the lobbying spending. Resources are being used to maintain the barrier to entry and not providing any utility to consumers.

4. *Perfect competition and price taking:* Assume that a firm is operating in a perfectly competitive industry with an equilibrium price $p^{\star}$.

   - A) What would happen if a firm set their price above the market price $p^{\star}$; would this maximize their profits?
   - B) What would happen if a firm set their price below the market price $p^{\star}$; would this maximize their profits?

If the firm tries to sell their good at a price above the market price, they will not sell anything since consumers would purchase from another firm selling the good at the market price. If they sell at a price below $p^{\star}$, they will still sell all they produce but, because they are so small relative to the entire industry, they will not sell any more than they would have at the market price, meaning they are leaving money on the table and not maximizing their profit. Putting these two statements together, we show that the firm is maximizing their profit by selling their output at the market price: $p^{\star}$

5. (10 pts.) *Characteristics of Perfect Competition:* List three of the five conditions of perfect competition. For each one, explain briefly why it matters for firms' or consumers' behavior.

- Many small firms: Each firm accounts for such a small portion of the total output in their industry that their individual choices have no impact on the prevailing market price. This means that the market price is equal to the marginal revenue for any quantity they produce.
- Homogeneous products: Because all products are the same, there is no room for consumers to have any personal preferences other than preferring a lower price. This makes the demand curve faced by each individual firm perfectly elastic.
- No barriers to entry or exit: In the long run, firms will enter if there are positive economic profits to be had, increasing supply and driving the market price down until all firms earn normal profits.
- Fully informed agents: All 'players' in the game know the price everyone else is charging, their costs, and the market supply and demand. This means that they can react quickly and accurately to the other agents' choices.
- Freely moving prices: We assume that firms have no long lasting contracts to sell at a particular price so the market can react quickly to changes in costs, supply, or demand.