

ECB 201: Principles of Microeconomics, Final Exam

December 20, 2023

Name: _____

Instructions: There are three sections to this exam worth 100 points in total:

- 20 multiple choice questions, (40 points)
- 10 True/false questions, (20 points)
- 8 short answer questions, (40 points)

Clearly mark your answers in the exam book. For True/False questions, if the answer is false, briefly explain why. You may use a calculator and a single sheet of hand-written notes; no other resources are permitted.

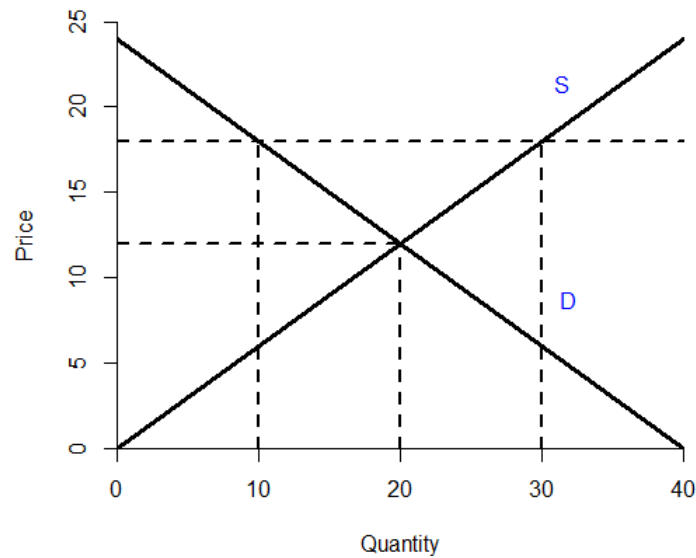
Help Received:

“A Cadet will not lie, cheat, steal, nor tolerate those who do.”

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

1. Coke and Pepsi are substitutes; if the price of Pepsi falls, what is most likely to happen in the market for Coke?
 - A. Demand will decrease
 - B. Demand will increase
 - C. Quantity demanded will decrease
 - D. Quantity demanded will increase
 - E. Demand remains constant but supply decreases
2. Firms seek to maximize their _____ while consumers seek to maximize their _____.
 - A. Revenue; Marginal Utility
 - B. Profits; Marginal Utility
 - C. Revenue; Total Utility
 - D. Profits; Total Utility
 - E. Profits; Total Wealth
3. A consumer spends all of their income on a bundle containing some amount of two goods: x and y. Their marginal utilities per dollar is 11 for the last unit of x and 11 for the last unit of y. To maximize their utility subject to their budget constraint, the consumer should:
 - A. Consume more y and less x
 - B. Consume more x and less y
 - C. Consume more of x and the same amount of y
 - D. They are already maximizing their utility
 - E. There is not enough information to determine the answer
4. An economist for Speedway Convenience Stores estimates the cross price elasticity for Faygo brand soda and Mt. Dew to be +.5. This means that the two goods are:
 - A. Compliments
 - B. Substitutes
 - C. Inelastic pairs
 - D. Normal goods
 - E. Inferior Goods
5. A firm that sells only one product lowers their prices by a small amount and finds that they sell a greater quantity and their revenue has increased. Which of the following is the most likely value of the elasticity of demand for their product?
 - A. 0
 - B. $-\frac{1}{3}$
 - C. -1
 - D. -2
 - E. $-\infty$

6. Use the graph below to answer the following question:



What is the result of a price ceiling set at \$ 18.00 in this market?

- A. A shortage of 20 units
- B. A surplus of 30 units
- C. A surplus of 20 units
- D. A shortage of 10 units
- E. The market will be in equilibrium

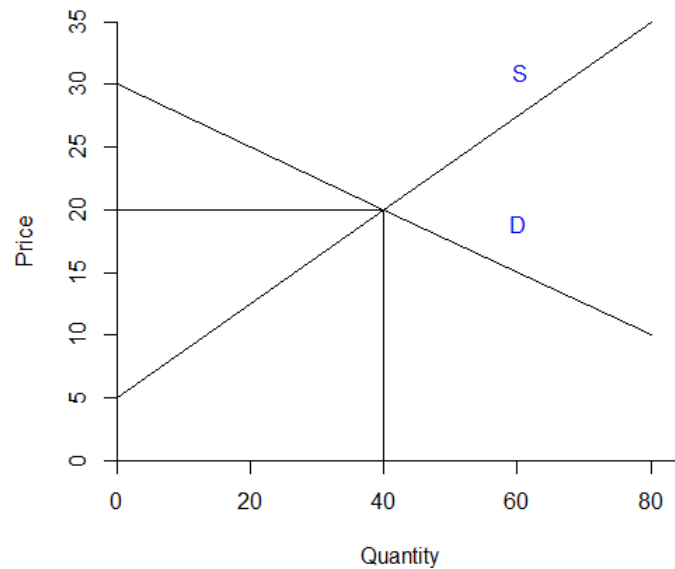
7. The market for pickleball paddles is initially in equilibrium. Following this, two things change:

- The price of polymer honeycomb cores, a component to manufacture paddles, increases
- The price of tennis racquets, a substitute for pickleball paddles, decreases

Relative to the initial equilibrium in the market for pickleball paddles, we can predict that:

- A. The quantity will increase but we cannot predict the price.
- B. The quantity will decrease but we cannot predict the price.
- C. The price will increase but we cannot predict the quantity.
- D. The price will decrease but we cannot predict the quantity.
- E. There is insufficient information to predict either price or quantity.

8. Use the graph below to answer the next question



Assuming the market is in equilibrium, what is the value of consumer surplus?

- A. \$ 600
 - B. \$ 400
 - C. \$ 200
 - D. \$ 500
 - E. \$ 300
9. An economist estimates the income elasticity of demand for pasta to be $-\frac{3}{2}$, this means that pasta is a/an...
- A. Normal good
 - B. Giffen good
 - C. Luxury good
 - D. Inferior good
 - E. Elastic good
10. Firms are currently earning positive economic profits in a monopolistically competitive market. In the long run:
- A. Other firms will enter the market and sell substitutes, decreasing demand
 - B. Other firms will enter the market and sell identical products, increasing supply
 - C. They will continue to earn positive economic profits indefinitely
 - D. Competing firms will leave the market, reducing supply
 - E. Their marginal revenue will be equal to price

11. A firm will produce nothing in the short run and exit the market in the long run if:
- A. $ATC < P < AVC$
 - B. $AVC < P < ATC$
 - C. $AVC < ATC < P$
 - D. $P < AVC < ATC$
 - E. $AFC < P < AVC$
12. 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
13. The restaurant industry is characterized by many small firms which sell differentiated products with free entry and exit of firms, satisfying the conditions of monopolistic competition. 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
14. Which of the following industries is most likely to support a natural monopoly
- A. Instant ramen
 - B. Coffee beans
 - C. Hotels
 - D. Clothing
 - E. Mass Transit
15. 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. Produces a higher quantity and charges a lower price
 - D. Produces a higher quantity and charges a higher price
 - E. There is no consistent pattern.
16. 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

17. A paper mill and a fishery both use the same river. The paper mill disposes waste into the river to save money and the fishery harvests fish from the river. The paper mill's pollution reduces the fish population and decreases the fishery's profits. According to the Coase Theorem, the paper mill will:
- A. reduce their pollution only if the fishery owns the rights to the river.
 - B. reduce their pollution only if the paper mill owns the rights to the river.
 - C. reduce their pollution regardless of which firm owns the river rights.
 - D. never reduce their pollution.
 - E. purchase the fishery in the long run.
18. Ideally, a tax imposed to minimize the dead-weight loss caused by a negative externality should be equal to:
- A. Marginal Private Cost
 - B. Marginal Social Cost
 - C. Marginal Damage Cost
 - D. Average total cost
 - E. Marginal Social Benefit
19. If there is a negative externaltiy in a perfectly competitive market without government intervention, then there will likely be:
- A. Dead-weight loss due to under production.
 - B. Dead-weight loss due to over production.
 - C. Dead-weight loss due to a shortage.
 - D. Dead-weight loss due to a surplus.
 - E. No dead-weight loss and overall welfare will be maximized.
20. In the Cournot model of oligopoly competition, firms compete on:
- A. Quality
 - B. Quantity
 - C. Price
 - D. Marketing
 - E. None of the above

True or False section. For each question, indicate whether the statement is true or false

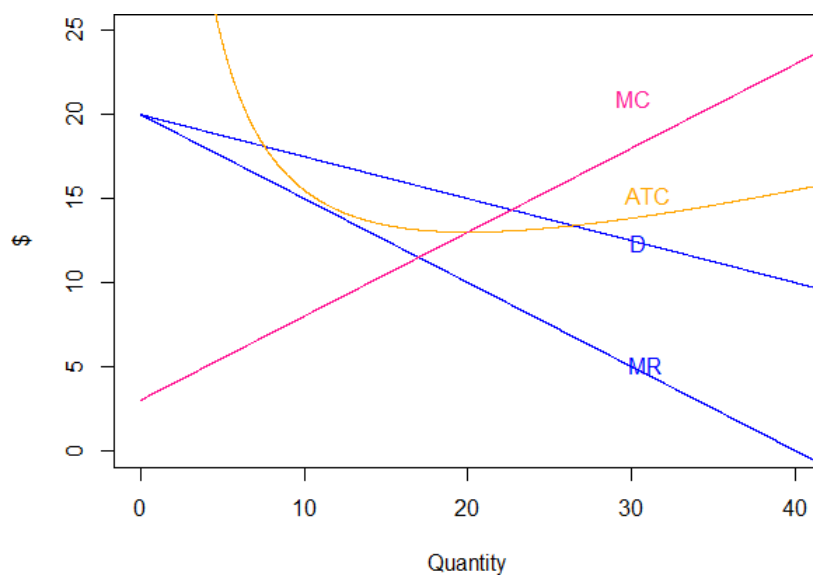
1. The Economic decision makers in our models think 'on the margin' and ignore sunk costs.
2. Firms' marginal costs always eventually increase because the marginal product of their inputs eventually decrease.
3. Suppose a consumer spends all of their income on a bundle of two goods: x and y. If they are maximizing their utility the marginal utility of each good is equal: $MU_x = MU_y$
4. If a company estimates that the demand for their product at the current price is unit elastic, they should cut prices to increase their total revenue.
5. A monopolist's market power guarantees that they earn a positive economic profit.

6. If a firm in a perfectly competitive market is producing a quantity where their marginal revenue exceeds their marginal cost, they should increase their production to increase their profit.
7. A monopolist will never choose a price and quantity on the inelastic portion of the demand curve for their product if they are maximizing their profits.
8. In the short run, firms may be maximizing their economic profits but still be operating at an economic loss.
9. Firms will exit a market if they are earning zero economic profits.
10. If a set of strategies is a Nash equilibrium for a game, then the outcome is the highest possible payoff for all players.

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

1. A convenience store chain sells 50 donuts per store per day for \$2.00 each. They run a promotion cutting the price to \$1.50 and sell 64 donuts per store per day. Calculate the elasticity of demand for donuts. Should the company raise or lower their prices to maximize their revenue?
2. In the market for rental properties at a ski resort, the quantity demanded is high in the winter when prices are high and the quantity demanded is low in the summer when the price is low; why does this not violate the Law of Demand?

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



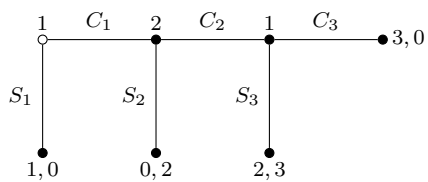
Shade in the areas representing **A) the firm's profit or loss** and **B) dead-weight loss** in this market relative to a firm with the same cost structure operating under perfect competition.

4. *Perfect competition and price taking:* Assume that a firm is operating in a perfectly competitive industry with an equilibrium price p^* .
- A) What would happen if a firm set their price above the market price p^* ; would this maximize their profits?
 - B) What would happen if a firm set their price below the market price p^* ; would this maximize their profits?
5. *Characteristics of Perfect Competition:* List two of the five conditions of perfect competition. For each one, explain briefly why it matters for firms' or consumers' behavior.

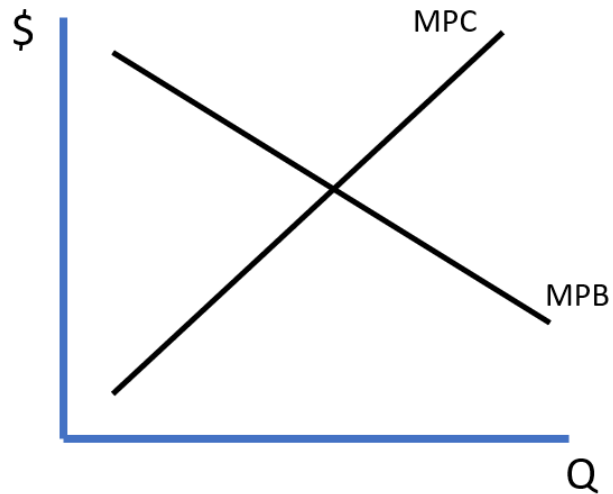
6. *Nash Equilibrium:* Find all Nash equilibria for the game below.

(row player, column player)	Left	Center	Right
Top	2,1	0,0	0,0
Middle	0,0	0,0	0,0
Bottom	1,8	0,0	20,20

7. *Backwards Induction:* Use backward induction to predict the outcome of the game below, assuming that all players are rational and self-interested. Payoffs are given in the form (Player 1, Player 2)



8. *Positive Externalities*: Draw an example marginal social benefit curve for this market if there is a positive externality associated with consumption of this good. Shade in the area representing the dead weight loss.



9. Bonus, 5pts.

Scenario: The Waltz farm grows only wheat and the Burtner farm grows only corn. Other than the crops they grow, the two farms are entirely identical. Assume that corn and wheat use identical resources to grow; either farm can switch to the other crop at the start of the season freely. The Waltz farm is earning a positive economic profit.

Question: Can we make any conclusion about the Burtner farm's economic profit? Explain.