

## Midterm Test

Feb. 23, 2024

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### Multiple Choice Tasks

Select the answer that most closely answers the question.

- 1✓ Which of the following is implied by the post hoc propter ergo hoc fallacy? [4p]
- 89%A. **That correlation does not imply causation.**
- B. That it is possible to approximate a system by replacing all actors with the average actor. *[This is implied by the concept of representative agent]*
- C. That not all costs are explicit. *[This is implied by the concept of opportunity cost]*
- D. None of the above.
- [Post hoc propter ergo hoc fallacy implies that when an event consistently precedes another event, it doesn't necessarily mean that the former had caused the latter]*
2. Which of the following will increase the demand for electricity? [4p]
- A. A decrease in the price of electricity. *[This would increase the quantity demanded for electricity]*
- 71%B. **An increase in the sales of electric vehicles.** *[True since electricity and electric vehicles are complements]*
- 12%C. Both of the above.
- 15%D. None of the above.
3. Which of the following is implied by the statement: "My marginal utility for the 5th slice of pizza was -4"? [4p]
- A. I dislike pizza. *[This is impossible!]*
- 20%B. I enjoyed my 5th slice but less than my 4th. *[Negative marginal utility means that I did not enjoy the 5<sup>th</sup> slice]*
- 64%C. **The 5th slice decreased my total utility from eating pizza.** *[Negative marginal utility means that I had a loss in terms of total utility, when I consumed the 5<sup>th</sup> slice]*
- 15%D. The statement has no implication at all.
4. Which of the following cannot be decreasing as more quantity is produced? [4p]
- 14%A. Marginal cost. *[An additional unit may cost less than its previous unit's cost]*
- B. Average cost. *[An additional unit may cost less on average than what its previous unit cost]*
- 58%C. **Total cost.** *[Since more resources are required to produce extra units, total cost will also increase]*
- 26%D. Opportunity cost. *[Has nothing to do with production cost]*
5. Which of the following markets is more likely to be perfectly competitive? [4p]
- 38%A. The market of hair salons. *[Services provided in this market are usually heterogeneous]*
- B. The market of patented medications for sarcoidosis. *[Patents limit competition in the market]*
- C. The market of high-performance sports cars. *[Products in this market are mostly heterogeneous]*
- 58%D. **The market of Apple shares at the New York Stock Exchange.** *[Apple shares are homogeneous, while many buyers and sellers participate in a market with no barriers of entry]*

- 6✓ A market starts from perfect competition and after a series of mergers, acquisitions and exits, ends up becoming a monopoly. Which of the following is/are true? [4p]
- 16%A. A DWL has emerged.
  - B. Total profit in the industry is now higher.
  - C. Total production in the industry is now lower.
  - 82%D. **All of the above.**  
*[In a PC market DWL and profit are zero, and the largest possible quantity is also produced. If it becomes a monopoly the price will increase, quantity produced will decrease, while DWL and profit will also increase]*
- 7✓ The perfectly competitive quantity in an industry is 100 units. Which of the following would be the case if a 101th unit was sold? [4p]
- 82%A. **The gains from trade from the 101th unit would be negative.** *[At the PC equilibrium quantity all gains of trade are captured; therefore, there will be a relative loss if an extra unit is sold]*
  - B. The demand for the product would increase. *[Nothing mentioned would cause a demand shift]*
  - 13%C. The marginal revenue would increase. *[MR curve's negative slope implies that MR decreases with each additional unit]*
  - D. All of the above.
- 8✓ Which of the following is true in a kinked-demand industry? [4p]
- 11%A. Other rivals may overreact if someone drops the price. *[Competitors may see it as a price war]*
  - B. Other rivals will not care if someone increases the price. *[Competitors are not threatened by price increases]*
  - C. Rivals have somehow agreed to follow some prevailing price. *[Competitors follow the same pricing pattern implicitly or explicitly]*
  - 77%D. **All of the above.**
- 9✓ Which of the following contribute(s) to collusion being unsustainable in a Cournot oligopoly? [4p]
- A. A collusive agreement cannot be legally enforced. *[Firms indeed cannot rely on legal mechanisms to enforce their agreements]*
  - 10%B. A collusive agreement creates an incentive for cheating. *[Each firm has an incentive to deviate and increase its output to capture a larger share of the market and obtain higher profits]*
  - C. Profit for a firm that is cheated upon is lower than its Cournot profit. *[If one firm cheats and increase its output, price will fall and the other firm, which adhered to the collusive quantity, will see its profits decrease]*
  - 84%D. **All of the above.**
- 10✓ Which of the following is more likely to be a public good? [4p]
- A. Transportation services. *[You must pay for the ticket]*
  - B. Health services. *[Hospitals may charge you a fee to provide you with their services]*
  - C. Education services. *[You can exclude someone from education if you charge tuition fees]*
  - 93%D. **Police services.** *[You cannot exclude someone who does not pay; also, the use of police services from a citizen does not preclude their use from another]*

11. Which of the following is illegal? [4p]

12%A. Charging prices above the monopoly price. *[This is foolish, not illegal]*

68%B. **Charging below your AC to drive rivals out of the market.** *[Predatory pricing is illegal in advanced economies, because it distorts competition]*

C. Charging identical price with your other rivals. *[This happens to many competitive markets]*

12%D. All of the above.

12✓ Which of the following is more likely to be a market failure? [4p]

A. A market where firms produce a heterogeneous good, and thus all firms have market power. *[Since market power arises from product heterogeneity, it is not a market failure]*

B. A country where marijuana, sex work and alcohol are legal. *[Legalizing certain goods and services does not inherently lead to market failure]*

84%C. **A country where the price of the average home is unaffordable for the average family.** *[It means that the housing market fails to allocate the good to those who value it the most]*

D. A market where prices fluctuate on a daily basis. *[If prices fluctuate but equilibrate the demand and the supply, this is not a market failure too]*

13✓ Which of the following is a positive externality? [4p]

A. Second-hand smoking. *[This is a negative externality]*

19%B. The life-long benefits you will receive from your education. *[This is not an externality, since you study for your own benefit]*

C. The utility you receive from attending a concert of your favorite artist. *[This is not an externality; you pay for the utility you get]*

77%D. **None of the above.**

## Problem A

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*[Scenario A] Any firm can enter a market with  $FC = 3,000$ . Production assumes  $AVC = MC = 20$ . Demand is  $p = 200 - 2Q$ , where  $p$  is the price and  $Q$  is the total quantity produced.*

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14✓ In scenario A: What will be the profit, if only one firm enters the market? [4p]

A. Around -1,200.

B. Around -1,000.

C. Around -750.

D. Around -500.

E. Zero.

F. Around 500.

G. Around 750.

89%H. **Around 1,000.**

I. Around 1,200.

*[For the monopoly  $MR = MC$  or  $200 - 4Q = 20$  or  $Q = 45$ . Then,  $p = 200 - 2 \cdot 45$ , or  $p = 110$ . Then,  $\Pi = (p - c)q - FC = (110 - 20)45 - 3,000$  or  $\Pi = 1,050$ ]*

15✓ In scenario A: What will be the profit per firm, if two firms enter the market and compete with respect to quantity? [4p]

77%A. **Around -1,200.**

- B. Around -1,000.
- C. Around -750.
- D. Around -500.
- E. Zero.

12%F. Around 500.

- G. Around 750.
- H. Around 1,000.
- I. Around 1,200.

*[For the Cournot firm 1:  $MR_1 = MC$  or  $200 - 4q_1 - 2q_2 = 20$ . Since at equilibrium  $q_1 = q_2$ ,  $200 - 4q_1 - 2q_1 = 20$  or  $q_1 = 30$ . Then,  $p = 200 - 2(30 + 30)$ , or  $p = 80$ . Then,  $\Pi_1 = (p - c)q - FC = (80 - 20)30 - 3,000$  or  $\Pi_1 = -1,200$ ]*

16. To which of the following structures the market in scenario A would most likely end up? [4p]

- 12%A. Perfect Competition. *[If Cournot yields losses, PC would also yield more losses. No firms will enter if there is already an incumbent].*
- 14%B. Cournot Oligopoly. *[Losses would lead to the exit of one firm]*
- 28%C. Monopoly. *[There are no barriers to entry]*
- 42%D. **Natural Monopoly.** *[Only one firm can survive in the L-R. Entry of more than one firms will bring losses for everyone – there is a very similar question in PS6]*
- E. Kinked-demand Oligopoly. *[No evidence of price-cut overreaction by rivals]*

## Problem B

*[Scenario B] Dasha's quantity demanded for taxi rides per month at different prices is given in the table.*

Price	Taxi rides
\$30	1
\$25	2
\$20	3
\$15	4
\$10	5
\$5	6

17. In scenario B, what is Dasha's consumer surplus if the price per ride is \$15? [4p]

- A. Zero.
- B. Around \$5.
- C. Around \$10.
- 22%D. Around \$15.
- E. Around \$20.
- F. Around \$25.
- 59%G. **Around \$30.**

*[For the first ride, she is willing to pay \$30 and pays \$15; she receives surplus of \$15.  
For the second ride, she is willing to pay \$25 and pays \$15; she receives surplus of \$10.  
For the third ride, she is willing to pay \$20 and pays \$15; she receives surplus of \$5.  
For the fourth ride, she is willing to pay \$15 and pays \$15; she receives no surplus.  
Her total surplus is \$30]*

- 18.\* In scenario B, the taxi driver's MC for a ride is \$10 and the price per ride is \$15. How much are the total gains from trade? [4p]
- A. Zero.
  - B. Around \$10.
  - 52% C. Around \$20.
  - D. Around \$30.
  - E. Around \$40.
  - 16% F. Around \$50.
  - G. Around \$60.

*[Gains from trade was discussed extensively in livestream 4.*

*Dasha values her first ride at \$30 and the driver values it at \$10, there is a gain from trade \$20.*

*Dasha values her second ride at \$25 and the driver values it at \$10, there is a gain from trade \$15.*

*Dasha values her third ride at \$20 and the driver values it at \$10, there is a gain from trade \$10.*

*Dasha values her fourth ride at \$15 and the driver values it at \$10, there is a gain from trade \$5.*

*Total gains from trade are \$50]*

## Short Answer Tasks

Answer the following questions in no more than 80 words.

19. Gym memberships for average gyms in Singapore typically cost around \$100 per month. A very small gym on Serangoon Rd. with minimal equipment and not recently renovated charges \$150 per month. Why does this make economic sense? [7p] *[Limit 80 words]*

4.23/7 *It is because of the law of demand. A small gym can accommodate only a few clients, which means that the quantity is small, thus the price can be high. [30 words] – The exact question was asked and answered in class.*

20. A company produces makeup tubes. Production cost is \$5 per tube and retail price is \$15 per tube. The company will not be able to sell any units without promotion. A TikTok influencer can promote the product to her audience by posting a video that costs her \$250 to produce and drive sales of 100,000 tubes. How much will the influencer charge the company for posting the video and what does her price depend on? [7p] *[Limit 80 words]*

3.77/7 *If the influencer is one of plenty influencers who have access to this audience, her compensation will be slightly above \$250. If she has no other competitors, her price can be closer to  $(15-5)100,000 = \$1m$ , which is the potential gain from collaboration. [43 words] – The exact question was asked and answered in class.*

21. In September 2023, Singapore's Ministry of Transport subsidized the MRT with "Additional \$300M Government Support to Moderate Fare Increase". MRT is a monopoly. Why does the Government have to subsidize it? [7p] *[Limit 80 words]*

5.2/7 *The MRT is regulated to  $p = MC$  for maximum efficiency. This maximizes the public's access to the service, keeps fares affordable for the users, but also creates losses which have to be covered by taxpayers for the MRT to keep operating. [40 words]*

22. ✓ Explain how product ecosystems can create barriers to entry. [7p] *[Limit 80 words]*

5.65/7 *Products purposely designed to be compatible only with other products by the same manufacturer lock the consumers in. It becomes harder for new manufacturers to enter the market once most consumers have already committed to some existing company's ecosystem. [39 words]*

END OF TASKS