

Midterm Test – KEY

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Multiple Choice Tasks

Select the answer that most closely answers the question.

1. "Two identical and symmetric firms compete with respect to quantity and face the same demand and cost conditions. Fixed costs are zero." Which of the following is used in this scenario? [4p]
 - 29%A. A kinked demand. [No indication for a demand that has a kink]
 - 3%B. Bertrand competition. [Competition is not in price]
 - 33%C. **The representative agent.** [True. Firms are copies of each-other]
 - D. Monopoly. [There are more than one firms]
 - E. Opportunity cost. [Has nothing to do with this scenario]

2. An individual burns a 50 SGD bill of their own money. For which of the following could this be an example? [4p]
 - A. For something that will have an economic effect in both micro and macro level.
 - 73%B. **For something that will have an economic effect in micro level but not in macro level.**
 - C. For something that will have an economic effect in macro level but not in micro level.
 - 2%D. For something that will have neither micro, nor macro-economic effect.
[The individual will become poorer – the economy as a whole will not]

- 3.* Jeremy has \$100k that he can use in 2 possible ways:
 - (i) Lease a Ferrari for the next 4 years.
 - (ii) Invest them in S&P500 ETFs which will increase in value by an expected 52% in the next 4 years.
 What is the expected opportunity cost for the Ferrari for Jeremy after the 4 years? [4p]
 - A. Zero.
 - 58%B. \$52k.
 - C. \$100k.
 - 33%D. **\$152k.**
 - E. \$252k.
[Buying the Ferrari, Jeremy forgoes \$152k in 4 years]

- 4✓ Which of the following will increase an apartment's demand in the housing market? [4p]
 - A. An increase in property tax. [It is a cost associated with possessing an apartment, so it would most probably decrease the demand for the latter]
 - 11%B. A decrease in asking price. [It affects the quantity demanded]
 - 11%C. A decrease in the supply of housing in the market. [The supply of a good does not affect the demand side]
 - 78%D. **None of the above.**

5. Which of the following is accurate? [4p]
- 23%A. Elasticity of demand provides more information than the demand curve. *[No. Elasticity of demand is a point estimate of response while demand offers information for the entire range of prices]*
 - 28%B. **Elasticity of demand is easier to estimate than the demand curve.** *[You need only 2 combinations of p and Q to calculate the elasticity of demand, but you must know all combinations of p and Q to calculate the demand]*
 - 25%C. Both of the above.
 - 24%D. None of the above.
6. "Producing an extra unit always costs as much as the previous unit". Which of the following is NOT accurate? [4p]
- A. Marginal cost is constant. *[True. Cost of extra units (MC) remains the same]*
 - 14%B. Average variable cost is constant. *[When MC is constant, AVC is also constant and equal to MC]*
 - 60%C. **Average cost is constant.** *[This would be true only if $FC = 0$]*
 - 20%D. Total cost increases in a steady manner. *[True. MC is constant, thus each additional unit adds the same amount to the total cost]*
7. The total profit maximizing quantity in a monopolistically competitive industry is 100 units. If the industry was a Cournot Oligopoly, the total profit maximizing quantity would be 80 units. In which structure would the product be more expensive? [4p]
- 10%A. In the Monopolistic Competition.
 - 62%B. **In the Cournot Oligopoly.**
 - C. Price would be the same in both.
 - 27%D. We are not given enough information to tell.
[Cournot will have a higher price because it cuts quantity more than Monopolistic Competition]
8. Which of the following is always true in a kinked-demand industry? [4p]
- A. Firms will immediately decrease the price when MC decreases. *[They may prefer to keep their price constant to not send the wrong signal to rivals]*
 - 51%B. **Firms are colluding.** *[Because the prevailing price is above the Cournot or Bertrand levels. If it was not, rivals would not fear that someone will undercut]*
 - C. Both of the above.
 - 43%D. None of the above.
9. In which of the following industries Marginal Revenue is always identical to price? [4p]
- 94%A. **Perfect Competition.**
 - B. Monopoly.
 - C. Monopolistic Competition.
 - D. Cournot Oligopoly.
 - E. Kinked-demand industry.
 - F. All of the above.
[Only in PC because firms are price takers and every extra unit sold brings in the price that is set by the market]

10. ✓ Which of the following is always a public good? [4p]
- A. Higher education. *[In some universities students pay tuition]*
 - 95%B. **National defense.** *[Cannot exclude somebody who does not pay, while its use by a citizen does not preclude its use by others]*
 - C. Space exploration. *[There are private companies than explore Space for their own reasons]*
 - D. All of the above.
11. Which of the following is rent-seeking? [4p]
- A. A monopolist buying more efficient machines to decrease their cost of production. *[Purchase of efficient machinery is a usual cost for every firm]*
 - 42%B. A monopolist advertising extensively one of their new products to increase the hype. *[Customer awareness is a normal cost of new products]*
 - C. Both of the above.
 - 51%D. **None of the above.**
[Rent-seeking refers to resources spent to deter the competition in an unfair way]
12. Which of the following is most likely a market failure? [4p]
- 22%A. Corruption.
 - B. Injustice.
 - C. Crime.
 - 73%D. **Unemployment.**
[Unemployment is the result of labor demand and labor supply failing to equilibrate in the labor market, while A, B and C do not emerge from market inefficiencies, but from societal norms]

Problem A

[Scenario A] Firm 1 and firm 2 share the market demand $p = 200 - 5Q$, where p is the price and Q the total quantity sold in the market. Each firm's AVC is constant and equal to 20.

13. ✓ According to scenario A, what will the profit maximizing price be if the two firms compete in quantities? [4p]
- A. Around \$20.
 - B. Around \$35.
 - C. Around \$50.
 - D. Around \$65.
 - 83%E. **Around \$80.**
 - F. Around \$95.
 - G. Around \$110.

[Demand can be written as $p = 200 - 5q_1 - 5q_2$. MR for firm 1 is: $MR_1 = 200 - 10q_1 - 5q_2$. Because AVC is constant, $MC = AVC = 20$. Firm 1 maximizes profit when $MR_1 = MC$ or $200 - 10q_1 - 5q_2 = 20$ or $10q_1 = 180 - 5q_2$ or $q_1 = 18 - 0.5q_2$ and because at equilibrium $q_2 = q_1$, $q_1 = 18 - 0.5q_1$ or $q_1 = q_2 = 12$ or $Q = 24$. Thus, $p = 200 - 5 \cdot 24 = \$80$]

14✓ According to scenario A, what will the profit maximizing price be if the two firms collude? [4p]

- A. Around \$20.
- B. Around \$35.
- C. Around \$50.
- D. Around \$65.
- E. Around \$80.
- F. Around \$95.

83%G. **Around \$110.**

[MR for the collusion is $MR = 200 - 10Q$, $MR = MC$ entails that $200 - 10Q = 20$ or $Q = 18$. Thus, $p = 200 - 5 \cdot 18 = \$110$]

15. According to scenario A, what will the profit maximizing price be if the two firms collude, but each of them decides to cheat, without knowing that the other will cheat too? [4p]

- A. Around \$20.
- B. Around \$35.
- C. Around \$50.
- 56%D. **Around \$65.**
- 12%E. Around \$80.
- 12%F. Around \$95.
- G. Around \$110.

[Firm 1 will assume that $q_2 = 9$ (since the total collusive quantity is $Q = 18$) and will plug this into its reaction function: $q_1 = 18 - 0.5q_2$ or $q_1 = 18 - 0.5 \cdot 9$ or $q_1 = 13.5$ is the optimal quantity for firm 1 when it assumes that its rival will not cheat. The same holds for firm 2, so it is also $q_2 = 13.5$ and $Q = 13.5 + 13.5$ or $Q = 27$. So, the price will be $p = 200 - 5 \cdot 27$ or $p = 65$]

Problem B

[Scenario B] Firm's A operation reduces firm's B profits from \$100k to \$92k per year. Both firms care only for their own profits.

16✓ What kind of externality appears in Scenario B? [4p]

- A. A positive externality.
- 86%B. **A negative externality.** *[Firm A enjoys the entire benefit from its operation, while it imposes a cost on Firm B]*
- C. An externality of opportunity cost. *[made-up term]*
- D. A public good externality. *[made-up term]*
- E. None of the above.

17✓ According to scenario B, if firm A makes a profit of \$250k per year and could resolve the externality by investing \$4k per year, which of the following is the most likely? [4p]

- 17%A. Firm A would invest the \$4k per year to resolve the externality. *[Firm A has no reason to do so]*
- 82%B. **Firm B would pay \$4k per year for firm's A investment to resolve the externality.**
- C. Firm B would buy firm A and shut it down to entirely avoid the externality.
[The cheapest solution for firm's B problem is to pay for firm's A investment and stop the externality, earning a benefit of $(100 - 92) - 4 = \$4k$ per year, while A is not worse off. Otherwise, firm A has no reason to pay for resolving an externality that does not harm it]

18. According to scenario B, if firm A makes a profit of \$2k per year and could resolve the externality by investing \$3k per year, which of the following is the most likely? [4p]
- A. Firm A would invest the \$3k per year to resolve the externality. *[Firm A has no reason to do so]*
 - 26%B. Firm B would pay \$3k per year for firm's A investment to resolve the externality.
 - 73%C. **Firm B would buy firm A and shut it down to entirely avoid the externality.**
[The cheapest solution is B to buy A for \$2k per year and stop the externality earning a benefit of $(100 - 92) - 2 = \$6k$ per year, while A is not worse off]

Short Answer Tasks

Answer the following questions in no more than 80 words.

19. ✓ A corrupt government wishes to privatize the water company which is a natural monopoly. Briefly explain what narrative would you expect them to communicate to people in order to calm down the public unrest. [7p] **[Limit 80 words]**
87%
The government would emphasize that the water company has been operating at a loss due to poor management. It may argue that privatization is necessary to ensure that the company becomes more efficient and financially viable. This would be a lie because losses result from the government's choice to maximize efficiency and access to the service. [56 words]
20. ✓ A company sells its product in two different countries with similar economies. In the first country, the market of the product is perfectly competitive and the company sells it for 16 dollars. In the second country, the market is monopolistically competitive and the company sells it for 18.5 dollars. Briefly, explain what really allows this company to sell the product for 2.5 dollars more in the second country. [7p] **[Limit 80 words]**
93%
The difference in pricing could be because the oligopoly market has fewer firms, or face a larger demand, or the products by other firms may be inferior. [27 words]
21. ✓ Explain the characteristics that define a public good. [7p] **[Limit 80 words]**
96%
*Non-rival: The use of the product by one consumer does not preclude its use by other consumers.
Non-excludable: the seller cannot exclude free riders. [24 words]*
22. ✓ Explain what a network good is. [7p] **[Limit 80 words]**
73%
A network good is one whose value for the user increases as more consumers use it. [16 words]

END OF TASKS