

FINAL EXAM EVEN SEMESTER 2016/2017

Course : Microeconomics1 (ECEU600101)

Lectures : Dr. Alin Halimatussadiah

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Time : 3 hours

Note : Closed Book

You may use Simple Calculator

Problem 1 (25 Points)

Suppose two firms produce an identical good. The (inverse) demand function for the good is given as $P = 120 - Q$, where Q is the total quantity produced by the two firms ($Q=q_1+q_2$). Each firm has a constant marginal cost 10 of producing the good.

- Suppose that firms compete as quantity setting duopolists. Find the Cournot Nash equilibrium of this game. What quantities will they produce? **(5 points)**
- What is the market price and how much profit does each firm earn? **(5 points)**
- Suppose the firms form a cartel: What the total quantity of this cartel produce? What would be the market price? What would be the profit of the cartel? (hints: profit from cartel is divided by two) **(5 points)**
- What quantities, price, and profit for each firm in competitive equilibrium? **(5 points)**
- What do you conclude from the result from poin a-d? **(5 points)**

Problem 2 (25 Points)

PT DKI produces Output Q based on production function $Q = 4L^{1/2}$, where L is number of labors. The product price is Rp 100,000 per unit and the wage rate of labor is Rp 50,000 per hour. [Note: use assumption if it is needed].

- What is the profit-maximizing quantity of Labor (L)? **(5 points)**
- Find the profit-maximizing quantity of Output (Q) and calculate the maximum profit of PT DKI. **(5 points)**
- If the firm is taxed Rp 10,000 per unit and the wage subsidized Rp 5,000 per hour. Find the new equilibrium of Labor (L), Quantity (Q), and Profit of PT DKI. **(5 points)**
- A new policy that replaces the policy in the case above (case "c"): PT DKI should pay 20% profit tax. Find the new equilibrium of Labor (L), Quantity (Q), and Profit of PT DKI. **(5 points)**

- e. Due to political pressure, the government sets ceiling price policy that the product price is Rp 75,000 [this new policy change “case d” above]. Calculate the profit changes of the firm caused by that policy. Based on this case, explain how the policy in the output market affect the demand in the input market! **(5 points)**

Problem 3 (25 Points)

YG is a talent company that produces singers and dancers and operates in entertainment market. Everyday, recruited talents practice singing and dancing in YG building. Those practices produce noise that affects both workers in the building and people who live nearby.

Total costs of noise abatement for example to make the classes soundproof is as followed:

$$TC = 10a^2$$

where a =level of noise abatement

Noise abatement gives total benefit of $5a$ for the company as classes can run without disturbing one another. However, there is also benefit as much as $5a$ that is enjoyed by the people who lives nearby.

- What is the *level of abatement* chosen by YG? Draw a graph depicting *private marginal cost* and *private marginal benefit of YG*! **(5 points)**
- Calculate the *level of abatement* that is socially efficient? Add *social marginal benefit and socially optimum level of abatement* curves to your graph! **(5 points)**
- If the government institute per unit tax on noise pollution, what is the rate of the specific tax that will ensure socially optimal level of abatement? **(5 points)**
- Due to technological progress, suppose total costs of abatement decreases to $TC = 10a^2 - 5a$. If the government institutes per unit taxes as calculated in question c) what is the level of abatement chosen by YG? Is there any *Dead Weight Loss (DWL)* bore by the society? **(5 points)**
- Suppose with the new total costs, the government institutes minimum quota abatement at the socially optimum level calculated in b) instead of instituting per unit tax as in question d). Is there any *Dead Weight Loss (DWL)*? What can you deduce about the effectiveness of the various pollution abatement policy? **(5 points)**

Problem 4 (25 Points)

- a. Explain what is meant by *expected value* and *expected utility*. Give numerical example in explaining them. **(5 points)**
- b. By using relevant graphic(s), explain three kinds of risk preference. **(5 points)**
- c. If an insurance company wanted to sell a certain kind of insurance to someone who is risk averse, how much risk premium the insurance company would sell to her? **(5 points)**
- d. The problem of adverse selection and moral hazard may appear in the insurance market. Give one example of insurance market and explain those problems. **(5 points)**
- e. Describe principal-agent problem that may appear in case (d). **(5 points)**

