



Faculty of Economics and Business Universitas Indonesia (FEBUI)

Undergraduate Program (S1 Regular)

Final Exam

Odd Semester 2016/2017

ECEU 600101-Mikroekonomi 1

Time Allowed: 3 hours

Closed Books/Notes

No	Lecturer	Tutor
1	Alin Halimatussadiyah/Sartika D	
2	Dhaniel Ilyas (English)	
3	Dwini Handayani Arianto/Ninie L Gyat	
4	Eugenia Mardanugraha	
5	H R Achmadi	
6	Lydia Napitupulu (English)	
7	Maddaremmeng A. Panennungi (English)	
8	M. Shauqie Azar (English)	
9	Ninasapti Triaswati (English)	
10	Ninie L Gyat	
11	Rima Prama Artha	
12	Widyanti Soetjipto	
13	Willem Makaliwe	

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Please answer all questions below. It is not allowed to use programmable calculator!

1. Oligopoly (25%)

There are two firms (Firm 1 and Firm 2) compete in a market for instant noodles which are considered to be identical by their consumers. Suppose each firm has the following cost function.

$$C(q_i) = 120q_i; \text{ where } i = 1 \text{ and } 2$$

The total market demand for instant noodles is represented by following demand function

$$P = 600 - Q; \text{ where } Q = q_1 + q_2$$

Answer the following questions.

- a. If both firms maximize their profit by considering that the output produced by their opponent as given simultaneously, calculate: **(5 Points)**
 - (i) Total output produced by each firm.
 - (ii) The price of instant noodle in the market.
- b. If Firm 1 is the first mover in setting its output produced, then followed by Firm 2, calculate: **(5 Points)**
 - (i) Total output produced by Firm 1 and Firm 2.
 - (ii) The price of instant noodle in the market.
- c. If Firm 1 and Firm 2 collude, what are the price and the total number of instant noodles produced in the industry. **(5 Points)**
- d. If both firms are under perfectly competitive market, what are the price and the total number of instant noodles produced in the industry. **(5 Points)**
- e. Compare and discuss the prices and total output produced by the firms in the different scenarios: monopoly, cournot duopoly, stackelberg oligopoly, and perfectly competitive markets. **(5 Points)**

2. Market for Input (25%)

GOAL is a factory that produces high quality soccer balls and is operating in a perfectly competitive market, both in the output and input market. The production function of soccer balls is: $X = K^{0.5}L^{0.5}$ Where **X: number of soccer balls produced; K: capital (machineries); L: labor (in hours)**. Soccer balls are sold at price P and labor is paid an hourly wage of w.

- Derive the marginal revenue product of labor and the short run labor demand function of GOAL! **(5 points)**
- In the labor market, aggregate demand for labor (in thousand of hours) $L_D = -50w + 1,500$ and aggregate supply of labor (in thousand of hours) $L_S = 100w$, where w is in dollar per hour. If price of a soccer ball is \$50, and capital is fixed at \$100,000, calculate production (X) and total labor hours (L) employed by GOAL **(5 points)**
- The local labor union is advocating for a rise in the minimum wage from to \$12/hour; assuming aggregate demand and supply functions for labor is unchanged, what are the employment and welfare impacts of this policy? **(5 points)**
- Assuming that L_S is unchanged, by how much should L_D be increased to achieve equilibrium wage of \$12/hour without intervention such as an increase in minimum wage rate? Provide an example of a policy that the government can implement to increase aggregate demand for labor hours? **(5 points)**
- In the case of GOAL, how much would workers' marginal productivity need to increase to justify the wage increase to \$12, ceteris paribus. **(5 points)**

3. Market Failure (25%)

Every year, Sundalaysia produces textile products. The demand and supply of textile products in the domestic market are described by the following equations.

$$Q_D = 26.7 - 0.23P$$

$$Q_S = -7.48 + 0.84P$$

Note: P is in thousand RMF/meter; Q is in million meter

The textile products considered harmful to the environment for its unregulated pollution as by-product of its production process. EnvPeer, an Environmental NGO in Sundalaysia, estimated that the external cost of every million meter textile produced is RMF 5 thousand.

Note: In your answer, please round the numbers to 1 decimal place.

- a. Find the equilibrium price and domestic consumption of the efficient condition and inefficient condition. **(9 points)**

P efficient	
P inefficient	
Q efficient	
Q inefficient	

Note: P is in thousand RMF/meter; Q is in million meter

- b. Estimate the total damage cost of the pollution if Sundalaysia produces textile product at Q inefficient. Please draw the area of the total damage cost. **(7 points)**
- c. In order to reduce pollution, the government has target to reduce output to 15 million meters and they want to use tax as policy instrument. Knowing the damage cost per million meter textile product is RMF 5 thousand, the government imposes pollution tax of the same amount. Does the tax rate imposed by the government is effective to achieve the output target of 15 million meters? If it does not, estimate the effective tax rate to ensure the output target of 15 million meters. **(9 points)**

4. Uncertainty and Asymmetric Information (25%)

Suppose that Yanto's utility function is given by $u(W) = (10W)^{0.5}$, where W represents wealth. He buys a luxury product that is worth 1 billion Rupiahs ($W = 1000$). The probability of the product being damaged, which will cause $u(W)=0$, is 10 %.

- a. By examining Yanto's wealth utility function, state if he is risk loving, risk neutral or risk averse. Explain your answer **(5 points)**;
- b. Calculate **the expected value** of wealth of the luxury product **(5 points)**;
- c. Calculate **the expected utility of wealth** gained from buying the luxury product **(5 points)**;
- d. To protect against loss that may be caused by damaged product, Yanto buys an insurance policy. Calculate the maximum amount of insurance he is willing to pay (risk premium) **(10 points)**.
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