ECON4002 Popup quiz
Spring 2024

Write your name in the blank sheet.

Instructions

1. When everyone is ready to start, I will scroll down to the next page.
2. You cannot consult any materials.
3. You can write your answer either in English or in Korean.
4. You have 10 minutes to submit your answer.

Quiz on Oct 24

Suppose that your utility function is $u(x_1, x_2) = x_1 + \ln x_2$. The prices are $p = (2, 1)$, and the current income is m.

(a) Find the Marshallian demand $(x_1(p, m), x_2(p, m))$.

(b) Check the income effect of x_1.

(c) You are offered a job at a new place where the prices are $p' = (1, 3)$, and the offered income is $2m$. Calculate the equivalent variation.

Quiz on Oct 31

Consider the following production function: $y = f(L, K) = \sqrt{L} + \sqrt{K}$, where L and K are the labor and capital inputs. Assume that wage is $w = 1$ and rent is $r = 2$. The output price is given as $p = 1$.

(a) Find the cost function (as a function of y).

(b) Given the cost function, find the optimal level of output that maximizes the profit.

(c) Discuss how the optimal level of output will change as p gets larger.

Quiz on Nov 7

A firm providing electricity has a monopolistic power in a market. This profit-maximizing firm sets the prices for two different groups: households (H) and industries (I). Demands for H and I are respectively given as $Q_H(p) = 800-4p$ and $Q_I(p) = 1000-p$. Assume that the marginal cost of providing additional unit of electricity is zero.

(a) Suppose that the government mandates the firm to set the same price for the two groups. The aggregate demand is given as

$$Q(p) = \begin{cases} 1800 - 5p & \text{if } p \leq 200 \\ 1000 - p & \text{otherwise.} \end{cases}$$

Find the profit-maximizing price and the quantity provided in the market.

(b) Suppose now that the firm can set a difference price to each of the two groups. Find the profit-maximizing prices and the quantities provided.

Quiz on Nov 14

Two firms, F1 and F2, simultaneously choose quantity produced in a market. The inverse demand function is given by $P(q_1, q_2) = 12 - q_1 - q_2$, where q_1 and q_2 are quantity produced by F1 and F2. The cost functions of F1 and F2 are $C_1(q_1) = q_1^2$ and $C_2(q_2) = \frac{q_2^2}{2}$.

(a) Describe each firm's profit as a function of q_1 and q_2.

(b) Describe the best response function of each firm.

(c) Find a Nash equilibrium.

Quiz on Nov 21

[Question about the first part of general equilibrium]

Quiz on Nov 28

[Question about the second part of general equilibrium]

Quiz on Dec 5

[Question about the first part of market failure]