科目：個體經濟學 適用：經濟系

編號：312

考生注意：
1.依次序作答，只要標明題號，不必抄題。
2.答案必須寫在答案卷上，否則不予計分。
3.限用藍、黑色筆作答；試題須隨卷繳回。

1. (10%)

If you could exactly afford either 5 units of x and 21 units of y, or 9 units of x and 5 units of y, then if you spent all of your income on y, how many units of y could you buy?

2. (10%)

If the demand curve for a good is given by the equation $q = 2/p$, where q is quantity and p is price, when the price p is \$1, what is the elasticity of demand?

3. (10%)

Please explain why a monopolist will never choose to operate where the demand curve is inelastic.

4. (10%)

Suppose that one individual's demand curve is $D_1(p) = 20 - p$ and another individual's is $D_2(p) = 10 - 2p$. What is the market demand function?

5. (10%)

A profit-maximizing competitive firm uses just one input, x. Its production function is $q = 4x^{1/2}$. The price of output is \$28 and the factor price is \$7. What is the amount of the factor that the firm demands?

6. (10%)

A consumer's utility function is given by $u(x_1, x_2) = x_1 x_2$, where x_1 is good 1

and x_2 is good 2. The prices are $p_1 = \$4, p_2 = \$1$ and the consumer's income is $m = 40$. If the price p_1 suddenly falls to \$2, find the demand change of good 1 due to pure substitution effect and income effect.

7. (10%)

A consumer is an expected utility maximizer with a von Neumann-Morgenstern utility function for wealth $u(w) = w^{\frac{1}{2}}$. If the consumer faces two choices:

(1) a lottery that pays \$400 with probability 0.4 and \$100 with probability 0.6,

(2) a sure payment of \$200.

Which one will the consumer choose?

8. (10%)

A firm has the production function $f(x_1, x_2) = (\sqrt{x_1} + 3\sqrt{x_2})^2$, where x_1 is factor 1 and x_2 is factor 2. The price of factor 1 is $w_1 = \$1$ and the price of factor 2 is $w_2 = \$1$. If the firm wants to produce 25 units of output in the cheapest way, what are the amounts of factor 1 and factor 2 that the firm demands?

9. (10%)

The price of inputs (x_1, x_2, x_3, x_4) are (4, 1, 3, 2). If the production is given by $f(x_1, x_2, x_3, x_4) = \min\{x_1 + x_2, x_3 + x_4\}$, what is the minimum cost of producing y units of output?

10. (10%)

An industry has two firms: a Stackelberg leader and a follower. The price of the industry output is given by $P = 36 - Q$, where Q is the total output of the two firms. The follower has a marginal cost of \$0. The leader has a marginal cost of \$9. How much should the leader produce in order to maximize profits?