

科目：經濟學 適用：經濟系

編號：311

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。

本試題

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1. (20%)

Suppose that a consumer's utility function is  $u(x_1, x_2) = 4\sqrt{x_1} + x_2$ , and the budget constraint is given by  $p_1x_1 + p_2x_2 = m$ .

- a. If  $p_1 = 1, p_2 = 2, m = 20$ , find the optimal choice  $x_1^*, x_2^*$  (10%)
- b. If  $p_1 = 1, p_2 = 2, m = 10$ , find the optimal choice  $x_1^*, x_2^*$  (10%)

2. (10%)

At prices (\$2, \$4), John chooses the bundle (2, 5). At the prices (\$4, \$2), John chooses the bundle (3, 4). Is John's behavior consistent with the weak axiom of revealed preference?

3. (10%)

If the production function is given by

$$f(x_1, x_2, x_3, x_4) = \min\{2x_1, x_2\} + \min\{x_3, x_4\}$$

and the prices of inputs  $(x_1, x_2, x_3, x_4)$  are (5, 1, 1, 2), what is the minimum cost of producing  $y$  unit of output?

4. (10%)

The demand curve facing the monopolist has a constant elasticity of  $\varepsilon = -4$ . If the government imposes a quantity tax of \$2 per unit of output, how much will the price rise?

5. (24%)

Currently, Taiwanese government engages in expansionary fiscal policy in order to stimulate economic activity in Taiwan. Please explain the impact of this policy on the interest rate, investment, net exports, and real exchange

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rate (in the form of one unit of domestic good can be exchanged for how many units of foreign goods) in the long-run both graphically and intuitively for each scenario.

- a. Taiwan is a closed economy. (6%)
- b. Taiwan is a small open economy. (6%)
- c. Taiwan is a large open economy. (6%)
- d. Taiwan is a small open economy and the Purchasing-Power Parity holds roughly. (6%)

6. (26%)

Within the Solow model content, an economy, Alpha, is described by the labor-augmenting Cobb-Douglas production function with 30% capital share of GDP, 3% average growth of output per capita, 4% depreciation rate, and capital-output ratio is about 2.5.

- a. What is the initial saving rate? (6%)
- b. Find the Golden Rule saving rate. (6%)
- c. While holding technological progress constant, Alpha's government is able to impose a birth control that constraints the number of children people can have. Please explain the impact of this policy on the steady-state capital per worker and the steady-state level of output per worker both graphically and intuitively. (7%)
- d. It is said that Alpha, which is the most advanced country in the world, improves education quality and quantity significantly over the last three decades but the growth rate of output per capita is still constant. Please offer your explanation. (7%)