

國立臺北大學 114 學年度碩士班一般入學考試試題

系（所）組別：財政學系

科 目：經濟學

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☐可 ☒不可使用計算機

Answer all questions. For full credit, you must show all your work.

1. Suppose the market supply and demand for milk can be expressed as:

$$Q^S = 3P$$

$$Q^D = 100 - 2P,$$

If the government imposes a \$5 unit tax to be collected from sellers, how much tax revenue is collected? What fraction is paid by sellers? (10%)

2. Paul derives utility from consuming x and y . Suppose that $p_x = 1$ and $p_y = 2$. Also, Paul has \$20 to spend on these two goods. For the following utility functions, please compute Paul's utility-maximizing bundles.

a. Paul's utility function is $U = 2x + 3y$. (5%)

b. Paul's utility function is $U = \min\{x, 3y\}$. (5%)

3. James has a monopoly on a board game called "Fly High" and faces a demand curve given by $Q_T = 100 - P$, where Q_T equals the combined total number of games produced per hour in the company's two factories ($Q_T = q_1 + q_2$). If factory 1 has a marginal cost function given by $MC_1 = q_1 - 5$ and factory 2 has a marginal cost function given by $MC_2 = 0.5q_2 - 5$, how much total output will James choose to produce and how will he divide this output between its two factories in order to maximize profits? (10%)

4. XYZ company has a Cobb-Douglas production function, $Q = L^{0.5}K^{0.5}$. Use w and r to denote the price of the two inputs, L and K , respectively. Given a required output level $\bar{Q}$, compute XYZ's conditional factor demand, $L(w, r; \bar{Q})$ and $K(w, r; \bar{Q})$. (10%)

5. Assume that there are only two people in society. The demand curve for person A for mosquito control is given by $q_A = 100 - P$. For person B, the demand curve for mosquito control is given by $q_B = 200 - P$. This activity could be produced at a constant marginal cost of \$50 per unit.

a. What is the optimal level of mosquito control? (5%)

b. Now, suppose mosquito control is a public good. Once it is produced everyone can benefit from it. What would be the optimal level of this activity? (5%)

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第2頁 共2頁

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6. The country of ABC has produced the following quantity of gauges and potatoes, with the price of each listed in dollar terms.

	Year			
	1		2	
	Quantity	Price	Quantity	Price
Gauges	8000	\$4	10,000	\$3
Potatoes	6000	\$8	5000	\$14

- a. Using Year 1 as the base year, what is the growth rate of real GDP from Year 1 to Year 2? (6%)
- b. Based on the GDP deflator, what is the inflation rate from Year 1 to Year 2? (6%)
7. Comment on the following statement and show what would happen in the long run if such advice were followed by the Central Bank:
- “The increase in the stock market has increased people’s wealth. As a result, their consumption has increased, increasing aggregate demand and output. So the Central Bank needs to increase the money supply, since with higher income, people’s demand for real money balances will be higher.” (12%)
8. Consider the Solow model. Country *A* has a capital-labor ratio (k) that is initially twice as big as that of country *B*, but neither is yet in a steady state. Both countries have the same production function, $f(k) = 6k^{1/2}$. Country *A* has a 10% saving rate, 10% population growth rate, and 5% depreciation rate, while country *B* has a 20% saving rate, 10% population growth rate, and 20% depreciation rate.
- a. Calculate the steady-state capital-labor ratio for each country. How does the initial capital-labor ratio affect your results? (6%)
- b. Calculate output per worker and consumption per worker for each country. Which country has the highest output per worker? The highest consumption per worker? (6%)
9. Use the Keynesian IS-LM model with flexible exchange rates for this question. Describe the effects of contractionary fiscal policy by the domestic government on output, the real interest rate, and net exports in both the domestic and the foreign country. (14%)