國立高雄大學 115 學年度研究所碩士班招生考試試題

科目：經濟學　　系所：亞太工商管理學系(A 組)　　是否使用計算機：否
考試時間：100 分鐘　　本科原始成績：100 分

問答與計算，共 4 大題，合計 100 分

1. (25 分) Consider a computer producer that is selling computers to two countries. Computers can be produced at a constant marginal cost of $10 per unit. The demand for computers in each of the countries is given by:

$$p = 50 - 0.5Q \text{ (Country A)}$$
$$p = 20 - 0.25Q \text{ (Country B)}$$

(1) (5分) If the computer producer can charge different prices to each country, what price and quantity will it sell to each?
(2) (5分) If the computer producer cannot price discriminate, what price and quantity of guns will it sell to each country?
(3) (5分) Will the computer manufacturer make more profit from price discriminating? Briefly explain. Why is it that the manufacturer will likely be able to price discriminate?
(4) (5分) Which country will benefit from price discrimination? Which country will be worse off from price discrimination? Explain briefly.
(5) (5分) Is the deadweight loss higher under price discrimination or a single-price? Show mathematically.

2. (25分) Suppose that a consumer has a utility function $u(x_1, x_2) = x_1^{0.5} x_2^{0.5}$. He initially face prices $p_1 = 1$ and $p_2 = 1$ with an income of 100. Then the price of good 1 increases to 2.

(1) (5分) Compute the demand functions for good 1 and good 2, respectively.
(2) (10分) What is the compensating variation?
(3) (10分) What is the equivalent variation?

3. (25 分) Assume the following model of the economy, with the price level fixed at 1.0:

$C = 0.8(Y - T)$　　$T = 1{,}000$
$I = 800 - 20r$　　$G = 1{,}000$
$Y = C + I + G$　　$M^s / P = M^d / P = 0.4Y - 40r$
$M^s = 1{,}200$

(1) (5 分) Write a formula for the *IS* curve, showing *Y* as a function of *r* alone.
(2) (5 分) Write a formula for the *LM* curve, showing *Y* as a function of *r* alone.

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(3) (5 分) What are the short-run equilibrium values of Y, r, $Y - T$, C, I, private saving, public saving, and national saving? Check by ensuring that $C + I + G = Y$ and national saving equals I.

(4) (5 分) Assume that G increases by 200. By how much will Y increase in short-run equilibrium? What is the government-purchases multiplier (the change in Y divided by the change in G)?

(5) (5 分) Assume that G is back at its original level of 1,000, but M^s (the money supply) increases by 200. By how much will Y increase in short-run equilibrium? What is the multiplier for money supply (the change in Y divided by the change in M^s)?

4. (25 分) Consider a Solow growth model economy. Suppose the production function is given by

$$Y_t = K_t^{3/4} \cdot (A_t L_t)^{1/4},$$

where K_t is the capital stock at time t, A_t is labor-augmented tecgnology at time t and L_t is labor quantity in time t. Suppose the product market and factor markets are all complete competitive markets. For simplicity, we assume capital depreciation rate is zero, labor growth rate is 3%, technology growth rate is 2% and saving rate (s) is 60%. The investment function is

$$I_t = \frac{dK_t}{dt}$$

(1) (5 分) What is the maximum profit for the representative producer?

(2) (10 分) In the steady state, what are the capital per unit of effective labor and GDP per per unit of effective labor? (Note: Provide only the final result; precise numerical calculation is unnecessary.)

(3) (5 分) In the steady state, what is the growth rate of GDP per unit of effective labor?

(4) (5 分) Can we use saving rate as a policy tool to raise long run GDP growth rate?