國立台灣科技大學九十八學年度碩士班招生試題

系所組別： 企業管理系碩士班甲組、乙組

科　　目： 經濟學

（總分為 100 分）

1. Consider two firms competing in a Cournot industry.   One firm – Acer – is contemplating an investment in a new marketing project. This new project will result in efficiencies that will lower its variable costs of marketing.   Acer's competitor, Dell, does not have the resources to undertake a similar marketing project. Acer's corporate financial planning staff has studied the proposed investment and reports that at current output levels, the present value of the cost savings from the investment is less than the cost of the project, but just barely so.   Now, suppose that Acer hires you as a consultant.   What would be your advice, invest in this new marketing project or not? Explain your answer by reaction curves diagram. (15%)

2. In order to spur consumer spending, the Taiwanese government implemented a voucher system whereby every Taiwanese consumer would receive a shopping voucher that could be used to purchase products or services.   For simplicity, assume the following: each consumer has wealth of NT\$1,000,000, consumers must allocate this wealth between consumption now (c_1), and consumption later (c_2), the interest rate is zero, the voucher is worth NT\$3,600, and it can be spent only in the current period.   If it is not spent, it is lost. (15%)

   a. Plot budget lines for a representative consumer both before and after the voucher program (c_1 and c_2 are on the axes).
   b. Do you expect that current consumption of a typical consumer will increase by the full NT\$3,600 of the voucher?   Explain your answer by indifference curve and budget line diagram.
   c. Can this NT\$3,600 voucher induce more consumption now (c_1) than simply giving the individual NT\$3,600 cash? Explain your answer by indifference curve and budget line diagram.

3. Two professors, Wang and Lee, in the same department know they can each get a return of 12 points in students' teaching evaluation if both of them push students hard to learn. If one pushes students hard, while the other gives students easy time and good grades, the easy-pass professor can get 18 points in teaching evaluation, while

國立台灣科技大學九十八學年度碩士班招生試題
系所組別： 企業管理系碩士班甲組、乙組
科　　目： 經濟學

（總分為 100 分）

the other can only get 2 points.　If both professors try to give easy time and good grades to students, they each get 8 points in teaching evaluations.　Assume that the points of teaching evaluation are positively related to professor's promotion and salary raise. Construct a payoff matrix for the professors that capture the essence of the decision of professor Wang and Lee to give hard or easy time to students. What strategy do you expect the professors to adopt at equilibrium?　Explain. (20%)

104

4.

(1) There are 50 ships using a rocky harbor. Each as the same demand for lighthouse service X: $X = 20 - 0.5P$ for some price p. Please answer the following questions

(a)What is the aggregate demand for the lighthouse services? (3 points)

(b)If the marginal cost of having a light house is \$100 per unit of service, how much the light house should there be? (3 points)

(2)Determine price elasticity when:

(a)A good is free. (3 points)

(b)Total revenue (R) is maximized. (3 points)

(c)Total revenue (R) falls as output rises. (3 points)

(3)The cost function, $c(w_1, w_2, y)$, of a firm, gives the cost of producing y units of output when the wage of factor 1 is w_1, and the wage factor 2 is w_2. Find the cost functions for the following firms:

(a)A firm with production function $f(x_1, x_2) = Min\{2x_1, 3x_2\}$. (5 points)

(b)A firm with production function $f(x_1, x_2) = 2x_1 + 3x_2$. (5 points)

5.

Assume the following equations summarize the structure of an economy:

		Where:
C	$= C_a + 0.8 (Y-T)$	C = consumption expenditures, Y = real GDP, T=taxation
C_a	$= 260 - 10\,i$	C_a = autonomous consumption spending
T	$= 200 + 0.2\,Y$	
$(M/P)^d$	$= 0.25\,Y - 25\,i$	$(M/P)^d$ = demand for real balance, i = real interest rate
M^s/P	$= 2,000$	M^s/P = real money supply
I_p	$= 1,900 - 40\,i$	I_p = planned investment expenditures
G	$= 1,800$	G = Government expenditures
NX	$= 700 - 0.14\,Y$	NX = net export
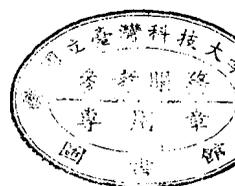
(1) Derive the equation for the *IS* curve. (3 points)

(2) Derive the equation for the *LM* curve. (3 points)

(3) Compute the equilibrium interest rate (i) and real GDP (Y). (4 points)

(4) Suppose consumer and business confidence decline, resulting in decreases in the amounts of autonomous consumption and planned investment by 40 and 60, respectively. Derive the new equation for the IS curve. What will be the new equilibrium interest rate (i) and real GDP (Y)? (5 points)

(5) Determine the amount of a cut in taxes that would be necessary in order to offset the declines in consumer and business confidence and restore real GDP to its previous level. (5 points)

(6) Suppose that instead of fiscal policy, monetary policy is used to restore real output to its previous level, then how much the Central Bank (or the Monetary Authority) would have to increase the money supply to achieve the objectives? (5 points)