

國立高雄大學 104 學年度研究所碩士班招生考試試題

科目：個體經濟學
考試時間：100 分鐘

系所：應用經濟學系
本科原始成績：100 分

是否使用計算機：否

1. A Californian student consumes Internet services (I) and books (B). Her preferences are $U(I, B) = I \square B$. Initially she has income $Y = 100$, and the prices of books and internet services are $P_I = P_B = 1$. Lately, because of the electricity shortage, the price of the internet services has increased to 2. The government has decided to give a transfer to the student so that she can recover her initial welfare. In order to determine the transfer the government has hired three consultants who have made the following suggestions:

Consultant A: The transfer should allow the student to buy her initial bundle.

Consultant B: The transfer should allow the student to get her initial level of utility.

Consultant C: The government should give her a transfer of 25.

(1) Find the amount of the transfer implied by consultant A. (8%)

(2) Find the amount of the transfer implied by consultant B. $\sqrt{2} \doteq 1.41$ (8%)

(3) Determine whether the consumer is better or worse off from Consultant C's suggestion than before the price increases. Show your graphical analysis. Put the internet services on X axis. (4%)

2. If Joe spent all his money (\$300,000) on buying a new house, he could buy a house with 3000 square feet (平方呎). He decided to purchase a 1500 square foot house (each square foot costs the same.) The day after Joe closes the purchasing deal, a nearby nuclear power plant is condemned (損害) and the value of houses in the entire area is cut in half. Show graphically and explain what happens to Joe's utility level, i.e. he is better-off or worse-off after the value of houses changes. Put the size of a house on X and the level of wealth on Y axes. (10%)

3. A firm produces a quantity Q of its output using labor L and material M with the production function $Q = 50\sqrt{ML} + M + L$.

(1) What is the nature of returns to scale (increasing, constant, or decreasing) for this production function? (5%)

(2) Is the marginal product of labor ever diminishing for this production function? If so, when? Is it ever negative, and if so, when? (5%)

4. The demand curve for education in a community with only two colleges is $P = a - Q$. The cost of educating an additional student is c . Complete the table below for the four scenarios described in A-D. There are no fixed costs.

A. Both colleges get together and collude to price fix at a profit maximizing level. (5%)

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- B. Both colleges assume that the other will hold the present tuition (學費) constant despite what the competition does. (10%)
- C. Both colleges assume that the other will hold the present enrollment (註冊人數) constant despite what the competition does. (10%)
- D. College 1 believes college 2 will adjust to its new profit maximizing solution whenever college 1 adjusts its enrollment strategy. (10%)

Assumption	Quantity of A	Quantity of B	Price	Profit of A	Profit of B
A					
B					
C					
D					

5. Crusoe and Friday live in an island. Crusoe can make 10 units of food per day if he devotes all his time to food production. He can make 10 units of clothing if he spends the whole day at clothing production. If he divides his time between the two activities, his output of each good will be proportional to the time spent on each. The corresponding figures for Friday are 20 units of food and 10 units of clothing. Please answer the following questions:

- (1) Show each person's opportunity cost for the production of clothing. Who owns comparative advantage on producing clothing? Suppose no trade happens. Will Crusoe and Friday trade to each other? If they trade to each other, what will be the possible trading rate? (8%)
- (2) Now suppose Crusoe and Friday is a team. Find production possibility frontier (PPF) of their economy. If Crusoe and Friday regard food and clothing as perfect 1-1 substitutes, what should they produce from the whole economy point of view? (9%)
- (3) Now, suppose a trading ship visit the island each day and offers to buy or sell food and clothing at the prices $P_c=4$, $P_F=1$. How will the trade alter the production and consumption decisions of Crusoe and Friday? What and how much will be exported and imported? (8%)