

國立清華大學命題紙

98 學年度工業工程與工程管理學系 丁 組碩士班入學考試

科目 經濟學 科目代碼 1702 共 2 頁第 1 頁 \*請在【答案卷卡】內作答

Q1:

Note that you should answer Q1 correctly to answer Q2. So be careful. Let  $a$  be the base demand.

- Construct the demand function given that for every unit the price  $P$  raises the demand will decrease for  $m$  units and for every unit the income  $Y$  raises the demand will increase for  $n$  units. (5 points)
- Construct the demand function given that for every 1 percent the price  $P$  raises the demand will decrease for  $m$  percent and for every 1 percent the income  $Y$  raises the demand will decrease for  $n$  percent. (5 points)

Q2:

NTHU is considering increasing the tuition fee, currently \$20 by 25%. NTHU's current revenue is \$12,000 a month and the price elasticity of demand for its course is estimated to be -1.8.

- Calculate the effect of the price change on NTHU's revenue. (5 points)
- NTHU now considers increasing its advertising budget to restore its sales revenue to its previous level. NTHU is currently spending \$1500 a month on advertising and estimates its advertising elasticity of demand to be 1.5. What will its new budget have to be? (5 points)
- What can you say about what will happen to profit in both (a) and (b) compared with the original level of profit? (10 points)

Q3:

IEM Corp. has estimated that it has the following production function:

$Q=1.5LK-0.3L^2-0.15K^2$ , where  $L$  and  $K$  is the amount of labor and capital used with respectively.

Labor cost is \$60 and capital cost is \$75. IEM want to maximize output subject to the cost constraints of \$1500.

- Explain your optimal condition in terms of ratio of the marginal product of each input to its own price. (5 points)
- What amounts of labor and capital should be used? (5 points)
- What is the total output from the above combination? (5 points)

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Q4:

The cost function for an industry is

$C = bQ^a$ , where  $C$  is the cost in thousands and  $Q$  is the output in hundreds.

- (a) True or False. If  $a > 1$  the returns to scale in the industry is increasing. (5 points)  
Note that you have to answer this question correctly to answer the rest of Q4. So be careful.
- (b) Estimate the average cost at  $m$  units. (5 points)
- (c) Estimate the marginal cost of the  $m^{\text{th}}$  unit. (5 points)
- (d) If the going price in the industry is  $p$  calculate the break even output. (5 Points)

Q5:

Please explain the concept of Stagflation (停滯性通貨膨脹). What is the key difference between Stagflation and Inflation? (15 points)

Q6:

What is **Cobweb Theory**? Please use **Cobweb Theory** to explain why there are capacity oversupply and shortage in semiconductor industry from time to time. (20 points)