

# 國立臺北大學109學度碩士班一般入學考試試題

系（所）組別：經濟學系

科 目：個體經濟學

第1頁 共2頁

可 不可使用計算機

一、填空题 (1-10 空格，每空格 5%，合計 50%)

1. 假設某獨占廠商產品僅在高雄與臺北兩地有需求，分別為 $Q_K = 36 - \frac{P_K}{5}$ ， $Q_T = 50 - \frac{P_T}{2}$ ，且兩地各設有一工廠，總成本函數分別為 $TC_K = 8 + 10Q_K + 10Q_K^2$ ， $TC_T = 4 + 20Q_T + 5Q_T^2$ ，當獨占廠商決定同時在兩地採用多工廠與差別取價策略時，請問高雄的生產量為多少(\_\_\_\_1\_\_\_\_)? 與臺北的生產量為多少(\_\_\_\_2\_\_\_\_)? 高雄的銷售量為多少(\_\_\_\_3\_\_\_\_)? 臺北的銷售量為多少(\_\_\_\_4\_\_\_\_)? 高雄的市場價格為多少(\_\_\_\_5\_\_\_\_)? 臺北的市場價格為多少(\_\_\_\_6\_\_\_\_)?
2. 假設獨一牛肉公司為臺灣地區黃牛屠宰市場的獨佔供應廠商，設定 $Q$ 為黃牛的數量， $P$ 為黃牛售價； $Q_b$ 為黃牛肉需求量， $P_b$ 為黃牛肉售價； $Q_s$ 為黃牛肚需求量， $P_s$ 為黃牛肚售價。而黃牛的市場供給函數為 $P = 10 + 24Q$ ；而對黃牛肉的需求函數為 $Q_b = 50 - \frac{P_b}{3}$ ；同時，對黃牛牛肚的需求函數為 $Q_s = 25 - \frac{P_s}{4}$ ；請分別求解黃牛的市場均衡交易量為多少(\_\_\_\_7\_\_\_\_)? 黃牛的市場均衡價格為多少(\_\_\_\_8\_\_\_\_)? 及黃牛市場均衡點的市場需求彈性為多少(\_\_\_\_9\_\_\_\_)?
3. 針對 $X$ 、 $Y$ 、 $Z$ 三種財貨的四組不同價格水準為(1,2,1)、(2,1,1)、(1,2,2)、(2,1,2)時，選擇的消費組合分別對應為(10,5,5)、(3,5,6)、(13,3,3)、(15,3,1)，請證明是否符合SARP（強性顯示性偏好公理）(\_\_\_\_10\_\_\_\_)?

二、Four consumers make statements about their preferences or (utility maximizing) purchasing behaviors on movies ( $x_1$ ) and pizza ( $x_2$ ). According to each statement, write down a utility function, if possible, that could represent their preferences.

1. \_\_\_\_\_ (3%) Anna says that she always prefers a consumption bundle with more movies and pizza.
2. \_\_\_\_\_ (3%) Bess says that she always (weakly) prefers a consumption bundle with more movies or more pizza (or both).
3. \_\_\_\_\_ (3%) Cathy says that she always spends 1/3 of her income on movies, and 2/3 on pizza.
4. \_\_\_\_\_ (3%) Debra says that more bonus will not make her eat more pizza (given that prices of movies and pizza remain the same).

三、Emma wants to buy a dress from Francesca, whose cost of making the dress is \$300. The benefit of Emma to wear the dress is \$500.

1. \_\_\_\_\_ (2%) A “fair price” would let Emma and Francesca equally enjoy the gains from the transaction. What is the fair price in this case?

In fact, \$500 is Emma's expected benefit from the dress. With probability 1/2, Emma would like the dress very much, and obtain a benefit \$800; and with probability 1/2, Francesca's design doesn't really impress Emma, whose benefit from the dress is only \$200. The true benefit of the dress is Emma's private information, and does not affect the transaction price.

試題隨卷繳交

接背面

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第2頁 共2頁

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Suppose that Emma and Francesca first sign a contract and agree to trade at a price  $\$p \geq 300$  (not necessarily the fair price). Then, Emma learns the true benefit of the dress ( $\$800$  or  $200$ ). Finally, if they trade, Francesca spends the cost to make the dress, and Emma pays the price  $\$p$  and gets the dress. Both Emma and Francesca are risk neutral.

An efficient trading rule maximizes social surplus (the sum of consumer surplus and producer profit). Here, it requires Francesca make, and Emma get the dress if and only if the cost is smaller than the benefit.

2. \_\_\_\_\_ (3%) What is the expected social surplus under the efficient trading rule?
3. \_\_\_\_\_ (3%) What is the expected social surplus if Emma cannot breach the contract, namely, she must always pay the price  $p$  and trade with Francesca?

In practice, if a party breaches the contract, the court may order that party to pay the “expectation damages” to the trading partner (the victim of the breach). By definition, expectation damages compensate the victim an amount that would give her the same payoff had the contract been carried out. For the remaining questions, suppose that when Emma decides to breach the contract (i.e., refuse to trade with Francesca), Francesca has not yet incurred the cost, and Emma will be ordered to pay expectation damages.

4. \_\_\_\_\_ (3%) What is the amount of expectation damages Emma should pay in case of breach?
5. \_\_\_\_\_ (3%) What is the price  $\$p$ , if any, that would induce the efficient trading rule? If there are more than one, find out all such prices; and if there is none, explain why.

Lastly, suppose that either Emma or Francesca can make extra efforts to improve Emma’s consumption experiences.

By making such efforts (at a cost  $\$I$ ), the probability of a benefit of  $\$800$  becomes  $\frac{1}{2} + x$ , and the probability of a benefit of  $\$200$  becomes  $\frac{1}{2} - x$ , where  $0 < x < \frac{1}{2}$ .

6. \_\_\_\_\_ (3%) What is the social benefit of such efforts?
7. \_\_\_\_\_ (3%) If Emma can make the efforts, what is the maximal value of  $I$  such that Emma is willing to do so?
8. \_\_\_\_\_ (3%) If Francesca can make the efforts, what is the maximal value of  $I$  such that Francesca is willing to do so?

四、Both Gigi and Helen maximize the expected utility, with a (Bernoulli) utility function  $u(x) = \ln x$ , where  $x$  is the amount of money they can enjoy. Each of them has an initial wealth  $\$10$ , but may suffer from an accident that occurs with probability  $1/4$ .

1. \_\_\_\_\_ (3%) Are they risk neutral, risk loving, risk averse, or none of these?
2. \_\_\_\_\_ (4%) Suppose that the accident inflicts a damage  $\$2$  to each of the two girls. Can Gigi and Helen make an arrangement of mutual insurance that would constitute Pareto improvement over the case of no insurance? If yes, how; and if no, why not?
3. \_\_\_\_\_ (3%) Suppose that Helen will suffer a higher loss,  $\$4$  (while Gigi’s damages of accident remain at  $\$2$ ). If Irene proposes the following arrangement: Gigi gives Helen  $\$a > 0$  if there is no accident, and Helen gives Gigi  $\$b > 0$  if the accident occurs. Will this kind of arrangement Pareto dominate no insurance?
4. \_\_\_\_\_ (5%) Given that Helen’s loss from the accident is  $\$4$ , and Gigi’s loss is  $\$2$ , find out all the Pareto efficient mutual insurance schemes (not necessarily those described in the previous question), if exists.

試題隨卷繳交