

注意：考試開始鈴響前，不得翻閱試題，  
並不得書寫、畫記、作答。


國立清華大學 111 學年度碩士班考試入學試題

系所班組別：經濟學系

科目代碼：4601

考試科目：個體經濟學

### —作答注意事項—

1. 請核對答案卷（卡）上之准考證號、科目名稱是否正確。
2. 考試開始後，請於作答前先翻閱整份試題，是否有污損或試題印刷不清，得舉手請監試人員處理，但不得要求解釋題意。
3. 考生限在答案卷上標記「由此開始作答」區內作答，且不可書寫姓名、准考證號或與作答無關之其他文字或符號。
4. 答案卷用盡不得要求加頁。
5. 答案卷可用任何書寫工具作答，惟為方便閱卷辨識，請儘量使用藍色或黑色書寫；答案卡限用 2B 鉛筆畫記；如畫記不清（含未依範例畫記）致光學閱讀機無法辨識答案者，其後果一律由考生自行負責。
6. 其他應考規則、違規處理及扣分方式，請自行詳閱准考證明上「國立清華大學試場規則及違規處理辦法」，無法因本試題封面作答注意事項中未列明而稱未知悉。

# 國立清華大學 111 學年度碩士班考試入學試題

系所班組別：經濟學系碩士班

考試科目（代碼）：個體經濟學(4601)

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## Part 1

### Short Questions [35 points]:

1. Consider a typical resident in Hsinchu, Paul, who would divide his income  $m$  between bus rides and other goods. Suppose the price of other goods is normalized to \$1 and the price of bus ride is  $p$ .
  - a) Draw the initial budget line of Paul in a graph with the number of bus rides on the horizontal axis and other goods on the vertical axis. Indicate the vertical and horizontal intercepts and label his optimal consumption bundle as “A” using an indifference curve that is convex to the origin. [6 points]
  - b) Suppose the Hsinchu city government subsidizes the price of each ride and lower the price of bus ride from  $p$  to  $p-s$ . Show in your graph the new budget line facing Paul as well as the new vertical and horizontal intercepts. [5 points]
  - c) Suppose that a bus ride is a regular inferior good (i.e. NOT a Giffen good) to Paul. Illustrate the substitution and income effects of the subsidy. Locate a possible new optimal bundle “B” on Paul’s new budget constraint. What will happen to the number of bus trips that Paul consumes as a result of this subsidy? Explain. [6 points]
  - d) In your graph indicate the total amount the government spends on the subsidy (in terms of other goods) and label it as  $S$ . [7 points]
  - e) Suppose the government now changes the subsidy to a cash subsidy that would provide the minimum lump sum subsidy that would make Paul equally well off as he is under the current price subsidy. Label this cash subsidy as  $L$  in your graph. [7 points]
  - f) Which form of subsidy would cost the government more, the price subsidy or the lump sum subsidy, or would they cost the same? [4 points]

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\*請在【答案卷、卡】作答

**Multiple Choice Questions [15 points]:**

For each multiple choice question, choose the one best answer.

1. Eric consumes goods  $x$  and  $y$ . His utility function is  $U(x, y) = xy^3$ . His income is \$20. The price of  $x$  is \$1 and the price of  $y$  is \$3. Find his demand for  $y$ .

- A) 10
- B) 5
- C) 7.5
- D) 3

2. Chris has a utility function  $U(x_1, x_2) = 28x_1^{\frac{1}{2}} + x_2$  where  $x_1$  is his consumption of potato chips and  $x_2$  is his consumption of soda. His income is \$128, the price of potato chips is \$2, and the price of soda is \$1. How many cans of *soda* will Chris demand?

- A) 30
- B) 60
- C) 55
- D) 49

3. Ben's utility function is  $U(x, y) = \min \{x, 2y\}$ . If the price of  $x$  is \$5 and the price of  $y$  is \$10 and if Ben chooses to consume 4 units of  $y$ , what must his income be?

- A) \$80
- B) \$100
- C) \$320
- D) \$440

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Part 2

1. [10 points]

(a) Please draw a U-shape average total cost curve and draw a corresponding marginal cost curve on the same picture.

(b) On the picture you draw in (a), illustrate how the marginal cost curve and average total cost curve shift if the marginal cost increase by a constant for every quantity.

(c) On a different picture, draw a *up-side-down* U-shape average total cost curve and draw a corresponding marginal cost curve on the same picture.

2. [20 points] The private marginal cost of a firm is the additional cost it pays to produce one more unit of its product. Suppose that the firm pollutes the river beside it as it produces. To clean up the river, the additional cost the city has to pay when the firm produces one more unit is called external marginal cost.

(a) Use a picture with demand and supply curves of the product the firm produces to illustrate the dead-weight loss caused by the externality.

(b) Ignore the pollution in part (a). Use a picture of demand and supply to explain the dead-weight loss the firm causes if the firm is a monopoly.

(c) If the firm is a monopoly and it pollutes the river. Is it possible that the two dead-weight losses you explained in part (a) and (b) cancel each other so the result is efficient?

3. [20 points] Consider two firms engaged in price competition (Cournot competition).

(a) Illustrate the equilibrium with a picture. Is the equilibrium efficient?

(b) What will happen to your answer of (a) if the marginal cost of one firm increases.

(c) What will happen to your answer of (a) if one of the firms faces capacity constraint and it cannot produce the equilibrium quantity you find in part (a)?