

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 115 學年度碩士班考試入學試題

系所班組別：科技管理研究所
甲組

科目代碼：4901

考試科目：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. 提早交卷者不可攜出試題，請將試題連同答案卷(卡)交予監考人員，攜出將以違規論處。當節考試結束後試題將置於講台，可自行取回，本試場不負保管責任。
7. 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。

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*請在【答案卷】作答

一、單選題（30%，每題 5 分，請將選擇題答案寫在答案卷第一頁最上方）

1. Suppose a consumer has strictly monotonic and strictly convex preferences. If the optimal consumption bundle is an interior solution, which of the following must hold?
 - a. The Marshallian demand functions are linear.
 - b. The Hicksian demand functions do not depend on utility.
 - c. The marginal rate of substitution equals the price ratio.
 - d. The income effect is zero.
2. In a Cournot model with homogeneous products and identical firms with constant marginal costs, an increase in the number of firms will lead to:
 - a. A higher equilibrium price and lower total output
 - b. A lower equilibrium price and higher total output
 - c. No change in equilibrium price or output
 - d. A higher equilibrium price and higher total output
3. In a perfectly competitive industry, which of the following would **NOT** lead to an upward-sloping long-run supply curve?
 - a. Firms face increasing input prices as industry output expands.
 - b. The number of firms cannot increase in the long run.
 - c. Firms experience decreasing average costs due to learning-by-doing.
 - d. Firms have heterogeneous cost structures across producers.
4. In the short-run IS-LM model with a fixed price level, which of the following policy combinations is most likely to result in an increase in output without changing the interest rate?
 - a. Expansionary fiscal policy combined with contractionary monetary policy.
 - b. Expansionary fiscal policy combined with expansionary monetary policy.
 - c. Contractionary fiscal policy combined with expansionary monetary policy.
 - d. Expansionary monetary policy combined with contractionary fiscal policy.

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5. Consider an economy described by the Solow growth model with exogenous technological progress. Which of the following statements is correct along the balanced growth path?
 - a. Capital per worker grows faster than output per worker.
 - b. Output per worker and capital per worker grow at the same constant rate.
 - c. Consumption per worker is constant over time.
 - d. The saving rate determines the long-run growth rate of output per worker.
6. In a New Keynesian framework with sticky prices, which of the following best explains why monetary policy can have real effects in the short run?
 - a. Money is neutral because prices adjust instantly.
 - b. Nominal rigidities prevent immediate price adjustment.
 - c. Rational expectations eliminate policy effectiveness.
 - d. Long-run inflation expectations are always anchored.

二、名詞解釋 (30%，每題 5 分，得分將取決於回答的完整度)

1. 補償變量 (Compensating Variation)
2. 赫芬達爾－赫希曼指數 (Herfindahl-Hirschman Index)
3. 通膨目標化 (Inflation targeting)
4. 經常帳餘額 (Current Account Balance)
5. 財政乘數 (Fiscal Multiplier)
6. 庇古稅 (Pigouvian Tax)

三、問答題 (40%)

1. Consider a signaling model of education with two types of workers: high-ability (H) and low-ability (L). Firms cannot observe a worker's ability directly but can observe the level of education e . Education does not affect productivity. A worker of type $i \in \{H, L\}$ has productivity y_i , where $y_H > y_L$. Note that y_i can also be interpreted as the life-time income of a

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worker of type i given firms pay wages equal to expected productivity. The cost of education of type i is given by

$$c_i(e) = \frac{e}{\theta_i},$$

where $\theta_H > \theta_L > 0$. Firms offer wages equal to the expected lifetime income conditional on the observed education level.

- a. (5%) Write down the incentive compatibility conditions for a separating equilibrium in which only high-ability workers choose a positive level of education e^* .
 - b. (5%) Derive the minimum education level e^* that can support such a separating equilibrium.
 - c. (5%) Briefly explain why low-ability workers do not find it optimal to mimic high-ability workers in this equilibrium.
2. (10%) List at least two conditions under which a firm can successfully practice price discrimination. Briefly describe the three types of price discrimination.
3. Consider the following 2×2 simultaneous-move game. Player 1 (Row) chooses U or D; Player 2 (Column) chooses L or R. Payoffs are (Player 1, Player 2):

Player 1 \ Player 2	L	R
U	(4, 1)	(0, 3)
D	(2, 4)	(1, 0)

- a. (5%) Does this game have a pure-strategy Nash equilibrium? If yes, identify it. If not, briefly justify your answer using best responses.
- b. (5%) Let $q = \Pr(L)$ be Player 2's probability of playing L. Find the value of q that makes Player 1 indifferent between playing U and D.
- c. (5%) Find the mixed-strategy Nash equilibrium (report both players' mixing probabilities)