

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 114 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：4802

考試科目：總體經濟學

### —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 114 學年度碩士班考試入學試題

系所班組別：經濟學系碩士班

共 3 頁，第 1 頁

考試科目（代碼）：總體經濟學（4802）

請在【答案卷】作答

## Part I

### 1. Unemployment (25 points)

Use appropriate graphs and equations in your answer.

- (a) (5 points) Use the labour supply and labour demand curves to show that unemployment is always zero in the competitive equilibrium with perfect information.
- (b) (10 points) One reason given for the existence of unemployment is the absence of perfect information. For example, firms cannot perfectly observe workers' effort. Use a simply model to explain this reasoning. Use your model to study the effect of an increase in labour supply on employment, and explain why your findings are different from part (a).
- (c) (10 points) Another reason given for the existence of unemployment is that there are frictions in the labour market, namely that it takes time for firms and suitable workers to find each other. Use a simple model to explain this reasoning. What are the factors that are important for the level of unemployment? How do they compare to those in the model of part (b)?

### 2. Growth Model (25 points)

Consider an economy with an aggregate production function  $Y_t = F(K_t, L_t)$ , where  $K_t$  represents the stock of capital,  $L_t = L_0 e^{gt}$  is the labour force, which grows at rate  $g$  every period and  $Y_t$  is output. Assume there is an exogenous and constant net-depreciation saving rate  $s_t = s$ .

- (a) (5 points) Denote by  $\beta_t$  the ratio of capital to output. Write the transition equation relating  $\beta_{t+1}$  and  $\beta_t$ .
- (b) (5 points) Compute the steady-state value of  $\beta$ .
- (c) (10 points) Assume that every period there is a uniform rate of capital gain  $q$ , such that the capital stock in period  $t + 1$ ,  $K_{t+1}$  is equal to  $(1 + q)[K_t + sY_t]$ . Express the steady-state capital to income ratio as a function of  $s$ ,  $g$  and  $q$ .
- (d) (5 points) Can capital gain *per se* generate capital accumulation in this model?

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考試科目（代碼）：總體經濟學（4802）

請在【答案卷】作答

## Part II

簡答題，請寫下各題之答案即可，不需解釋與運算過程。

每個答案 4 分，共 32 分

### Solow Growth Model

The production function of an economy is

$$Y = K^{\frac{1}{3}}N^{\frac{2}{3}}$$

where  $Y$  is total output, and  $K$  and  $N$  are total capital and labor inputs, respectively.

1. The per-worker production function is ①.
2. Suppose The depreciation rate is 0.1, and the population growth rate is 0.05. Total national saving  $S = 0.6Y$ . The steady-state values of the capital-labor ratio is ②, output per worker is ③, and consumption per worker is ④.

### Endogenous Growth Theory

3. According to the AK model, the growth rate of the total output is ⑤.

### Saving and Investment in the Open Economy

4. The goods market equilibrium condition in an open economy is ⑥.
5. Suppose output = \$40, government spending = \$12, consumption = \$20, net exports = \$5, and net factor payments = \$0. The equilibrium amount of investment is ⑦. The equilibrium amount of absorption is ⑧.

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請在【答案卷    】作答

申論問答題：每題 6 分，共 18 分

## 6. The Keynesian Consumption Function

According to the Keynesian theory, current consumption can be expressed as a linear function of current income. Graph the Keynesian consumption function and use the diagram to explain the proposition: "The rich people save more."

## 7. Quantity Theory of Money

Milton Friedman once said that the quantity theory is, in the first instance, a theory of the demand for money. State the equation for the quantity theory of money and derive the money demand function from it. Make sure to define all variables.

## 8. CPI and Cost of Living

When explaining the bias in the CPI, typical macroeconomic textbooks cite the 1996 report of the Advisory Commission to Study the Consumer Price Index (known as the Boskin Commission). The report indicates that the CPI overstates inflation by 1 to 2 percentage points per year and identifies two main reasons for this bias. What are these two reasons, and how do they cause the bias in the CPI?