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 110 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：4502
考 試 科 目：總體經濟學

一作答注意事項一

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。

Part I

1. [20 points] Short questions

   (a) [5 points] What does it mean for allocations to be Pareto efficient? What are the policy implications?

   (b) [5 points] Explain some of the problems associated with commodity-based money.

   (c) [5 points] Explain the extent you agree with this statement: Ricardian equivalence shows that government deficits do not matter.

   (d) [5 points] About interest rates:

       i. Can the real interest rate be negative? Why?

       ii. Can the nominal interest rate be negative? Why?

2. [5 points] Consider the following production function

$$Y = A \times (L - F)$$

where Y is output, A is a technology parameter, L is labor input, and F is a fixed amount of labor that is required before the first unit of output can be produced. Assume that the $Y = 0$ if $L < F$. Each unit of labor L costs the wage w to hire.

   (a) [2 points] Find the cost function, $C(Y)$, that tells the minimum cost required to produce Y units of output.

   (b) [3 points] Will the firm encounter any problem, if the firm charges a price P equal to marginal cost? Explain your logic.

3. [10 points] In most endogenous growth models, allowing a monopolist to capture monopolistic profit plays an important role in boosting innovation. Consider a monopolist facing a linear demand function: $Q = a - bP$, and the marginal cost is constant at c. Parameters a, b, and c are positive constants with $a - bc > 0$. Find the **ratio of** monopolistic profit to the total potential consumer surplus available if the good were priced at marginal cost.

4. [15 points] Consider a modified Solow growth model with long run technology progress. Specifically, the aggregate production function is

$$Y = F(K, bN)$$

where K is capital, b denotes the number of unit of "human capital", bN is the efficient unit of labor. Letting b' denote the future human capital per worker, assume that $b' = (1+f)b$, where f is the growth rate in human capital. Besides, the labor input N evolves according to $N' = (1+n)N$, where N' is the future labor input, and n is the growth rate of N. The economy is closed, and the economy's saving rate is fixed and given by s. Capital's depreciation rate is given by d. Use I to denote investment

(a) [2 points] Express the aggregate capital evolution equation.

(b) [3 points] Express the capital evolution equation in terms of $\bar{k} = \frac{K}{bN}$ and the model parameters. State the necessary assumption for this derivation.

(c) [5 points] Draw a graph to show that this economy will reach a long run equilibrium with a constant $\bar{k}$. State the necessary assumptions to have this long run equilibrium. Provide the economic meanings of your assumptions.

(d) [5 points] Consider the case that the economy encounters a *sudden increase* of labor input due to immigration. Given the fixed growth rate n, what is the short and long run effect of this sudden increase in N on $\bar{k}$? Assume that when the sudden increase happens, the economy is in its long run equilibrium.

Part 2

Section A: Short questions [25 points]

1. Explain what the impossible trinity is, and provide examples of it.

2. Give a brief discussion of the real business cycle theory.

3. Explain the uncovered interest rate parity.

4. Because of the existence of price stickiness, money is nonneutral in the Keynesian model. Describe the sources of price stickiness and elaborate the link between price stickiness and nonneutality of money.

5. Assume prices are sticky and that the aim of monetary policy is to stabilise GDP. How does the central bank set interest rate when the economy is hit by recession caused by the fall in consumer confidence?

Section B

6. In an open economy, suppose that the home government is worried about its level of debt, which will require high taxes in the future to satisfy the government constraint. To address this problem, the government decides to cut its spending. [15 points]

   (a) Discuss the impacts of this fiscal policy to interest rate and GDP for the home country and the foreign country under a fixed exchange rate regime.

   (b) Discuss the impacts of this fiscal policy to interest rate and GDP for the home country and the foreign country under a ~~fixed~~ flexible exchange rate regime.

   (c) Explain your answers of (a) and (b)

7. Consider the model of a small open economy with production and investment. [10 points]

   (a) Suppose there is a positive temporary TFP shock (assume the wealth effect is negligible). Find the effects on output and the current account. Is the current account predicted to be procyclical or countercyclical?

   (b) Suppose the world real interest rate falls. Explain whether output and the current account move in opposite directions in response to this shock.