

國立中央大學 105 學年度碩士班考試入學試題

所別： 經濟學系 碩士班 不分組(一般生)

共 3 頁 第 1 頁

科目： 總體經濟學

本科考試禁用計算器

\*請在答案卷(卡)內作答

請依題號寫下答案

一、是非題：每題 8 分，共 48 分。請先回答是或非，再繪圖並說明理由；**沒寫**

**理由或沒繪圖均以零分計。**

1. In the classical model, other things equal, the equilibrium general price level increases with the velocity of money.
2. Suppose that the income effect is greater than the substitution effect. Other things equal, the raise of the expected inflation rate causes the current consumption to decrease and the future consumption to increase.
3. In the IS-LM and AD-AS models, both the short-run equilibrium interest rate and the short-run equilibrium general price level fall if the required reserve ratio is raised.
4. Fiscal policies are more effective in affecting the short-run output level if wages and prices are more flexible.
5. Suppose that wages and prices are perfectly flexible. Other things equal, an increase in the labor supply causes the short-run equilibrium general price level to fall and the short-run equilibrium real wage rate to rise.
6. Suppose that the money supply increases. In the AD-AS model, other things equal, the money supply growth rate is greater than the short-run inflation rate and is less than the long-run inflation rate.

注意：背面有試題

國立中央大學 105 學年度碩士班考試入學試題

所別： 經濟學系 碩士班 不分組(一般生)

共 3 頁 第 2 頁

科目： 總體經濟學

本科考試禁用計算器

\*請在答案卷(卡)內作答

二、問答題：共 52 分。沒有推導過程或沒寫理由均以零分計。

7. Let  $W/P$  denote the real wage and  $L$  denote the number of labor. The labor market of an economy is described by the following two equations, one for labor demand and the other for labor supply.

$$\ln(W/P) = 50 - 0.4 \ln(L)$$

$$\ln(W/P) = 20 + 0.1 \ln(L)$$

- (a) (4 分) Specify which one is labor demand and which one is labor supply equation. Calculate the equilibrium level of  $\ln(W/P)$  that clears the labor market.
- (b) (4 分) Suppose that this economy's production function is  $Y = A L^{\alpha}$ , where  $A$  is productivity and  $Y$  is output. Derive the labor demand function. Based on the labor demand equation given in the question, what is the implied value of  $\alpha$ ?
- (c) (4 分) A law that bans foreigners to work will be lifted soon. Draw a diagram to explain the expected effect of the influx of foreign workers on the real wage and domestic workers' employment. (Assume that the foreign workers and domestic workers are homogenous in quality and skills.)

8. Consider the following growth model with human capital, where  $K$  is capital,  $h$  is human capital,  $I$  is investment,  $S$  is savings,  $L$  is the number of population (or labor),  $A$  is productivity, and  $Y$  is output. All variables are in real terms. Suppose that the capital depreciation rate is  $\delta = 0.1$ , saving rate is 0.3, and the population size is fixed (i.e. no population growth).

$$K_{t+1} = (1 - \delta) K_t + I_t = 0.9 K_t + I_t \quad (\text{capital accumulation})$$

$$I_t = S_t = 0.3 Y_t \quad (\text{investment} = \text{saving})$$

$$Y = A K^{1/3} (hL)^{2/3} \quad (\text{production function})$$

- (a) (4 分) Based on the production function, rewrite the output per-capita ( $y \equiv Y/L$ ) as a function of capital per-capita ( $k \equiv K/L$ ) and human capital ( $h$ ).

注：背面有試題

國立中央大學 105 學年度碩士班考試入學試題

所別： 經濟學系 碩士班 不分組(一般生)

共 3 頁 第 3 頁

科目： 總體經濟學

本科考試禁用計算器

\*請在答案卷(卡)內作答

- (b) (8分) Country X is characterized by the above model with  $A=3$  and  $h=8$ . Compute the values of capital per-capita ( $k$ ) and output per-capita ( $y$ ) in the steady-state.
- (c) (4分) Country Z is also characterized by the same model above with  $A=3$  and  $h=8$ . Neither Country X nor Country Z has yet reached their steady states. It is known that the income per-capita of Country X is higher than the income per-capita of Country Z, i.e.  $(Y/L)|_X > (Y/L)|_Z$ . Which country has higher speed of growth? Explain.
9. Consider a closed economy with no government. The IS-LM model includes the following equations:
- $$C = 10 + 0.8 Y$$
- $$I = 30 - 3 R$$
- $$L = 150 + 0.5 Y - 5 R$$
- $$M = 200$$
- $$P = 1 \quad (\text{Price level is fixed at } 1)$$
- where  $C$  is consumption,  $Y$  is income,  $I$  is investment,  $R$  is nominal interest rate,  $L$  is demand for real balance,  $M$  is nominal money supply, and  $P$  is the price level. Answer the following questions with the price level fixed at 1.
- (a) (4分) Derive the IS curve.
- (b) (4分) Derive the LM curve.
- (c) (4分) Solve for income and nominal interest rate in the equilibrium.
10. (12分) The world is made up of only two large open economies. The home country originally has national saving greater than total investment (i.e.  $S_h > I_h$ ) while the foreign country has national saving smaller than total investment (i.e.  $S_f < I_f$ ). Suppose that an adverse supply shock hits only the foreign economy and causes the foreign saving to decrease. Use diagram to discuss the effect of such event on (a) the equilibrium world real interest rate, (b) the home country's current account balance, and (c) the foreign country's current account balance.