

**Advanced Macroeconomics**  
**Instructed by Xu & Yi**  
**Final Exam (Open-Book)**  
**Undergraduate Program in Economics, HUST**  
**Thursday, June/13/2019**

**Name:** \_\_\_\_\_ **Student ID:** \_\_\_\_\_

1. ( $20' \times 5 = 100$  points)

- (a) Are Economic Growth Theories good enough to explain the year-to-year fluctuations in consumption, investment, and unemployment rates as observed in data? Explain your answers.
- (b) There is no unemployment in models of Chapters 1-4. However, after introducing the utility function

$$u_t = \ln c_t + b \ln(1 - \ell_t), \quad b > 0, \quad \ell_t \in [0, 1], \quad (1)$$

we are able to depict the endogenously determined unemployment rates. Show that there will always be individuals unemployed at any time of an equilibrium.

- (c) The market labor demand function and capital demand function are hiding within equations (5.1) – (5.26) in your textbook. Find them out.
- (d) Recall Equation (5, 24) from your textbook:

$$\frac{1}{c_t} = e^{-\rho} \left\{ E_t \left[ \frac{1}{c_{t+1}} \right] E_t[1 + r_{t+1}] + \text{Cov} \left( \frac{1}{c_{t+1}}, 1 + r_{t+1} \right) \right\}. \quad (5.24)$$

According to the Euler equation above, all other things equal, an asset whose return rate has higher covariance with  $\frac{1}{c_{t+1}}$  attracts the households more (by consuming less  $c_t$ ). Give the economic intuition behind this result.

(e) Suppose the instantaneous utility function now becomes

$$u_t = \frac{c_t^{1-\theta}}{1-\theta} + b \frac{(1-\ell_t)^{1-\gamma}}{1-\gamma}.$$

How should equation (5.26) ( $\frac{c_t}{1-\ell_t} = \frac{w_t}{b}$ ) in your textbook be revised accordingly?

- 2.** (20 extra points) Write an essay. It could be of any type, such as thoughts on an economic model, outlines for future research or career plans, explanations of a specific phenomenon, comments on a theory or a speech by a professor, an economic story that uses materials introduced in this course, etc. There is no formal requirement for the length of your essay, the number of points you will earn is fully determined by how well your essay is related to this course.