Macrotheory Exam – August 2002

I. Answer **six** out the following **nine** questions.

1. True, false, or uncertain: "In the steady state of a Solow growth model with both population growth and technological progress, the real wage rate is constant." Explain your reasoning.

2. The most frequently offered explanation for the negatively sloped aggregate demand curve is the Keynes effect, or interest rate effect. Are there other reasons for the negative slope of the aggregate demand curve? Discuss.

3. True, false, or uncertain: "Under the life cycle-permanent income hypothesis with rational expectations, a temporary recession will cause a predictable temporary decrease in consumption that will last only as long as the recession." Explain your reasoning.

4. Paul Krugman said that there exists a Keynesian liquidity trap in Japan. If Krugman is correct, show that the mix of fiscal policy measures is the major solution for the Japanese economy.

5. Nelson and Plosser **estimated** that the cyclical component of output was a moving average process of the form $Y_{ct} = ?_t - ??_{t-1}$. In the Lucas partial information or misperceptions model, it is **assumed** that $Y_{ct} = ?Y_{ct-1} + ??(P_t - P_t^e)$. Are these two papers consistent or inconsistent with one another? Explain.

6. The real business cycle (RBC) model uses both a utility function and a production function as a starting point in their analysis. The production function can have the form

$$Y_t = a_0 + a_1L_t + a_2K_t + ?_t,$$

where Y is output, L is labor, K is capital and ? is an error term. The production function is in logarithms. The RBC model assumes that an increase in the demand for Y will lead the firm to demand more inputs L and K. Using a cointegration perspective, how would you test for whether or not this relationship is consistent with the data?

7. Suppose the objective of monetary policy is to both minimize the inflation rate as well as minimize the cyclical component of output. Suppose there is a temporary supply shock and the Federal Reserve needs to react in the short-run to accomplish their objectives. Describe how the policy would be constructed and discuss the likelihood of success.

8. True, false, or uncertain. Given an open economy, the greater the propensity to import, the smaller is the expenditure multiplier. Explain.

9. True, false, or uncertain. In a small open economy with perfect capital mobility, if the government maintains a fixed exchange rate regime, monetary policy is basically ineffective. Explain.

II. Answer **one** out of the following **two** questions.

10. Though everyone acknowledges that most firms incur some costs in changing their prices (typified by the cost to a restaurant of reprinting its menu), there is widespread consensus that these adjustment costs are quite small. Consider an economy composed of many price-setting firms who face small costs to change their prices in response to aggregate demand shocks. Each firm takes the prices set by other firms as given.

    a. Suppose there are no other imperfections in this economy, and in particular no imperfections in the labor market, which is characterized by relatively inelastic labor supply. Under these circumstances, it is unlikely that the small menu costs alone would give rise to a refusal by firms to adjust their prices, and thus unlikely that these menu costs would lead to the price-level rigidity that would imply that monetary shocks have real effects. Explain why.

    b. What sort of additional imperfections, in addition to the small menu costs, ***would*** lead to the nominal rigidity that would cause monetary shocks to have real effects? Explain.

    c. If the conditions described in part (b) hold, how can you reconcile the fact that the aggregate costs associated with the fluctuations in aggregate output can be very large with the fact that, at the microeconomic level, the costs of adjustment for the individual firms are very small?

    d. There have been recent suggestions that the expanding use of the Internet for the posting of prices will greatly reduce costs of price adjustment. If this forecast is accurate, what will be the implications for macroeconomic performance? Explain.

11. Consider the following model

$$Y_t = Y_{nt} + Y_{ct}$$

$$Y_{nt} = ? + Y_{nt-1} + S_t$$

$$Y_{ct} = 1/2 \sum_{i=1}^{2} ?? (P_t - P_{t-i}^e) + ? Y_{ct-1}$$

$$? = ?_z^2 / (?_z^2 + ?_?^2 + ?_S^2)$$

$$Y_t^D = -P_t + M_t$$

$$M_t = a_0 + a_1 M_{t-1} + a_2 Y_{ct-1} + ?_t$$

$?_z^2$ - market specific demand disturbance
$?_?^2$ – aggregate demand disturbance
$?_S^2$ – aggregate supply disturbance

a) Describe intuitively how the above aggregate **supply** equations behave. You will need to discuss the features of the reduced form solution but it is not necessary to solve out the system.

b) Describe intuitively how the above aggregate **demand** equations behave. You will need to discuss the features of the reduced form solution but it is not necessary to solve out the system.

c) Explain how monetary policy in this system responds to aggregate supply and demand disturbances.

d) How would you test whether the specification for monetary policy is consistent with data for the U.S. economy?

III. Answer **one** out of the following **two** questions.

12. For some time now, prices of U.S. stocks on Wall Street have been depressed.

a. To what extent did macroeconomic performance influence the drop in stock prices? Explain.

b. On the other hand, will the depressed stock prices have any impact on macroeconomic performance? Discuss.

13. The globalization of the world economy, especially after the world trade organization (WTO), is unavoidable. Because of the lingering recession in Japan and recently in the U.S., a world-wide recession seems likely. How could the U.S., Japan, the European Union, the World Bank and the IMF coordinate macroeconomic policies to avoid a world disaster?