

Part I. Answer **six** of the following nine questions.

1. If workers are paid an efficiency wage, what implications would this have for the short-run effects of a slowing of money growth to reduce the inflation rate? Explain.
2. Explain why changes in the supply of money will only have stationary impacts on output.
3. When banks lend out more of their excess reserves at higher interest rates, so that the money supply becomes endogenous, this makes the LM curve flatter and monetary policy less effective. Analyze.
4. Ricardian Equivalence is an interesting theoretical result, but many macroeconomists today do not believe that Ricardian Equivalence holds in practice. Summarize the plausible reasons, and explain how each of these would cause a departure from Ricardian equivalence.
5. Explain how the real business cycle model has stronger ties to basic microeconomic principles than Lucas's rational-expectations, imperfect-information model.
6. If a country's currency is pegged (fixed) to a major international currency (e.g., the U.S. dollar), then that country loses the independence of its monetary control, or as it is sometimes put, the country's money supply becomes "endogenous." Analyze.
7. True, false, or uncertain: "In an economy with a very high interest-elasticity of money demand, an adverse supply shock will, in the short run, cause a very large change in output and employment, with only a very modest increase in the price level." Explain your reasoning.
8. Suppose it has been estimated that real GDP is a random walk. What implications does this have for the objectives of monetary policy?
9. Suppose that all foreign exchange is under the control of the central bank for a small country. If there is a big capital inflow, what happens to the monetary base? What can the central bank do to offset this impact?

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

10. Consider a growth model of an economy in which output is determined by the inputs of effective labor, AL , physical capital, K , and human capital, H . This production function has the Cobb-Douglas form with constant returns to scale. The number of workers grows at a constant rate n . A fraction s_K of output is devoted to physical capital accumulation, and a fraction s_H is devoted to human capital accumulation. Labor-enhancing technological progress occurs at the exogenously given rate g .
- Will such an economy converge to a balanced growth path? If it does so, what factors will determine the long-run growth rate of output per worker (*not* output per *effective* worker) on this balanced growth path?
 - How will an increase in s_K affect the levels of K/AL , H/AL , and Y/AL ? How will an increase in s_H affect these three variables?
 - How does this model contribute to reconciling the theoretical results from the Solow growth model with the empirical facts about economic growth in the real world?
 - What does this model predict about the magnitude of differences in rates of return to capital between rich countries and poor countries? Explain.

11. Consider the following macroeconomic system of cointegrated relationships:

$$M_t^D = d_0 + d_1 Y_t + d_2 r_t + d_3 P_t + \epsilon_{mdt} \quad (1)$$

$$M_t^S = f_0 + f_1 B_t + f_2 r_t + \epsilon_{mst} \quad (2)$$

$$W_t = g_0 + g_1 P_t + \epsilon_{wpt} \quad (3)$$

where Y is real GDP, r is the ex-post real interest rate, M^D is the demand for nominal money balances, M^S is the nominal supply of money, P is the price level, B is the monetary base, and W is the nominal wage rate. The variables ϵ_{mdt} , ϵ_{mst} , and ϵ_{wpt} are disequilibrium residuals.

- a. Discuss how disequilibrium in the markets for money supply and money demand should impact output. Be sure to distinguish stationary from non-stationary impacts.
- b. Briefly describe the types of models that rely on sticky wages and sticky prices to generate various results related to the impact of monetary policy. Explain how the market describing the wage/price relationship can be used to distinguish between models that rely on sticky wages as opposed to sticky prices.
- c. How would the state of equilibrium in the money supply and money demand relations impact the behavior of the wage/price relation?

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

12. a. For 1994, the average rate of unemployment in the United States was 6.1%, and the consumer price index increased at an average rate of 2.6%. Most economists at that time believed the natural rate of unemployment in the U.S. was around 6%. So the unemployment rate could fall below 6% only at the cost of accelerating inflation. But for 1999 the unemployment rate was 4.2%, and the rate of CPI inflation was 2.2%. What is going on here? Summarize the causes of the U.S. economy's surprising performance in the second half of the 1990s. You may want to refer to the following data:

	1994	1995	1996	1997	1998
Wage inflation (%)	2.8	2.8	3.4	3.9	3.9
Price inflation (%)	2.6	2.8	3.0	2.3	1.6
Unemployment rate (%)	6.1	5.6	5.4	4.9	4.5

- b. Fixed investment in nonresidential structures and equipment has grown rapidly over this period. One economist has recently referred to these increases in investment as “good cholesterol,” since they help to restrain inflation even though they add to aggregate demand. How might investment achieve this result?
13. The U.S. economy has been becoming more service oriented (greater relative employment) with less reliance on the manufacturing sector. In addition, employment in the retail sector is also rising relative to total employment. How should these characteristics impact:
- a. the role of monetary policy in offsetting aggregate supply and demand disturbances?
- b. the role of fiscal policy in stimulating productivity growth?