Economics 101b; Fall 2000; Mock Final Exam

Definitions--one sentence on each (1/6 of exam)

1. What are the principal components of GDP?

2. What is the best available index of economic well-being?

3. What are the most important leading indicators?

4. What is the *expected rate of inflation?*

5. Suppose that the *tax rate* is 25%, that the *marginal propensity to consume* is 0.75, and imports are 10% of total income. What is the value of the *multiplier?*

6. Why are *intermediate goods* excluded from the calculation of GDP?

Short answers--one (short) paragraph on each (1/6 of exam):

1. What are the different kinds of *interest rates* found in an economy? Which interest rate(s) does the Federal Reserve directly control? Which interest rates are most important as determinants of aggregate demand?

2. What are "static expectations of inflation"? How are they different from "adaptive expectations of inflation"?

3. Which is a more important indicator of economic welfare *today*, the level of the stock market or the unemployment rate? Why?

4. Roughly, what was the highest level that the U.S. inflation rate reached in the twentieth century? What was the highest *peacetime* unemployment rate?

Income and Expenditure (1/6 of exam):

Suppose that we have the following income-expenditure model of the economy:

$Y = C+I+G+NX$ (national income identity)
$C = C_0 + 0.8(Y - T)$ (consumption function)
$T = .25 \times Y$ (taxes)
$NX = GX - IM$ (net exports)
$IM = .1 \times Y$ (imports)

And suppose that I, G, and GX are determined outside this model's system.

(1) Solve, algebraically, for Y as a function of the outside variables I, G, GX, and C_0.

(2) What is the value of the multiplier in this model?

(3) Suppose that the sum $C_0 + I + G + NX$ increases by $200 billion. By how much does equilibrium real GDP Y change?

(4) Suppose that the tax rate were to go up from 25 to 62.5 percent. What then would the value of the multiplier be?

Economic Growth (1/6 of exam):

In Taiwan today, the (real) savings rate is about 32 percent of output, the average rate of increase in the efficiency of labor is 3 percent per year, the average rate of population growth is about 1 percent per year, and the depreciation rate is about 4 percent per year.

(1) Suppose that Taiwan is able to maintain these investment, population growth, depreciation, and labor efficiency growth rates far into the future. What is the steady-state capital-output ratio?

(2) Suppose that the parameter α in the production function $Y/L = E \times (K/L)^{\alpha}$ is 1/3. What is the level of output per worker on the steady-state growth path (that is, what is output per worker as a function of the efficiency of labor E and of the parameters of the model)?

(3) What will the long-run rate of growth of total GDP be in the steady state?

(4) What will the long-run rate of growth of GDP per worker be in steady state?

Macroeconomic Shocks (1/6 of exam):

A. In a full-employment economy, what do you think would be the *qualitative* effect on the equilibrium distribution of GDP between consumption, investment, government purchases, the and net exports, and on the real exchange rate and the real interest rate, of each of the following shifts in the economic environment?

- A decrease in investors' confidence about the future (holding all other aspects of the economic environment constant).
- An increase in foreigners' taste for home-produced goods (holding all other aspects of the economic environment constant).
- Smaller budget deficits in foreign countries (holding all other aspects of the economic environment constant).
- An increase in domestic government purchases (holding all other aspects of the economic environment constant).
- An increase in consumers' baseline spending C_0 (holding all other aspects of the economic environment constant).

B. How would your answers differ if the economy was a sticky-price, unemployment economy (in which the Federal Reserve was fixing the real interest rate) instead?

Inflation and Unemployment (1/6 of exam):

Suppose that the economy can be modelled as:

(a) $u_t - u_{t-1} = -.4(gy_t - .03)$ (Okun's Law)
(b) $\pi_t = \pi^e_t - (u_t - .06)$ (Phillips' Curve)
(c) $gy_t = gm_t - \pi_t$ (Aggregate Demand)

Where "u" is the unemployment rate, "π" is the inflation rate, "gy" is the annual growth rate of real output, and "gm" is the annual growth rate of the money stock.

(i) What is the natural rate of unemployment in this economy?
(ii) Suppose that inflation is ten percent per year, and the economy is operating at the natural rate of unemployment. What must the growth rate of output be to keep the economy at the natural rate of unemployment? What must the growth of the money stock be to keep the economy at the natural rate of unemployment?
(iii) Suppose that the economy has adaptive expectations of inflation. How—quantitatively—would the economy respond to a shift in policy by which the central bank reduced the rate of nominal money growth from 13% per year to 8% per year?
(iv) Suppose that the economy has rational expectations of inflation. How—quantitatively—would the economy respond to a shift in policy by which the central bank reduced the rate of nominal money growth from 13% per year to 8% per year?