DEPARTMENT OF ECONOMICS
CONCORDIA UNIVERSITY
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Final Exam Practice Questions

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Question 1

This question examines the **DMP model** of search and unemployment seen in class. Recall that the two equations determining equilibrium in this model are given by:

$$\nu(Q) = b + e[m(1,j)]a[z-b],$$
$$em(1,\frac{1}{j}) = \frac{k}{(1-a)(z-b)}$$

1. Draw and carefully label the two graphs depicting equilibrium in the model.
2. How will an increase in the benefit b affect the equilibrium market tightness j, the unemployment rate, the vacancy rate and the aggregate output? Explain intuitively.
3. How will an increase in the productivity z affect the equilibrium market tightness j, the unemployment rate, the vacancy rate and the aggregate output? Explain intuitively.
4. How will an decrease in the cost of recruting k affect the equilibrium market tightness j, the unemployment rate, the vacancy rate and the aggregate output? Explain intuitively.

Question 2

Consider the following numerical example using the Solow growth model. Suppose that

$$F(K,N) = K^{1/2}N^{1/2}$$

and $d = 0.05$, $s = 0.2$, $n = 0.01$, and $z = 1$. The unit period is one year.

1. Find $k^\star$ the steady state per-capita capital stock.
2. Suppose that the economy is at its steady state in year 0. Let z increase from 1 to 1.1 at the end of year 0. Determine the **aggregate quantities** of the capital stock, consumption and output for years 1, 2 and 3 (i.e., K, C and Y). Summarize your results using a table.
3. Give the golden rule level of capital $k^{\star\star}$.
4. Find the highest level of consumption per capital $c^{\star\star}$.

Question 3

Consider the **Human Capital Growth Model** with the representative consumer. The efficiency parameter of human capital accumulation technology is $b = 5$. The total productivity factor is given by $z = 60$. Denote by H_t the human capital accumulated in period t, and by u_t the time spent working in period t. Assume $u_0 = 0.85$ and $H_0 = 1$.

1. Compute the consumer consumption C_t for periods 0 and 1.

2. Starting from year 2, the government applies a policy that raises b to 9. Now assume that in face of this increased value of human capital in the economy, the consumer responds optimally by decreasing u_t to 0.75. Calculate the consumption C_t for periods 2 and 3.

Question 4

Consider the human capital growth model with the representative consumer. The efficiency parameter of human capital accumulation technology is b. The total productivity factor is given by z. Denote by H_t the human capital accumulated in period t, and by u_t the time spent working in period t. Assume the current values of these variables are u_0 and H_0.

1. Compute the consumer consumption C_t at periods 0 and 1.

2. Assume there are only two periods and the consumer is willing to maximize the discounted values of his consumption over the two periods. The real interest rate is given by r. What is the optimal value of u_0?

Question 5

In the monetary intertemporal, suppose that the money supply is fixed for all time, and determine the effects of a decrease in the capita stock, brought about by a war or natural disaster, on current equilibrium output, employment, the real wage, the real interest rate, the nominal interest rate, and the price level. Explain your results.

Question 6

In the Friedman-Lucas money surprise model, there is a negative money demand shock. Neither private sector economic agents nor the central bank can observe the shock directly. Assume that the central bank is committed to money growth targeting.

1. How will it affect the labour, goods and money markets? Show graphically.

2. Argue that the shock could result in inefficient outcomes. Explain using diagrams.

Question 7

Assume that there no surprises, with all economic agents and the central bank having full information about shocks that are hitting the economy. Suppose that the central bank adopts a nominal GDP target, and interpret this model as a goal

1. Suppose that there is an increase in total factor productivity. What should the central bank do in response, given its goal? What are the effects on aggregate variables? Explain.

2. Now, suppose that there is a positive shift in the money demand function. What should the central bank do now? Determine the effects on aggregate variables. Explain.

Question 8

In the real business cycle model, suppose firms become infected with optimism, and they expect that total factor productivity will be much higher in the future.

1. Determine the equilibrium effects of this expectation.

2. If waves of optimism and pessimism of this sort cause the GDP fluctuate, does the model explain the key business cycle facts?

3. Suppose that the monetary authority wants to stabilize the price level in the the face of a wave of optimism. Determine what it should do, an explain.

Question 9

In the new keynesian model, suppose that supply is initially equal to demand in the goods market and there is negative shock to the demand for investment goods because firms anticipate lower total factor productivity in the future.

1. Determine the effects on real output, the real interest rate, the price level, employment, and the real wage if the government did nothing in response to the shock.

2. Determine the effects if the monetary policy is used to stabilize the economy, with the goal of the central bank being zero economic efficiency.

3. Determine the effects if government spending is used to stabilize the economy, with the goal of the fiscal authority being economic efficiency.

4. Explain and comment on the differences in your results among parts (a), (b), and (c).