

Exam 2

Please write your name at the top of the test. Answer all of the following questions.

Multiple Choice

Make sure to circle only one of the choices. The multiple choice section is worth 9 points.

1. Suppose the U.S. undertakes a policy to increase its saving rate. This policy will likely
 - a. have no impact on the level of real GDP per person
 - b. immediately and permanently decrease the level of real GDP per person
 - c. immediately and permanently increase the real level of GDP per person
 - d. gradually raise the level of real GDP per person
2. An economy's short-run Phillips curve is characterized by

$$\pi = \pi_{-1} - .75(u - 4)$$

where cyclical unemployment is 9 percent, and inflation in the previous period was 2 percent. What is this economy's natural rate of unemployment?

- a. 5%
 - b. 4%
 - c. 3.75%
 - d. -1.75%
3. Using the Phillips curve provided in question 2, what is this economy's non-accelerating inflation rate of unemployment?
 - a. 5%
 - b. 4%
 - c. 3.75%
 - d. -1.75%
4. When workers and firms become aware of a rise in the general price,
 - a. they will not do anything, because they know they are powerless to counter any economic changes.
 - b. firms with sticky prices will ultimately adjust their prices downward.
 - c. they will agree to renegotiate wage contracts downward
 - d. they will incorporate higher prices into their expectations
5. Suppose that Country A's growth rate was higher than in Country B last year.
 - a. Country A must have a higher standard of living than country B
 - b. Country A's real GDP is higher than Country B's real GDP.
 - c. Country A's nominal GDP must be larger than Country B's nominal GDP.
 - d. Country A's percent change in real GDP is higher than Country B's percent change in real GDP.

6. Which of the following would cause interest rates to rise?
- The price level goes down from 5 to 4
 - The Fed increases the money supply by 10%
 - The government increases taxes by 10%
 - The government increases purchases by 10%
7. When inflation begins to climb to unacceptable levels in the economy, the government should,
- use expansionary fiscal policy to increase overall demand for goods and services
 - use expansionary fiscal policy to decrease overall demand for goods and services
 - use contractionary fiscal policy to increase overall demand for goods and services
 - use contractionary fiscal policy to decrease the overall demand for goods and services
8. GDP equals \$1.2T. If consumption equals \$690B, investment equals \$200B, and government spending equals \$260B, then,
- imports exceed exports by \$150B
 - exports exceed imports by \$150B
 - imports exceed exports by \$50B
 - exports exceed imports by \$50B
9. If the central bank increases the money supply, then in the short run, prices
- and unemployment rise.
 - and unemployment fall.
 - fall and unemployment rises.
 - rise and unemployment falls.
10. If the stock market crashes, then
- aggregate demand increases, which the Fed could offset by decreasing the money supply
 - aggregate demand increases, which the Fed could offset by increasing the money supply
 - aggregate demand decreases, which the Fed could offset by decreasing the money supply
 - aggregate demand decreases, which the Fed could offset by increasing the money supply
11. Which of the following would cause an increase in the natural rate of unemployment?
- The government reduces the time during which an unemployed worker can receive unemployment benefits.
 - More teenagers focus on their studies and do not look for jobs until after college.
 - Greater access to the internet leads both potential employers and potential employees to use the internet to list and find jobs.
 - Union membership increases

12. Which of the following events causes the real exchange rate to rise?
- a. A fall in consumer confidence about the future induces consumers to spend less and save more.
 - b. A tax reform increases the incentive for businesses to build new factories.
 - c. The central bank doubles the money supply.
 - d. The introduction of a stylish line of Toyotas makes some consumers prefer foreign cars over domestic cars.

Short Response

Answer all of the following questions. On the front page of the exam list the three questions you would like to count for two points each. The non-listed questions will count for one each. If none are indicated, then the first three will count for two points each. This section in its entirety counts for 9 points.

13. In the U.S. the capital share of GDP is about 30 percent, the average growth in output is about 3 percent per year, the depreciation rate is about 4 percent per year, and the capital-output ratio is about 2.5. Suppose that the production function is Cobb-Douglas and that the U.S. has been in a steady-state.

- a. What must the saving rate be in the initial steady-state? [Use the relationship, $sy = (\delta + n + g)k$]
- b. What is the marginal product of capital in the initial steady state? [Recall what the MPK is for a Cobb-Douglas function]
- c. Suppose that public policy alters the saving rate so that the economy reaches the Golden Rule level of capital. What will the marginal product of capital be at the Golden Rule steady state?
- d. What will the capital-output ratio be at the Golden Rule steady state? (For the Cobb-Douglas production function, the capital-output ratio is related to the marginal product of capital.)

14. In the Keynesian cross model, assume that consumption is given by

$$C = 120 + 0.8(Y - T)$$

Planned Investment is 200; government purchases and taxes are both 400.

- a. Graph planned expenditure as a function of income.
- b. What is the equilibrium level of income?
- c. If government purchases increase to 420, what is the new equilibrium income? What is the multiplier for government purchases?
- d. What level of government purchases is needed to achieve an income of 2400? (Taxes remain at 400.)

15. Consider the economy of Hicksonia.

a. The consumption function is given by

$$C = 300 + 0.6(Y - T)$$

The investment function is

$$I = 700 - 80r$$

Government purchases and taxes are both 500. For this economy graph the IS curve for r ranging from 0 to 8.

b. The money demand function in Hicksonia is

$$(M/P)^d = Y - 200r$$

The money supply M is 3,000 and the price level P is 3. Graph the LM curve ranging from 0 to 8.

c. Find the equilibrium interest rate r and the equilibrium level of income Y .

d. Suppose that government purchases increase from 500 to 700. How does the IS curve shift? What are the new equilibrium interest rate r and level of income Y .

16. Draw a well-labeled graph that illustrates the steady state of the Solow model with population growth. Use the graph to find what happens to steady-state capital per worker in response to each of the following exogenous changes.

a. A change in consumer preferences increases the saving rate.

b. A change in weather patterns increases the depreciation rate.

c. Better birth control methods reduce the rate of population growth.

d. A one-time permanent improvement in technology increases the amount of output that can be produced from any given amount of capital and labor.

17. Consider an economy with two-sectors: manufacturing and services. Demand for labor in manufacturing and services are described by these equations.

$$L_m = 200 - 6W_m$$

$$L_s = 100 - 4W_s$$

where L is labor (in number of workers). W is wage (in dollars), and the subscripts denote the sectors. The economy has 100 workers who are willing and able to work in either sector.

a. If workers are free to move between sectors what relationship will there be between W_s and W_m ?

b. Suppose that the condition in **a** holds and wages adjust to equilibrate labor supplied and labor demanded. Calculate the wage and employment in each sector.

c. Suppose a union establishes itself in manufacturing and pushes the manufacturing wage to \$25. Calculate employment in manufacturing.

d. In the aftermath of the unionization of manufacturing, all workers who cannot get the highly paid union jobs move to the service sector. Calculate the wage and employment in services.

e. Now suppose that workers have a *reservation* wage of \$15—that is, rather than taking a job at a wage below \$15, they would rather wait for a \$25 union job to open up. Calculate the wage and employment in each sector. What is the economy's unemployment rate?

18. Consider an economy described by the following equations:

$$Y = C + I + G + NX$$

$$Y = 8,000$$

$$G = 2,500$$

$$T = 2,000$$

$$C = 500 + 2/3(Y - T)$$

$$I = 900 - 50r$$

$$NX = 1,500 - 250\epsilon$$

$$r = r^* = 8$$

a. In this economy, solve for private saving, public saving, national saving, investment, the trade balance, and the equilibrium exchange rate.

b. Suppose now that G is cut to 2,000. Solve for private saving, public saving, national saving, investment, the trade balance, and the equilibrium exchange rate. Explain what you find.

c. Now suppose that the world interest rate falls from 8 to 3 percent. (G is again 2,500) Solve for private saving, public saving, national saving, investment, the trade balance, and the equilibrium exchange rate.