

Name: _____ Date: _____

1. City A has a total population of 10 million, of which 70 percent are adults. Assume that 20 percent of the adult population is not looking for a job and 60 percent of the remaining adult population is employed. Compute:
 - a. Labor-force participation rate
 - b. Unemployment Rate

2. The government of an economy has increased its spending and taxes by the same amount. What is the effect on investment?

3. The total output of the closed economy Moneyland is 10,000. Consumption is explained by the function $C = 3,800 + 0.7T - 150r$, where r is the real interest rate. Investment (I) is given by the equation, $I = 1,500 + 50r$. Taxes (T) are 1,000 and government spending (G) is 3,500. What are the values of consumption, investment, and real interest rate?

4. The closed economy of Moneyland has total income of \$5000, consumption function is $C = 2000 - 30r$, investment function $I = 1500 - 20r$, government spending is \$2000, r is nominal interest rate. Inflation is 6 percent. Find the real rate of interest.

5. Consider a competitive economy in which factor prices adjust to keep the factors of production fully employed, and the interest rate adjusts to keep the supply and demand for goods and services in equilibrium. The economy can be described by the following set of equations:

$$L = \bar{L}, K = \bar{K}, G = \bar{G}, T = \bar{T},$$

$$Y = AK^\alpha L^{(1-\alpha)}$$

$$Y = C + I + G$$

$$C = C(Y - T)$$

$$I = I(r)$$

How does an increase in government spending, holding other factors constant, affect the level of:

- a. public saving?
 - b. private saving?
 - c. national saving?
 - d. the equilibrium interest rate?
 - e. the equilibrium quantity of investment?
- 6.
- a. Suppose a government decides to reduce spending and (lump-sum) income taxes by the same amount. Using the long-run model of the economy developed in Chapter 3, graphically illustrate the impact of the equal reductions in spending and taxes. Be sure to label: i. the axes; ii. the curves; iii. the initial equilibrium values; iv. the direction curves shift; and v. the terminal equilibrium values.
 - b. State in words what happens to: i. the real interest rate; ii. national saving; iii. investment; iv. consumption; and v. output.
- 7.
- a. Suppose there is a technological breakthrough that increases the productivity of all capital and, consequently, increases the demand for investment. Using the long-run model of the economy developed in Chapter 3, graphically illustrate the impact of the increased investment demand. Be sure to label: i. the axes; ii. the curves; iii. the initial equilibrium values; iv. the direction curves shift; and v. the terminal equilibrium values.
 - b. State in words what happens to: i. the real interest rate; ii. national saving; iii. investment; iv. consumption; and v. output.

8. Assume that GDP (Y) is 6,000. Consumption (C) is given by the equation $C = 600 + 0.6(Y - T)$. Investment (I) is given by the equation $I = 2,000 - 100r$, where r is the real rate of interest in percent. Taxes (T) are 500 and government spending (G) is also 500.
- What are the equilibrium values of C , I , and r ?
 - What are the values of private saving, public saving, and national saving?
 - If government spending rises to 1,000, what are the new equilibrium values of C , I , and r ?
 - What are the new equilibrium values of private saving, public saving, and national saving?
9. Assume that GDP (Y) is 5,000. Consumption (C) is given by the equation $C = 1,000 + 0.3(Y - T)$. Investment (I) is given by the equation $I = 1,500 - 50r$, where r is the real interest rate in percent. Taxes (T) are 1,000 and government spending (G) is 1,500.
- What are the equilibrium values of C , I , and r ?
 - What are the values of private saving, public saving, and national saving?
 - Now assume there is a technological innovation that makes business want to invest more. It raises the investment equation to $I = 2,000 - 50r$. What are the new equilibrium values of C , I , and r ?
 - What are the new values of private saving, public saving, and national saving?
10. The table below represents the balance sheet of a bank. What is the leverage ratio of the bank, and what does it mean?

Assets		Liabilities and Owners' Equity	
Reserves	500	Deposits	1,400
Loans	1,000	Debt	400
Securities	500	Owners' equity	200

11. Assume that the monetary base (B) is \$100 billion, the reserve–deposit ratio (rr) is 0.1, and the currency–deposit ratio (cr) is 0.1.
- What is the money supply?
 - If rr changes to 0.2, but cr is 0.1 and B is unchanged, what is the money supply?
 - If rr is 0.1 and cr is 0.2, but B is unchanged, what is the money supply?

12. The Federal Reserve's tools to control the money supply include: open-market operations, the discount rate, and interest payments on reserves.
- How should each instrument be changed if the Fed wishes to decrease the money supply?
 - Will the change affect the monetary base and/or the money multiplier?
13. The monetary base of Moneyland is \$500 million. The current-deposit ratio (cr) is 0.2 and reserve-deposit ratio (rr) is 0.2. Calculate the money multiplier and money supply.
14. The Federal Reserve wants to increase the money supply by printing and distributing 1 million dollars worth of currency notes. What will be the actual increase in money supply if the public holds one fourth of the currency as cash, and deposits rest of the money in banks that hold 5 percent of their deposits as reserves?
15. Assume a simple economy where only burgers are traded. In a year, 100 burgers are traded at the rate of \$5 per burger. Assume two scenarios:
- The economy has \$100 in the form of 20 pieces of \$5 bills.
 - The economy has \$100 in the form of 100 pieces of \$1 bills.
- Calculate the velocity of money for both situations.
16. Assume that the demand for real money balance (M/P) is $M/P = 0.6Y - 100i$, where Y is national income and i is the nominal interest rate (in percent). The real interest rate r is fixed at 3 percent by the investment and saving functions. The expected inflation rate equals the rate of nominal money growth.
- If Y is 1,000, M is 100, and the growth rate of nominal money is 1 percent, what must i and P be?
 - If Y is 1,000, M is 100, and the growth rate of nominal money is 2 percent, what must i and P be?

17. Assume that a series of inflation rates is 1 percent, 2 percent, and 4 percent, while nominal interest rates in the same three periods are 5 percent, 5 percent, and 6 percent, respectively.
- What are the *ex post* real interest rates in the same three periods?
 - If the *expected inflation* rate in each period is the *realized* inflation rate in the *previous* period, what are the *ex ante* real interest rates in periods two and three?
 - If someone lends in period two, based on the *ex ante* inflation expectation in part b, will he or she be pleasantly or unpleasantly surprised in period 3 when the loan is repaid?
18. Fill in the blanks: According to the national income accounts identity, an economy's _____ must always equal the difference between its _____ and its _____ .
19. Major improvements in computer information technology and communications in the late 1990s fueled an increase in investment demand in the United States, which is a large open economy. What is the predicted impact of this increased investment demand in the United States on the U.S. interest rate, the U.S. exchange rate, and U.S. net exports, holding other factors constant? Illustrate your answer graphically and explain in words.
20. In times of great economic uncertainty and potential job loss, many consumers may increase their saving as a precautionary measure. What is the predicted impact of an increase in national saving on the domestic interest rate and exchange rate in a large open economy, holding other factors constant? Illustrate your answer graphically and explain in words.
21. In the 2008 global financial crisis, many investors considered the U.S. economy a safe place to move their assets. What is the predicted impact of this inflow of financial capital to the United States, which is a large open economy, on the U.S. interest rate and the U.S. exchange rate, holding other factors constant? Illustrate your answer graphically and explain in words.

22. Assume that the following equations characterize a large open economy:

(1) $Y = 5,000$

(2) $Y = C + I + G + NX$

(3) $C = 1/2(Y - T)$

(4) $I = 2,000 - 100r$

(5) $NX = 500 - 500\epsilon$

(6) $CF = -100r$

(7) $CF = NX$

(8) $G = 1,500$

(9) $T = 1,000$.

Where NX is net exports, CF is net capital outflow, and ϵ is the real exchange rate.

Solve these equations for the equilibrium values of C , I , NX , CF , r , and ϵ . (*Hint*: Substitute equations (9) and (1) into (3), then substitute (1), (3), (4), (8), and (5) into (2). Then substitute (5) and (6) into (7). Now you have two equations in r and ϵ . Check your work by seeing that all of these equations balance given your answers.)

23. Assume that in a small open economy where full employment always prevails, national saving is 300.

- a. If domestic investment is given by $I = 400 - 20r$, where r is the real interest rate in percent, what would the equilibrium interest rate be if the economy were closed?
- b. If the economy is open and the world interest rate is 10 percent, what will investment be?
- c. What will the current account surplus or deficit be? What will net capital outflow be?