14.02 PRINCIPLES OF MACROECONOMICS

QUIZ 1

READ INSTRUCTIONS FIRST:

Clearly label all of your graphs, including axes. Show your work on all questions in order to receive partial credit. The quiz is worth a total of 100 points.
Please answer each question in the assigned space, and keep your answers brief and to the point. If you require additional space for a particular question, you may use the extra page provided at the end of the quiz. *Write your name, and circle your section or recitation time below. Also, return your copy of the quiz to the TA's when you complete the test. No notes, calculators, or books may be used during the quiz. You will have 90 minutes to complete the quiz. Good luck*!

Name:

MIT ID number:

Circle your section/lecture-recitation

Deep Ghosh 9 AM

Deep Ghosh 11 AM

Bill Kerr 1 PM

Veronica Rappoport 2 PM

Veronica Rappoport 3 PM

Prof. Gilchrist's lecture

Andrew Healy 9 AM

Andrew Healy 10 AM

Andrew Healy 11 AM

Multiple Choice (4 points each)

1. Which of the following facts cannot be used to support the claim that labor market rigidities are the cause of Europe's higher unemployment than the United States today?

   a. Europe has higher minimum wages and unemployment benefits than the United States.

   b. Relative to the United States, European unemployment was low in the 1960s and has exceeded the US for the last two decades.

   c. The United States has a more dynamic labor market than Europe, with employees more frequently moving in and out of jobs.

   d. Europe provides higher levels of worker protection to employees.

2. If the IS curve shifts due to higher government spending, which of the following must happen?

   a. The Federal Reserve Board manages the interest rate to ensure that equilibrium in the money market is maintained.

   b. Investment rises due to the higher output level in the economy.

   c. Consumer spending increases.

   d. The tax revenues collected by the government rise.

3. The Consumer Price Index fails to take which of the following factors into account:

   a. Changes in the prices of foreign goods and services United States consumers use.

   b. The ability of consumers to substitute across goods.

   c. Large fluctuations in energy prices (especially oil).

   d. All of the above.

4. Which of the following actions will always lead to an increase in the investment level in the economy?

   a. The Federal Reserve Board buys more bonds through open market operations.

   b. The federal government reduces its defense purchases.

   c. The Federal Reserve Board raises the reserve ratio of banks mainly serving small businesses.

   d. The federal government undertakes a consumer confidence campaign.

5. In the absence of deposit insurance, fractional reserve banking does NOT imply which of the following?
   a. A more stable banking system.
   b. A larger supply of money than the currency circulating in the economy.
   c. A lower velocity of money for a given output level.
   d. All of the above.

6. An expansionary open market operation
   a. decreases the interest rate and the price of bonds, and increases the price of stocks
   b. increases the interest rate and decreases both the price of bonds and stocks.
   c. decreases the interest rate, and increases both the price of bonds and stocks
   d. decreases the interest rate and the price of stocks, and increases the price of bonds.

7. Assume $I = b_0 – b_1 i$ and $M^d = m_0 + m_1 Y - m_2 i$. When the sensitivity of money demand with respect to income (m_1) is larger, there are
   a. a flatter LM curve and more crowding out of investment (I)
   b. a flatter LM curve and less crowding out of investment (I)
   c. a steeper LM curve and more crowding out of investment (I)
   d. a steeper LM curve and less crowding out of investment (I)

8. Which of the following combinations of monetary and fiscal policies is sure to raise interest rates?

    a. Increase M^S, Increase T

    b. Increase M^S, Decrease T

    c. Decrease M^S, Increase T

    d. Decrease M^S, Decrease T

9. If the stock market in Macrovia (a friendly country) has a P-E ratio that is higher than usual, which of the following reasons is NOT a possible explanation?

    a. Interest rates are low and expected to remain low in the future

    b. The earnings of companies in the market are growing at a faster rate than they usually do

    c. Bonds in Macrovia are offering higher returns than usual

    d. Investors expect other investors are willing to pay ever-increasing prices

10. Which of the following is NOT true? Assuming no trade, GDP can be measured as

    a. The total number of dollars in circulation

    b. The total payments to all factors of production

    c. The sum of a country's value added to total production

    d. The total value of the final goods produced in the economy

11. The real opportunity cost of holding money is captured by

   a. The real interest rate

   b. The nominal interest rate

   c. The inflation rate

   d. The real GDP growth rate

12. When the government increases G

   a. Y increases, *i* increases, the effect on the equilibrium amount of money demanded is ambiguous.

   b. Y increases, *i* decreases, the equilibrium amount of money demanded increases.

   c. Y decreases, *i* increases, the equilibrium amount of money demanded decreases.

   d. Y increases, *i* increases, the equilibrium amount of money demanded is unchanged.

Long Problem 1 (Each part is worth 4 points):

Consider a simple aggregate demand problem from Chapter 3. Investment (I) and Government Spending (G) are exogenous with initial levels of \$100. Consumption is a linear function of disposable income: $C=C_0+C_1*Y_D$ with $C_0=100$ and $C_1=0.9$.

a) Assume the government begins with a flat tax (T) of \$100, such that $Y_D=Y-T=Y-\$100$. Note that the government is running a balanced budget. We assume in this short-run model that aggregate supply fully adjusts to meet the demand in the economy, giving the equilibrium equation: Y=Z(Y). Defining aggregate demand as Z(Y)=C+I+G, draw a graph of this simple model (draw the aggregate demand and equilibrium lines) with Z(Y) on the y-axis and Y on the x-axis. Label the value of the y-intercept.

b) Mathematically, solve for the equilibrium level of output in the economy (Y*). Label this value on the x-axis of your graph.

c) The government decides to increase its spending to \$200 to pay for added defense against terrorism. The government does not want to run a budget deficit, however, and also increases the flat tax to \$200. Determine if the equilibrium level of economic output changes. Does it change by more, less or the same amount that government spending changed? Show this change in economic activity on your graph.

d) Now go back to when G=$100. The government decides to switch from the flat tax T=$100 to a tax rate t of income (taxes=tY). If $t = \frac{1}{21}$, check that Y* is the same amount that you found in part b). Does budget balance hold?

e) Redraw your graph from part a) for the case when G=$100 and T=$100. Now add the new aggregate demand line for Z'(Y) for the tax rate scenario in part d). Carefully label the values on the y-axis. Does autonomous spending increase or decrease when the government changes to its new tax scheme? Does the multiplier increase or decrease?

f) Keeping your tax rate model ($t = \frac{1}{21}$) from part d), determine the equilibrium level of output if the government keeps t constant at the value you determined, but increases defense spending to \$200. Is this more or less than in part c)? Does the government maintain a balanced budget?

g) In two or three sentences, relate your finding to the current policies of the Bush administration (which increased government spending for Homeland Security). Which tax scheme more closely resembles the United States? Broadly, what has happened to taxes in the Bush administration? Does our model qualitatively predict what has happened to our budget deficit?

Long Problem 2 (Parts 1-4: 5 points each. Part 5: 4 points)

Suppose the population in the economy is divided into two groups. Although the two groups have equal amount of people, the richer one (Group A) gets 60% of total income and the poorer one (Group B) gets the remaining 40%. The economy is represented by the following equations.

$M^d = 5Y - 100i$
$M^s = 8000$
$I = 600 - 20i$
$C_A = 120 + c_A(Y_A - T_A)$, where $Y_A=0.6Y$
$C_B = 80+c_B(Y_B - T_B)$, where $Y_B=0.4Y$
$C = C_A + C_B$
$G = 600$

1. Assuming $c_A= c_B= 0.5$ and $T_A= T_B= 200$, derive the equilibrium in the goods and in the money markets. Compute the fiscal budget (T-G).

2. Derive the IS and LM curve and find the equilibrium level of output and interest rate.

3. The government wants to reduce the fiscal deficit. Explain intuitively the effect of such a policy on output, interest rate, consumption, investment and amount of money. Use the goods market, the money market, and the IS-LM graphs in explaining your answer.

4. The government is worried about the negative consequences that the fiscal policy conducted in question 3 may have on output. What monetary policy would you recommend, in combination with the fiscal policy in question 3, so to decrease the deficit without provoking a recession? Explain intuitively using the IS-LM, the goods market and the money market graphs.

5. Assume now $c_A < c_B$. Explain using the three graphs above, the effect of a transfer from Group A to Group B ($-\Delta T_B=\Delta T_A$) on the equilibrium output, total consumption, interest rate, investment, and amount of money. Give the intuition for your results.