14.02 Principles of Macroeconomics
Spring 03

Quiz 1
Thursday, March 6, 2003
7.30 pm – 9 pm

Please answer the following questions. Write your answers directly on the exam. You can achieve a total of 100 points. There are 13 multiple-choice questions, followed by 2 long questions.

Good luck!

NAME:

MIT ID NUMBER:

TA:

CLASS TIME:

EMAIL:

Multiple Choice Questions (39/100)

Please circle the correct answer for each of the 13 multiple-choice questions. For each question, only one of the answers is correct. Each question counts 3/100.

Question 1:
Which of the following item(s) should NOT be added to total final production when measuring GDP?
- I.   The purchase of a used car.
- II.   The gas bought by the driver of a taxicab.
- III. The oil bought to heat your house.

    a) Only I
    b) Only II
    c) Only III
    d) I and II
    e) I, II and III.

Question 2:
Suppose that an economy produces two final goods, bread and beer:

Good	Year	Quantity produced	Price
Bread	2002	100	1
Beer	2002	100	1
Bread	2003	50	2
Beer	2003	200	½

Looking at the change from 2002 to 2003 we have that

    a) Nominal GDP increases by 25%
    b) Real GDP in 2002 dollars increased 25%
    c) Real GDP in 2003 dollars increased 25%
    d) All of the above
    e) None of the above

Question 3:
If the marginal propensity to consume increases, the multiplier on the goods market
    a) Increases
    b) Decreases
    c) Stays the same
    d) Indeterminate

Question 4:
Consider the following basic model of the goods market with the usual notation:

$$Z = C + I + G$$

$$I = \bar{I}$$

$$C = c_0 + c_1 (Y - T)$$

By using the equilibrium condition, we can solve for equilibrium output. Given the equation for output, does a tax decrease or a government spending increase have a larger effect on equilibrium output in the model?
   a) Tax decrease
   b) Spending increase
   c) Same effect
   d) Indeterminate
   e) None of them has any effect at the equilibrium

Question 5:
Succumbing to pressure from the American Association of Retired People, the government increases social security payments to seniors by $1. By how much does G increase as a result of this action?
   a) 0
   b) c_1
   c) $1 - c_1$
   d) 1
   e) $c_1 / (1 - c_1)$

Question 6:
A policy maker concerned with the short run decides to pursue new economic policy objectives. To his surprise, he discovers that the goods market model tells him that one of his policy objectives will decrease output in the short run. Which of the following could lead to lower output in the short run?
   a) Increased demand
   b) Increased government spending
   c) Increased savings
   d) Lower taxation
   e) Increased autonomous investment

Question 7:
The central bank undertakes an open market operation, in which it sells government bonds to Fastbucks Bank. As payment for the bonds, the central bank deducts the market value of the bonds from the reserve account that Fastbucks Bank holds with the central bank.
Which of the following correctly states the expected impact of this open market operation on (i) the money supply, (ii) the price of bonds, and (iii) the interest rate.

   a) The money supply increases, the price of bonds increases and the interest rate decreases.
   b) The money supply decreases, the price of bonds increases and the interest rate decreases.
   c) The money supply increases, the price of bonds decreases and the interest rate decreases.
   d) The money supply decreases, the price of bonds decreases and the interest rate increases.
   e) The money supply increases, the price of bonds decreases and the interest rate increases.

Question 8:
Following the development of new 'smart cards' as a way of paying for goods, consumers decide to hold less money in the form of currency, and also decrease the balances in their checking accounts. Which of the following statements about the effect of these 'smart cards' on the velocity of money is correct?

   a) The velocity of money increases, because money demand is lower.
   b) The velocity of money decreases, because money demand is lower.
   c) The velocity of money increases, because nominal income is higher.
   d) The velocity of money decreases, because the interest rate is higher.
   e) The velocity of money does not change, because the acceleration rate of money is zero.

Question 9:
The central bank buys $100 in bonds from the general public. The banking sector's reserve ratio θ is equal to 0.2. What will be the final change in the money supply following the central bank's purchase of bonds? Assume that people hold only checking account balances, and do not hold currency.

   a) −$500
   b) −$20
   c) $20
   d) $100
   e) $500

Question 10:
If it does not want output to change, the central bank should do the following to accommodate a reduction in government spending:
   a) Expand money supply
   b) Contract money supply
   c) Leave money supply unchanged
   d) Sometimes b), sometimes c)

Question 11:
The stronger is the effect of the interest rate on money demand (i.e. the flatter the LM curve), then:
   a) the more effective are tax cuts in stimulating the economy
   b) the less effective are tax cuts in stimulating the economy
   c) the less effective is monetary policy
   d) both b) and c) are true
   e) both a) and c) are true

Question 12:
In the standard IS-LM framework, an increase in government spending:
   a) Decreases investment because interest rates increase.
   b) Has an ambiguous effect on investment as interest rates rise, but income rises as well.
   c) Is more likely to have a negative effect on investment, the steeper the LM curve.
   d) Both a) and c) are true.
   e) Both b) and c) are true.

Question 13:
The Gulf war in 1991 caused a sharp decrease in consumer confidence. Suppose that the only effect of a future war with Iraq is a drop in consumer confidence. If the government wants to neutralize the impact of the drop in consumer confidence **on both** GDP **and** the interest rate, the following policies are correct:
   a) Increase G and M.
   b) Increase G, decrease M.
   c) Decrease G, Increase M.
   d) Decrease G, decrease M.
   e) Increase G, leave M unchanged.

Long Question I (37/100):

Answer each of the 8 parts of the following long question.

The country of Macronesia obeys our short-run model and starts off in equilibrium in both the goods market and the financial market. In the goods market, Macronesia's government consumes the same as its citizens' overall consumption level. It also chooses to impose a balanced budget. Specifically, Macronesia's goods markets can be described by the following system of equations:

$$C = c_0 + c_1 (Y - T)$$
$$G = C$$
$$T = G$$
$$I = 0.1 Y$$
$$Z = C + I + G$$

Part 1 (5/100):

Given that $c_0 = 5 / 3$ *and* $c_1 = 2 / 3$, derive an expression that relates consumption to income, using just the consumption equation and substituting C for T, show that:

$$C = 1 + (2 / 5) Y$$

Now use this expression to derive equilibrium output by combining the equilibrium condition $(Y=Z)$ with the demand identity $(Z = C + I + G)$. What is the value of G in equilibrium?

Part 2 (4/100):
Draw equilibrium on a graph where demand for output (*Z*) is on the y-axis and supply of output (*Y*) is on the x-axis. Clearly label your lines for the demand identity and the equilibrium condition.
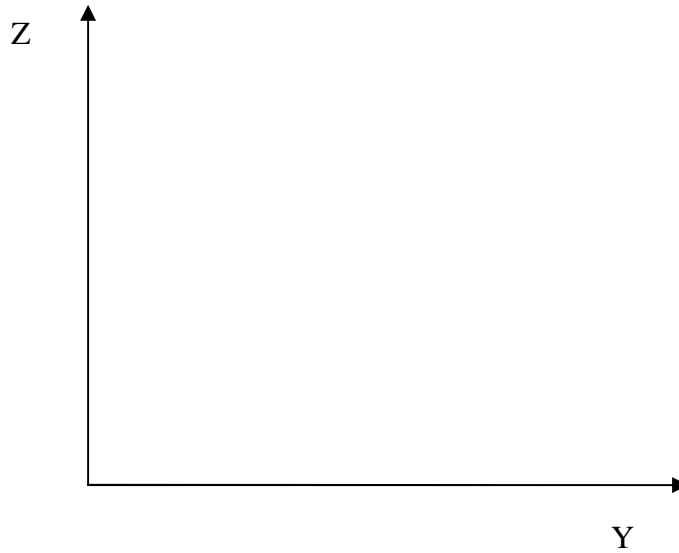
Part 3 (4/100):
Macronesians feel confident because their national soccer team has qualified for the World Cup. As a result, demand increases (c_0 is going up). Draw the new demand identity together with the initial demand identity in the graph above. Calculate the multiplier. Describe the multiplier effect in terms of distances on the graph.

Part 4 (4/100):
The government of Macronesia has decided that it is tired of figuring out how to spend all of its revenue. It decides to put aside the rule G = C, and increases government spending. The chief economic policymaker says that our model tells us that output will go up in the new equilibrium if G goes up and T stays the same. Is he right? What words of caution would you have for the policymaker? Relate your answer to the general limitations of the goods-market model and the IS-LM model.

Part 5 (5/100):
Now the firms of Macronesia speak up and say that the above model is not quite right. Firms make their investment decisions based on the interest rate. Will firms want to invest more or less if the interest rate is higher? Why? What is the effect of the change in investment on equilibrium output?
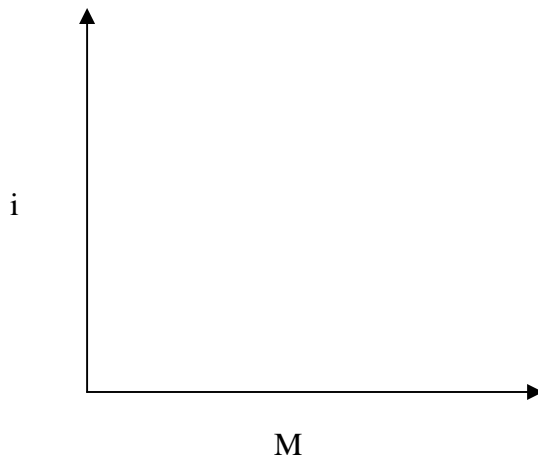
Part 6 (5/100):
Now consider financial markets. Draw a financial market equilibrium given euiibrium on the money market, with the price level is normalized to 1:

$$M^D = Y\,L(i)$$
$$M = M^S = M^D$$

On the graph, show what happens if income increases. In terms of the new equilibrium, what is the effect of the increase in Y on the interest rate i?

i

M

Part 7 (5/100):
Using your results from Part 5 for the goods market and Part 6 for the financial market, draw the set of possible goods market equilibria and the set of possible financial market equilibria in *i-Y* space. Label the goods market line IS and the financial market line LM.

i

Y
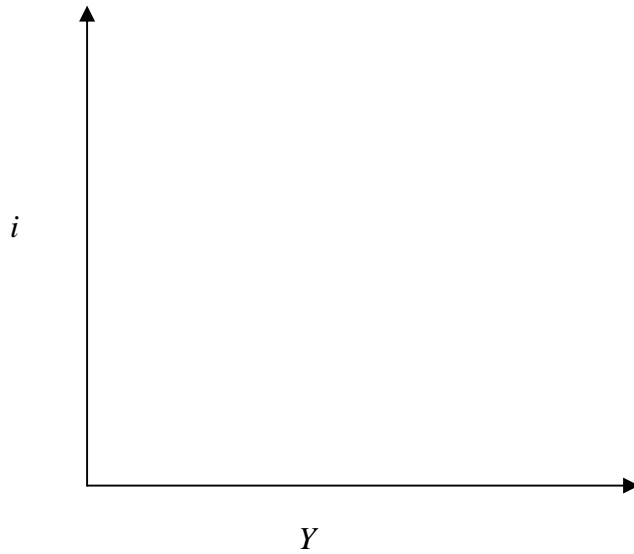
Part 8 (5/100):
Macronesia's politicians can't help themselves and decide to increase government spending. Without using algebra, show what happens in equilibrium by shifting either the IS curve, the LM curve, or both.
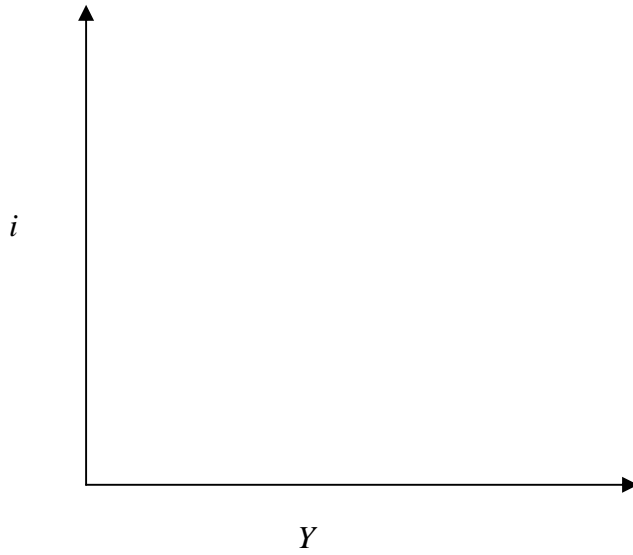
For both the interest rate and output, indicate whether the increase in government spending leads to an increase, a decrease, or to an indeterminate effect.

Long Question II (24/100):

Read the article from the Financial Times below, and then answer the four questions relating to the article (6/100 points each).

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     Do tax cuts stimulate economic growth? One thing is certain. Tax
cuts increase output only if they are spent. If households save the
money the government forgoes, gross domestic product is unchanged.
Standard economic theory suggests people are more likely to save a tax
cut if it is seen as temporary, as they can spread the benefit over many
years. So temporary tax cuts are likely to be pretty ineffective in
boosting an economy.
     Permanent tax cuts, of the sort Mr. Bush proposes, will tend to
have a greater stimulus effect - but not always. Such tax cuts are also
likely to be saved if the public is skeptical about their longevity. So
if a tax cut threatens the long-term health of public finances and the
public expects taxes to rise again in the future, the stimulus effect
will be smaller.

     From the Financial Times, January 21, 2003
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After reading the newspaper article, answer the following questions.

1. Consider the following extension to the consumption function taught in class:

   $C = c_0 + c_1 * Y - c_2 * T$

   What is the marginal propensity to consume when disposable income increases due to an increase in GDP? What is the marginal propensity to consume when disposable income increases due to a reduction in taxes?

2. If a tax reduction is transitory should we expect c_2 to be small or large? Why?

3. If a tax reduction is associated with large budget deficits in the future, should we expect c_2 to be small or large? Why? Can c_2 be zero?

4. Using the IS equilibrium condition, calculate the change in equilibrium output when taxes are reduced by 1 unit. What happens to equilibrium output if c_2 is zero? Explain.