

Name: _____ **ANSWERS** _____

SID : _____

Discussion Section: _____

**Economic 100B
Macroeconomic Analysis
Professor Steven Wood**

Fall 2006

Exam #2 ANSWERS

Please sign the following oath:

The answers on this test are entirely my own work. I neither gave nor received any aid while taking this test. I will not discuss the questions on this test until after 5:00 p.m. on November 2, 2006.

Signature

Any test turned in without a signature indicating that you have taken this oath will be assigned a grade of zero.

Graph Instructions

When drawing diagrams, the following rules apply:

- Completely, clearly and accurately label all axis, lines, curves, and equilibrium points.
- The original diagram and equilibrium points MUST be drawn in black or pencil.
- The first shift of any line(s) and the new equilibrium points MUST be drawn in red.
- The second shift of any line(s) and new equilibrium points MUST be drawn in blue
- The third shift of any line(s) and new equilibrium points MUST be drawn in green.

Do NOT open this test until instructed to do so.

Good Luck!

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A. Multiple Choice Questions. Mark the letter corresponding to the best answer in the corresponding space at the bottom of the page. (3 points each; total of 30 points.)

1. Suppose that there is a sudden rise in the interest rate. This could have been due to:
 - a. A fall in the monetary base.
 - b. An increase in government expenditures.
 - c. A rise in the money supply.
 - d. a. or b.**
 - e. b. or c.

2. In the IS – LM Model, the level of equilibrium income is ultimately determined by:
 - a. The level of the money supply.
 - b. The level of the monetary base.
 - c. The level of aggregate demand in the economy.**
 - d. The level of consumption.
 - e. The level of investment.

3. Suppose that the unemployment rate is at the NAIRU and that the government wishes to raise tax revenues this year to reduce its debt-to-GDP ratio. The best way to raise this tax revenue so as to keep output as close as possible to potential would be:
 - a. To cut government spending programs.
 - b. A permanent rise in the level of income taxation.
 - c. A temporary rise in the level of income taxation.**
 - d. To raise taxes on those with a high marginal propensity to consume.
 - e. Either a. or b.

4. According to real business cycle theory, a rise in government expenditures brings about a fall in consumption because people feel poorer due to the prospects of future tax increases. If this theory is correct, then the net effect of a rise in government expenditures would be to cause:
 - a. The IS curve to shift outwards.
 - b. The IS curve to shift inwards.
 - c. The IS curve to flatten.
 - d. Either b. or c.
 - e. Either a. or b.**

5. Suppose that business firms become less reliant on internally generated cash flow for investment and more reliant on loans from banks. We could represent this as:
 - a. A flattening of the IS curve, making monetary policy more powerful.**
 - b. A steepening of the IS curve, making monetary policy more powerful.
 - c. A flattening of the IS curve, making monetary policy less powerful.
 - d. A steepening of the IS curve, making monetary policy less powerful.
 - e. None of the above.

 d
1

 c
2

 c
3

 e
4

 a
5

6. Suppose that the Federal Reserve always maintains the interest rate at a fixed level. Then, if unemployment is at the NAIRU and autonomous consumption suddenly increases, the Fed will have to:
- Reduce the money multiplier.
 - Reduce the monetary base.
 - Keep the money multiplier constant.
 - Engage in policy to increase output beyond potential.**
 - Engage in policy to reduce unemployment.
7. Suppose that a rise in stock prices induces wealth effects that cause people to leave the labor force and thereby reduce potential output. If the Federal Reserve follows a stabilizing policy and stock prices rise, then it will have to:
- Reduce the money supply.**
 - Increase the money supply.
 - Lower interest rates.
 - Raise the monetary base.
 - Raise the money multiplier.
8. In the IS – LM Model, a rise in autonomous exports will have all of the following effects EXCEPT:
- Shift the IS curve outward.
 - Reduce the unemployment rate by Okun’s Law.
 - Increase real GDP.
 - Increase the cyclical budget balance.
 - Increase the structural budget balance.**
9. Some recent research has shown that fiscal policy has only a small effect on aggregate output. This would suggest that:
- There is a lot of crowding out.
 - The fiscal policy multiplier is small.
 - The money multiplier is large.
 - Either a. or b.**
 - Either a. or c.
10. If the economy suddenly went into a recession, the “most effective” policy prescription in reaction to this would be to:
- Permanent tax cuts for wealthy people.
 - Permanent tax cuts for poor people.**
 - Reductions in the budget deficit.
 - Permanent tax cuts for business firms.
 - Temporary tax cuts for wealthy people.

d
6

a
7

e
8

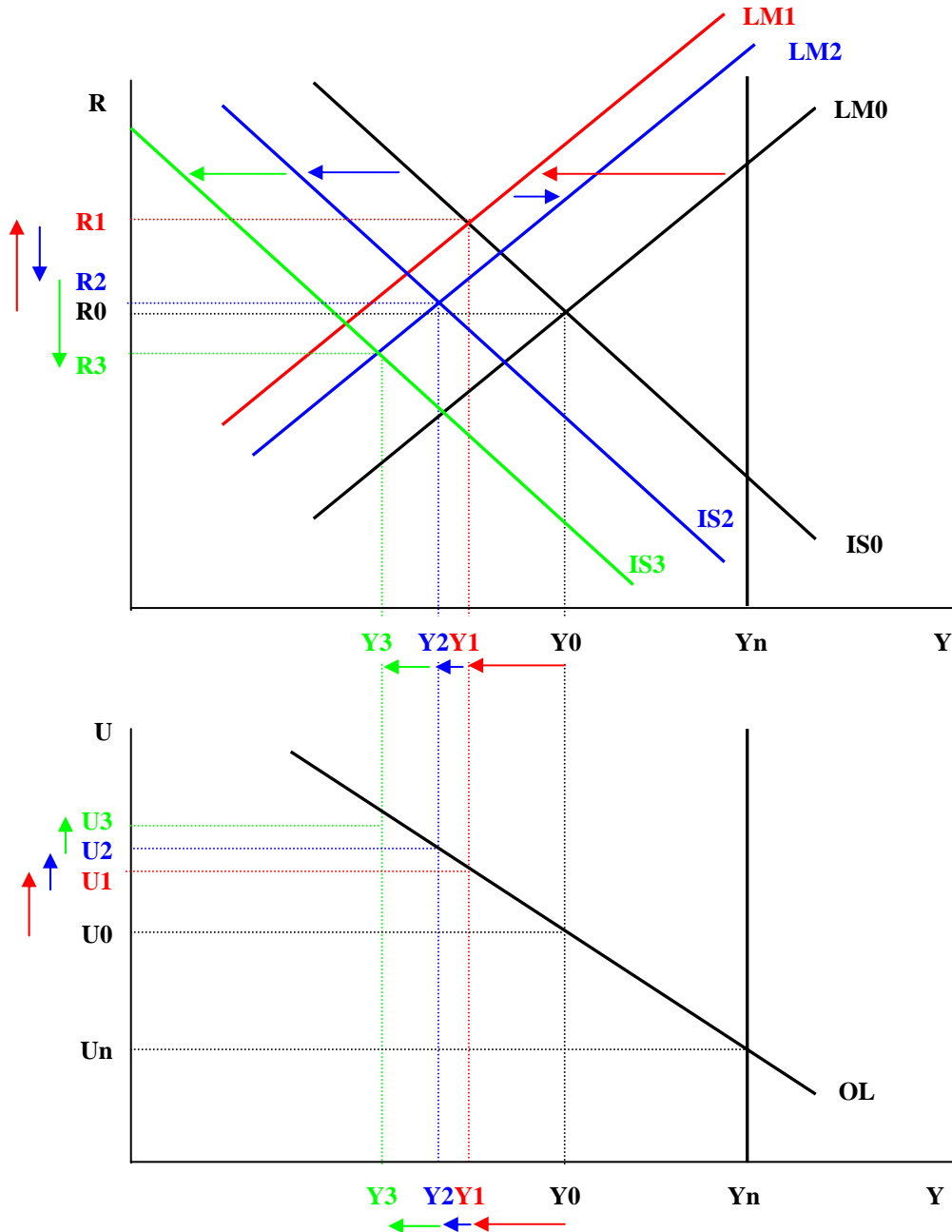
d
9

b
10

B. IS - LM Model Problems. Answer BOTH of the following questions in the space below.

1. Suppose that the economy has a large cyclical budget deficit and the central bank engages in substantial open market sales of government securities. As a result, the stock market falls substantially, destroying a significant amount of consumer wealth. In addition, the foreign exchange value of the dollar increases, greatly reducing net exports. (35 points.)

a. Based only on this information, use an IS – LM Model diagram with an Okun's Law diagram to accurately and clearly show the effects of the change in monetary policy (in red), the change in wealth (in blue), and the change in net exports (in green) on equilibrium income, the interest rate, and the unemployment rate.



- b. For each of these events, provide an economic explanation of the adjustment process that the economy undergoes with respect to equilibrium income, the interest rate, and the unemployment rate.

When the government has a large cyclical budget deficit, the economy is operating below its potential output level. Consequently, actual equilibrium income is less than potential output. Because actual income is below potential output, the unemployment rate is above the natural rate of unemployment.

When the central bank engages in substantial open market sales of government securities it reduces bank reserves, the monetary base, and the money supply through the money multiplier. This shifts the LM curve to the left from LM0 to LM1.

Because the supply of money is now less than the demand for money, interest rates rise from R0 to R1 in order to re-establish equilibrium in the money market. Higher interest rates reduce interest-sensitive spending and equilibrium income falls by a multiplied amount from Y0 to Y1.

As a result of lower equilibrium income (relative to potential output), the unemployment rate rises from U0 to U1 according to Okun's Law.

The destruction of a significant amount of consumer wealth has 2 effects. First, the decline in wealth reduces autonomous consumption and shifts the IS curve to the left from IS0 to IS2. Equilibrium income falls by a multiplied amount. Lower income reduces the demand for money. Because the supply of money is fixed, interest rates decline in order to re-establish equilibrium in the money market. Lower interest rates stimulate some interest-sensitive spending and limit the decline in equilibrium income.

Second, the decline in wealth reduces the autonomous demand for money and shifts the LM curve to the right from LM1 to LM2. Because the demand for money is now less than the supply of money, interest rates fall. The decline in interest rates stimulates some interest-sensitive spending and limits the demand in equilibrium income.

The combination of these 2 effects results in equilibrium income falling from Y1 to Y2 and interest rates declining from R1 to R2.

As a result of lower equilibrium income (relative to potential output), the unemployment rate rises from U1 to U2 according to Okun's Law.

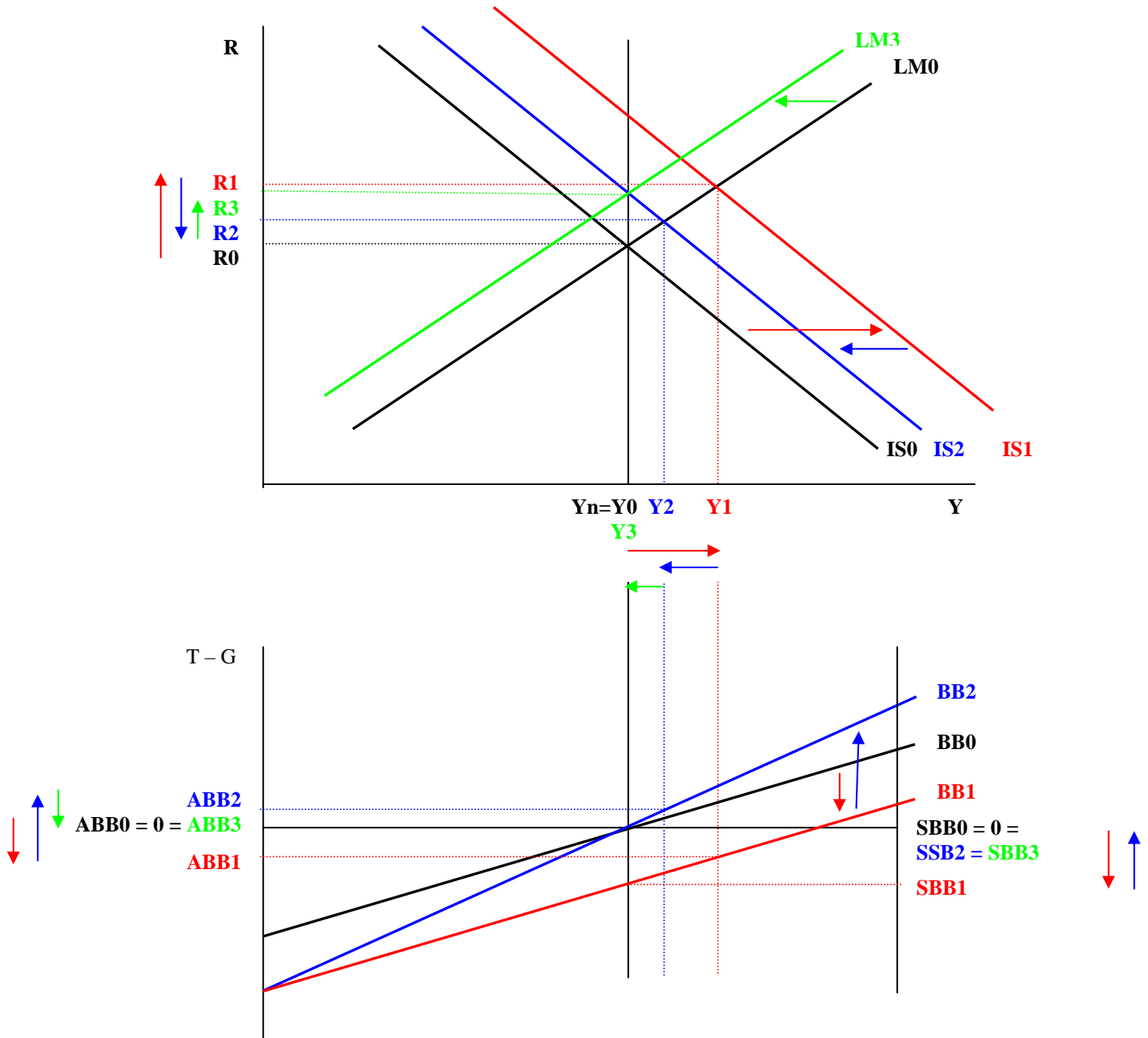
The increase in the foreign exchange value of the dollar greatly reduces net exports causing the IS curve to shift to the left from IS2 to IS3. Equilibrium income declines by a multiplied amount from Y2 to Y3. Lower equilibrium income reduces the demand for money. Because the supply of money is fixed, interest rates fall from R2 to R3 in order to re-establish equilibrium in the money market. Lower interest rates stimulate some interest-sensitive spending and limit the decline in equilibrium income.

As a result of lower equilibrium income (relative to potential output), the unemployment rate rises from U2 to U3 according to Okun's Law.

The net result will be lower equilibrium income and a higher unemployment rate. The effect on interest rates is indeterminate and depends on the relative magnitude of the shifts in the IS and LM curves.

2. Suppose that the unemployment rate is at the NAIRU and that the structural budget is in balance, i.e., the $SBB = 0$. The country has adopted a balanced budget amendment to its constitution, requiring any changes in discretionary government spending to be matched by changes in discretionary tax revenues. After a recent national election, it is decided to increase government spending. At the same time, the central bank adopts a stabilizing policy. (35 points.)

a. Based only on this information, use an IS – LM Model diagram with a Budget Balance line to accurately and clearly show the effects of the change in government spending (in red) and any changes in taxes (in blue) and/or any changes in monetary policy (in green) that may be required on equilibrium income, the interest rate, the actual budget balance, and the structural budget balance.



- b. For each of these events, provide an economic explanation of the adjustment process that the economy undergoes with respect to equilibrium income, the interest rate, the actual budget balance, and the structural budget balance.

If the unemployment rate is at the NAIRU, then the economy is at potential output. Because the structural budget balance is zero and the economy is at potential output, the actual budget balance is also zero, i.e., at potential output, $ABB = SBB = 0$.

The increase in government expenditures shifts the IS curve to the right and generates a multiplied increase in equilibrium income from Y_0 to Y_1 . Higher income increases the demand for money. Because the supply of money is fixed, interest rates rise from R_0 to R_1 in order to re-establish equilibrium in the money market. Higher interest rates crowd out some interest-sensitive spending and limit the increase in equilibrium income.

The increase in government expenditures also shifts the BB line down. The ABB deteriorates from ABB_0 to ABB_1 while the SBB declines from SBB_0 to SBB_1 . The deterioration in the SBB is greater than in the ABB because actual income rises from Y_0 to Y_1 and some additional tax revenues are generated.

Because of the balanced budget amendment, tax rates must increase which rotates the budget balance line from BB_1 to BB_2 . The balanced budget amendment requires discretionary changes in fiscal policy changes to be matched. Consequently, the increase in tax rates must increase the SBB by exactly the same amount that the increase in government spending reduced the SBB. Thus, the SBB increases from SBB_1 to SBB_2 which is also equal to SBB_0 .

The increase in tax rates also shifts the IS curve to the left from IS_1 to IS_2 . However, because the tax multiplier is smaller than the government spending multiplier, this leftward shift of the IS curve is smaller than the rightward shift of the IS curve caused by the increase in government spending.

Higher tax rates reduce disposable income which reduces consumer spending through the marginal propensity to consume. This reduces equilibrium income by a multiplied amount from Y_1 to Y_2 . Lower income reduces the demand for money. Because the supply of money is fixed, interest rates decline from R_1 to R_2 in order to re-establish equilibrium in the money market. Lower interest rates stimulate some interest-sensitive spending and limit the decline in equilibrium income.

When the central bank engages in a stabilizing policy, it will use monetary policy to move equilibrium income to its potential level. Because equilibrium income was above potential, the central bank needs to reduce the money supply, shifting the LM curve to the left from LM_0 to LM_3 . Because the supply of money has been reduced, interest rates must rise from R_2 to R_3 in order to re-establish equilibrium in the money market. Higher interest rates reduce some interest-sensitive spending. Equilibrium income falls by a multiplied amount from Y_2 to $Y_3 = Y_n$.

The decline in equilibrium income reduces tax revenues and the actual budget balance from ABB_2 to ABB_3 . Because there has been no change in fiscal policy the structural budget balance does not change so $SBB_3 = SBB_2 = SBB_0$.

Net result: equilibrium income is at potential and both the actual budget and the structural budget are balanced, i.e., $ABB = SBB = 0$. Interest rates are higher.