MIDTERM EXAMINATION

This is a closed book, 70-minute examination. Please write your name and the name of your teaching assistant at the top of the exam. Please write legibly. Answer all the questions. The scores on the questions total to 100.

1. (21 points) An economy with no foreign trade and no inflation has this structure:
   \[ Y = C + I + G \]
   \[ C = 100 + \frac{2}{3}(Y - T) \]
   \[ T = 0.25Y \]
   \[ I = 400 \]
   \[ G = 200 \]
   (a) What is the equilibrium GDP?
   (b) What is the multiplier?
   (c) At the equilibrium GDP, what is the government's surplus or deficit?
   (d) What is the national income accounting identity that is applicable in this economy?
   (e) Show that the national income accounting identity holds true at the equilibrium GDP you have identified in (a).
   (f) If government expenditure rises by 100, what is the new
      (i) equilibrium GDP?
      (ii) government surplus or deficit?

2. (9 points) Why is it an appropriate goal of public policy to keep the inflation rate fairly low?

3. (8 points) A Bureau of Labor Statistics survey of people over 16 reveals the following about the work status of the population last week:
   people working full time for pay 1,700
   people working half time for pay 140
   people not working but looking for work 160
   people not working and not looking for work 700
   (a) What is the size of the labor force?
   (b) What is the unemployment rate?

4. (8 points) Explain the difference between income and wealth.

5. (16 points) Are the following part of United States GDP or not? If yes, are they best classified as C, I, G, or X, and how much?
   (a) Sue buys $3,000 worth of the common stock of Apple Corporation.
   (b) George buys a $3,000 Apple computer on which he expects to play games and surf the web.
   (c) Rosa buys a $3,000 Apple computer on which she expects to keep the accounts for her small business.
   (d) Pierre, living in France, buys a $3,000 Apple computer produced in the United States.
(e) Jose buys a case of French wine for $3,000.
(f) Henry buys materials for $1,000 and builds a boat for his personal use in his backyard.
   He could have bought the same boat for $3,000.
(g) Joan and Betty pay each other $100 to take care of each others’ children.
(h) Alice works 12 hours a day taking care of her children and keeping her house spotless, thereby foregoing a job at which she could have earned $3,000.

6. (20 points) Explain in a sentence or two:
   (a) fiscal policy
   (b) intermediate good
   (c) marginal propensity to save
   (d) autonomous spending
   (e) real interest rate
   (f) GDP
   (g) potential GDP
   (h) stagflation
   (i) automatic stabilizer
   (j) net exports

7. (18 points) This question is designed to show how the economy readjusts, in the long run, to its potential level.
   (a) Draw an aggregate supply and demand diagram. Show the initial equilibrium price and output levels, and assume that the output is initially at the level of potential GDP.
   (b) Show an increase in aggregate demand.
   (c) Show on the diagram what the initial change in GDP would be if the price level stayed constant.
   (d) Show the initial change in GDP and price level that will actually occur.
   (e) Explain why the aggregate supply curve will likely shift.
   (f) What effect will the shift in aggregate supply have on prices and output?
   (g) Show the final equilibrium levels of prices and output. How do these levels compare to the original price and output?
   (h) Upon what does the speed of adjustment depend?
MIDTERM EXAMINATION

This is a 70-minute, closed-book exam. Answer all questions. The points total 100. Please write your own name and the name of your section leader at the top or front of your exam. And please do your best to write legibly.

1. (20 points) Describe or explain each of the following in one or two sentences:
   (a) Marginal propensity to save
   (b) Investment
   (c) New classical macroeconomics
   (d) Marginal tax rate
   (e) Federal government surplus
   (f) Gross domestic product
   (g) Consumption function
   (h) Inflation
   (i) Unemployment rate
   (j) Real balance effect

2. (19 points) An economy has this structure: \( Y = C + I + G \), and has no possibility of price changes. The following values hold: 
   \[ C = 500 + \frac{2}{3}(Y - T) \]
   \[ T = 180 + 0.25Y \]
   \[ I = 600 \]
   \[ G = 820 \]
   (a) Find the equilibrium GDP.
   (b) What is the value of the multiplier?
   (c) At the equilibrium GDP, what is the value of \( S \), that is, personal savings?
   (d) At the equilibrium GDP, what is the government’s surplus or deficit?
   (e) If \( G \) rises by 200, what will be the new equilibrium levels of (i) GDP and (ii) the government surplus or deficit?
   (f) Explain why the government’s surplus or deficit has or has not changed by the amount of the change in government spending.

3. (15 points) The economy has only a domestic private sector, with no government or foreign trade.
   (a) Draw a Keynesian-cross, or 45 degree-line, diagram, showing the initial equilibrium of the economy. Identify, on the diagram, the level of consumption, investment, savings, and output, and the marginal propensity to consume.
   (b) Draw the above diagram a second time. Now add a higher level of investment. Show, on the diagram, the new equilibrium levels of consumption, investment, savings and output. How would one calculate the size of the multiplier from your diagram?

4. (15 points)
   (a) Draw an aggregate-supply-and-demand diagram, labeling the initial equilibrium output and price levels.
   (b) Show how a decline in aggregate demand is represented on the diagram. Once aggregate demand has fallen, show the new short-run equilibrium output and price levels.
   (c) Show on your diagram how the economy eventually adjusts to its new long-run equilibrium output and price levels.
   (d) Explain in words the role of prices and wages in the movement to the long-run equilibrium.
5. (12 points) Calculate the price index for 2002, relative to the base year of 2001, in an economy which has just two goods, cummerbunds and zabaglione. The following values were observed:

<table>
<thead>
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<th></th>
<th>Quantity bought</th>
<th>Price</th>
<th>Quantity bought</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>Cummerbunds</td>
<td>50</td>
<td>$10</td>
<td>100</td>
</tr>
<tr>
<td>2002</td>
<td>Zabaglione</td>
<td>100</td>
<td>$2</td>
<td>80</td>
</tr>
</tbody>
</table>

6. (6 points) What is the national income accounting identity in a market economy which has government spending, taxes and foreign trade?

7. (13 points) President Bush has urged Congress to cut taxes further than it already has, in order to stimulate the economy and help to pull it out of its current recession. Do you think the Congress should follow his advice? Why or why not?
This is a closed-book, three-hour examination. Please write your name and the name of your section leader at the top of your exam. And please do your best to write legibly. Answer all the questions. The points total to 100.

1. (15 points) Assume an economy with no price changes. It has the following structure:
   \[ Y = C + I + G + (X - M) \]
   \[ C = 100 + 0.8(Y - T) \]
   \[ T = 100 + 0.25Y \]
   \[ I = 300 \]
   \[ G = 480 \]
   \[ X = 200 \]
   \[ M = 0.1Y \]
   (a) What is the equilibrium GDP in this economy?
   (b) What is the balance of trade?
   (c) What is the government's surplus or deficit?
   (d) Suppose the government cuts autonomous taxes by 50. What will be the new equilibrium GDP?
   (e) At the new equilibrium GDP in (d), what is the government's surplus or deficit?
   (f) Why is the change in surplus or deficit not equal to the change in autonomous taxes?

2. (12 points) Use aggregate supply and demand diagrams, and verbal explanations when appropriate, in answering these questions:
   (a) Label the diagram appropriately and show the initial equilibrium at the full-employment level of output.
   (b) Show a decline in aggregate demand, and show the new initial price and output levels.
   (c) Explain and show the process by which the economy moves to its new long-run equilibrium. Compare this equilibrium to the initial position.

3. (19 points) President Bush wishes to stimulate the economy by cutting taxes. Using the appropriate diagrams and/or explanations, show how this policy is likely to affect:
   (a) Consumption
   (b) Investment
   (c) Net exports
   (d) GDP

4. (12 points) Use diagrams and explanations to show how the following events are likely to affect the exchange rate of the U.S. dollar.
   (a) Foreigners buy more U.S. goods.
   (b) Foreigners invest less money in U.S. assets.
   (c) Immigrant workers in the U.S. send more money to their relatives living in their home countries.
(d) The U.S. imposes a tariff on imports from foreign countries.

5. (20 points) Assume that all new money directly created by the Federal Reserve System ends up as reserves in the vaults of commercial banks. Assume also that the required reserve ratio is 0.2, and that banks do not hold excess reserves. The Fed wishes to use open market operations to increase the money supply by 200B. Answer the following questions, and at each of the steps (a) through (e) below, show how the money supply has changed.

(a) What open market operation will the Fed engage in?
(b) Show the effect of this operation on the Fed's balance sheet (or “T account”).
(c) The person or firm with whom the Fed has conducted its open market operation banks at Wells Fargo. Show the initial effect on Wells Fargo's balance sheet.
(d) Show how Wells Fargo responds to the change in its balance sheet in (c).
(e) Show the eventual consolidated balance statement for the entire banking system.
(f) Using the appropriate diagrams, show how the change in the money supply is likely to affect investment.
(g) Use the Keynesian cross (or 45-degree line) diagram to show how the change in investment is likely to affect GDP.

6. (6 points)
(a) What is the “quantity equation?”
(b) What is the definition of the “velocity of money?”
(c) Under what circumstances will a change in the quantity of money lead to an equal proportionate change in the money value of GDP?

7. (16 points). Write short, analytical essays on ONLY TWO of the following topics.
(a) “The federal government should eliminate the national debt within ten years.” Discuss.
(b) “Fiscal and monetary policy should not be used in an attempt to stabilize the unemployment and inflation rates because, given the lags involved, they are likely to be destabilizing.” Discuss.
(c) “The federal government should try to reduce unemployment but not inflation, because unemployment is much more damaging to the society than inflation is.” Discuss.
(d) The United States should run a large trade deficit because, as the national income accounting identity shows, a trade deficit helps to increase the level of investment in the country.” Discuss.
1. (10 points) Explain each of the following in a sentence or two:
(a) Phillips Curve
(b) Supply-side tax cuts
(c) Consumer price index
(d) Autonomous spending
(e) Fiscal policy
(f) Floating exchange rate
(g) Balance of payments
(h) Stagflation
(i) Quantity theory of money
(j) Disposable income

2. (18 points) Consider an economy, with no inflation, which has the following structure:
\[ Y = C + I + G + (X - M) \]
\[ G = 400 \]
\[ C = 100 + 0.75(Y - T) \]
\[ X = 200 \]
\[ T = 40 + 0.2Y \]
\[ M = 0.1Y \]
\[ I = 300 \]
(a) What is the equilibrium level of GDP?
(b) What is the multiplier?
(c) How will equilibrium GDP change if government spending rises by 20?
(d) How will equilibrium GDP change if autonomous taxes fall by 20?
(e) Explain why the answers to (c) and (d) are or are not the same.
(f) At the original equilibrium GDP in (a), what is the government’s surplus or deficit?
(g) At the original equilibrium GDP in (a), what is the trade surplus or deficit?
(h) Using the national income accounting identity, find the level of \( S \) (personal savings) at the original equilibrium GDP.

3. (8 points) Assume an economy with a private and a government sector, and no price changes.
(a) Use a Keynesian-cross, 45-degree-line diagram to show the initial equilibrium levels of output, consumption and investment.
(b) The government increases the income tax rate. Show the effect of this, on the diagram, including the new equilibrium levels of output and consumption.

4. (12 points) Following are several questions that relate to the aggregate-supply-and-demand diagram:
(a) Use the aggregate-supply-and-demand diagram, plus a verbal explanation, to show why the long-run aggregate supply curve may be vertical.
(b) Use a diagram showing the demand and supply for money, plus a verbal explanation, to show why the aggregate demand curve may have a negative slope.
(c) Use the aggregate-supply-and-demand diagram, plus a verbal explanation, to show the likely effect on output and inflation of falling world oil prices.

5. (6 points) Explain why the demand for money may be influenced by (a) the level of national income and (b) interest rates.
6. (12 points)
(a) Using diagrams and explanations, show how the stimulating effect of a cut in taxes may be wholly or partly crowded out by a compensating change in investment.
(b) Using diagrams and explanations, show how the stimulating effect of a cut in taxes may be wholly or partly crowded out by a compensating change in net exports.
(c) In view of your answers to (a) and (b), argue for or against the proposition that the tax cut just signed by President Bush will stimulate the economy.

7. (12 points) Using diagrams and explanations, show how the following events may affect the foreign exchange rate of the U.S. dollar:
(a) Americans increase their investment in foreign companies.
(b) Foreigners reduce their purchases of American computers.
(c) The U.S. economy goes into a steep recession, while economic growth proceeds rapidly in the rest of the world.

8. (12 points) Assume that commercial banks are fully loaned out, keeping only the minimum of reserves required by the Federal Reserve System. As the money supply changes, people do not change the amount of cash in their pockets. The reserve ratio is 0.2. Economists at the Fed figure that for every increase in the money supply of $50 billion, interest rates will fall by 1 percentage point. For every fall in interest rates of 1 percentage point, they estimate that investment will rise by $250 billion. The multiplier for changes in autonomous spending is 2. If the Fed wishes to use open market operations to raise equilibrium GDP by 1,000 billion, what will it do? Explain each step of your reasoning.

9. (10 points) Answer ONLY ONE of the following three questions:
(a) Do you agree that unemployment is a much worse problem for the country than inflation, and that we should be willing to tolerate inflation, since this is the price of keeping unemployment low? Why or why not?

OR

(b) At the end of President Clinton’s term in office, the federal government’s budget was in surplus. A year later, after the major tax cuts initiated by President Bush, the budget was in deficit. Explain carefully why you think the disappearance of the surplus either did or did not constitute a serious problem for the economy.

OR

(c) Economists in the Keynesian tradition tend to think that the sources of instability in the economy come mostly from the private sector, while economists in the quantity-theory tradition tend to think that fluctuations in the money supply, caused by the agency of the federal government, the Federal Reserve System, are the source of most of the instability. Do you agree with one or the other side of this debate, or neither? Why?