

1. The economy of Micanapy is in short-run equilibrium and is experiencing an inflationary gap.

Part A

Draw a correctly labeled graph of the aggregate demand, short-run aggregate supply, and long-run aggregate supply curves for Micanapy, and show each of the following.

- i. The current equilibrium real output and price level, labeled Y_1 and PL_1 , respectively
- ii. The full-employment real output, labeled Y_F

Part B

Assume that policymakers take no action to close the inflationary gap. Explain how Micanapy's economy will self-adjust to full employment in the long run.

Part C

Suppose instead that Micanapy's central bank is considering using monetary policy to close the inflationary gap in the short run. The banking system in Micanapy has limited reserves.

- i. Identify a specific open-market operation that the central bank of Micanapy would implement to close the inflationary gap in the short run.
- ii. Draw a correctly labeled graph of the money market in Micanapy, and show the effect of the open-market operation identified in part C (i) on the nominal interest rate.

Part D

Based solely on the interest rate change shown on your graph in part C (ii), will each of the following increase, decrease, or remain the same in the short run?

- i. International financial capital flows into Micanapy. Explain.
- ii. The price of previously issued bonds in Micanapy
- iii. Private domestic investment spending in Micanapy

Part E

Based solely on the change in private domestic investment spending identified in part D (iii), will the unemployment rate in Micanapy increase, decrease, or remain the same in the short run? Explain.

2. The economy of Foxhound is in short-run equilibrium with the macroeconomic data shown in the table.

Labor force	15,000,000
Number of people not working but looking for work	900,000
Number of people who are retired	200,000
Number of people not working and not looking for work	100,000
Natural rate of unemployment	3%
Actual inflation rate	2%

Part A

How many people are employed in Foxhound?

Part B

Calculate the actual unemployment rate in Foxhound. Show your work.

Part C

Draw a correctly labeled graph of the short-run and long-run Phillips curves for the economy of Foxhound, and label the short-run equilibrium point as X. Plot the relevant numerical values on your graph.

Part D

If some individuals who are counted as employed in Foxhound retire, will the unemployment rate increase, decrease, or remain the same? Explain.

1. Assume that the economy of Vortania is in long-run equilibrium.
 - A. Draw a correctly labeled graph of the short-run and long-run Phillips curves for the economy of Vortania, and label the long-run equilibrium point as P.
 - B. Assume that new residential construction projects are being implemented in Vortania.
 - i. Will real output in Vortania increase, decrease, or remain the same in the short run? Explain.
 - ii. Assuming no change in inflationary expectations, on your graph in part A, show the short-run effect of the new residential construction projects on Vortania's economy, labeling the new short-run equilibrium point as S.
 - C. Vortania and Rhodara are trading partners with flexible exchange rates. The currency of Vortania is the Vortanian crown (VTC), and the currency of Rhodara is the Rhodaran mark (RHM). Assume that Vortania's capital and financial account (CFA) balance is zero. Now assume that Vortania imposes new tariffs on imports from Rhodara. Draw a correctly labeled graph of the foreign exchange market for the Vortanian crown, and show the effect of the tariffs on the SUPPLY of the Vortanian crown and the international value of the Vortanian crown.
 - D. Based solely on the change in the international value of the Vortanian crown shown in part C, will Vortania's net exports increase, decrease, or remain the same in the short run?
 - E. Based on the change in net exports identified in part D, what will happen to each of the following in the short run?
 - i. The capital and financial account (CFA) balance in Vortania. Explain.
 - ii. Employment in Vortania
 - F. Assume the central bank of Vortania wants to return the Vortanian crown to its international value before the imposition of the tariffs. Would the central bank buy or sell Vortanian crowns in the foreign exchange market? Explain.

1. Assume that the economy of Barrikos is in short-run equilibrium, with its economic data summarized in the table provided. The government budget is balanced, and the capital and financial account (CFA) balance is zero.

Cyclical unemployment rate	6%
Natural unemployment rate	4%
Structural unemployment rate	1%
Actual inflation rate	3%
Expected inflation rate	5%

- A. What is the numerical value of the actual unemployment rate in Barrikos?
- B. Using the relevant numerical values, draw a correctly labeled graph of the short-run and long-run Phillips curves for Barrikos. Indicate the current short-run equilibrium with a point labeled X. Plot the relevant numerical values on the graph.
- C. Based on your graph in part B, identify one specific fiscal policy action that the government of Barrikos would take to move the economy toward long-run equilibrium.
- D. Assume that the fiscal policy action identified in part C is implemented.
- Will the government budget in Barrikos move into surplus, move into deficit, or remain balanced? Explain.
 - Assume there is no change in inflationary expectations. On your graph in part B, show a possible new short-run equilibrium point, labeled Z, that would result from the fiscal policy action identified in part C.
 - Draw a correctly labeled graph of the loanable funds market, and show the effect of the fiscal policy action identified in part C on the real interest rate.
- E. Barrikos has an open economy and a flexible exchange rate. Based solely on the change in the real interest rate in Barrikos shown on your graph in part D (iii), will Barrikos' capital and financial account (CFA) balance move into surplus, move into deficit, or remain the same? Explain.
- F. Based on the change in Barrikos' capital and financial account (CFA) balance identified in part E, what will happen to the international value of Barrikos' currency? Explain.

1. The economy of Alpha is in short-run equilibrium with a cyclical unemployment rate of 3%, a frictional unemployment rate of 4%, and an actual unemployment rate of 8%.
- (a) Calculate Alpha's natural rate of unemployment. Show your work.
- (b) Draw a correctly labeled graph of the aggregate demand, short-run aggregate supply, and long-run aggregate supply curves for Alpha, and show each of the following.
- (i) The current equilibrium output and price level, labeled Y_1 and PL_1 , respectively
 - (ii) The full-employment output, labeled Y_F
- (c) Assume that policymakers take no action to close the output gap.
- (i) Explain how Alpha's economy will adjust to full employment in the long run.
 - (ii) On your graph in part (b), show how Alpha's economy will adjust to full employment in the long run, labeling the new equilibrium price level PL_2 .
- (d) Assume instead that Alpha's central bank is considering using monetary policy to close a recessionary output gap. The banking system in Alpha has ample reserves. Identify a specific monetary policy action the central bank of Alpha would take to close the output gap in the short run.
- (e) Draw a correctly labeled graph of the reserve market in Alpha, and show the effect of the action taken by the central bank identified in part (d) on the policy rate.
- (f) Based on the change in the policy rate shown in part (e), what would happen to each of the following in the short run in Alpha?
- (i) The price of previously issued bonds
 - (ii) The price level. Explain.

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

1. Assume that the economy of Moneyland is in equilibrium with an actual unemployment rate equal to the natural rate of unemployment.
 - (a) Draw a correctly labeled graph of the aggregate demand, short-run aggregate supply, and long-run aggregate supply curves, and show each of the following.
 - (i) The current equilibrium real output and price level, labeled Y_1 and PL_1 , respectively
 - (ii) The full employment output, labeled Y_F
 - (b) Assume that consumer spending in Moneyland decreases from \$110,000 to \$100,000 as a result of a decrease in disposable income in Moneyland from \$135,000 to \$110,000.
 - (i) Calculate the marginal propensity to consume in Moneyland. Show your work.
 - (ii) Show the short-run effect of the decrease in consumer spending in Moneyland on your graph in part (a), labeling the new equilibrium real output and price level Y_2 and PL_2 , respectively.
 - (c) Following the decrease in consumer spending, explain how the economy would adjust in the long run in the absence of any policy actions.
 - (d) The central bank of Moneyland is concerned about the short-run effects of the decrease in consumer spending on the broader economy and is considering taking action rather than waiting for the long-run adjustment process. Assuming the banking system in Moneyland has ample reserves, identify a specific monetary policy action the central bank of Moneyland would take to increase consumer spending.
 - (e) Draw a correctly labeled graph of the reserve market in Moneyland, and show the effect of the monetary policy action identified in part (d) on the policy rate.
 - (f) How would the change in the policy rate shown on your graph in part (e) affect each of the following in Moneyland in the short run?
 - (i) The quantity of national savings
 - (ii) Unemployment. Explain.

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

3. Assume that in the country of Zeta, the civilian noninstitutional population aged 16 and over is 1,000,000. The labor force participation rate is 70%, the unemployment rate is 9%, and the natural rate of unemployment is 5%.
- (a) Calculate the number of people in Zeta that are unemployed. Show your work.
- (b) Is the economy of Zeta currently experiencing a recessionary gap, an inflationary gap, or no output gap? Explain.
- (c) Consumer goods and capital goods are produced in the country of Zeta. Draw a correctly labeled graph of the production possibilities curve for Zeta. Indicate a point, labeled A, that represents the current state of Zeta's economy.
- (d) If some individuals who are counted as unemployed in Zeta stop looking for work, what will happen to each of the following?
- (i) The labor force participation rate. Explain.
 - (ii) The unemployment rate

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

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END OF EXAM

2. The United States and South Africa are trading partners with flexible exchange rates, and the United States current account balance with South Africa is zero.
- (a) Assume real income in the United States increases while real income in South Africa remains the same. Will United States net exports increase, decrease, or remain unchanged? Explain.
- (b) Based on your answer to part (a), what will happen to each of the following?
- (i) The capital and financial account balance in the United States
 - (ii) Actual unemployment in South Africa in the short run. Explain.
- (c) The currency of the United States is the dollar (USD), and the currency of South Africa is the rand (ZAR). Draw a correctly labeled graph of the foreign exchange market for the rand and show the effect of the increase in real income in the United States on the international value of the rand.

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

1. Assume a country's economy is operating below full employment.

(a) Draw a correctly labeled graph of aggregate demand, short-run aggregate supply, and long-run aggregate supply, and show each of the following.

- (i) The current equilibrium real output and price level, labeled as Y_1 and PL_1 , respectively
- (ii) The full-employment output, labeled as Y_F

(b) Identify one fiscal policy action the country's government can take to restore full employment.

(c) Assume instead that no fiscal policy action is taken. Suppose a change in investment spending causes real GDP to increase by \$200 billion. Calculate the minimum change in investment spending that could have caused this increase in real GDP if the marginal propensity to save is 0.25. Show your work.

(d) Assume the output gap was initially \$800 billion. On your graph in part (a), show the short-run effect of the change in investment spending identified in part (c), labeling the new equilibrium real output as Y_2 and the new equilibrium price level as PL_2 .

(e) Given your answer to part (d), is the actual rate of unemployment greater than, less than, or equal to the natural rate of unemployment? Explain.

(f) Assume that private savings now increase. Draw a correctly labeled graph of the loanable funds market and show the effect of the increase in private savings on the real interest rate.

(g) Based solely on the change in the real interest rate shown in part (f), what will happen to each of the following?

- (i) Real GDP in the short run. Explain.
- (ii) Long-run aggregate supply. Explain.

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

3. The government budget of the country of Geeland is currently balanced. The government budget is composed of tax revenues (T), transfer payments (TR), and government spending (G).
- (a) Assume the economy moves into a recession and there is no discretionary policy action.
- (i) Will the government budget move into a deficit or a surplus in the short run? Explain using the appropriate components of the government budget identified above.
- (ii) Based on your answer to part (a)(i), what will happen to the government debt?
- (b) Based on your answer to part (a)(i), identify one specific fiscal policy action that will balance the budget.
- (c) How will the fiscal policy action from part (b) affect the actual unemployment rate in the short run? Explain.
- (d) Did the government efforts to maintain a balanced budget make Geeland's recession more severe or less severe in the short run? Explain.

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

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END OF EXAM

MACROECONOMICS**Section II****Total Time—1 hour****Reading Period—10 minutes****Writing Period—50 minutes**

Directions: You are advised to spend the first 10 minutes reading all of the questions and planning your answers. You will then have 50 minutes to answer all three of the following questions. You may begin writing your responses before the reading period is over. It is suggested that you spend approximately half your time on the first question and divide the remaining time equally between the next two questions. Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. Use a pen with black or dark blue ink.

1. Assume the United States economy is in recession.

(a) Draw a correctly labeled graph of the long-run aggregate supply, short-run aggregate supply, and aggregate demand curves, and show each of the following.

(i) Current price level, labeled PL_1

(ii) Current output, labeled Y_1

(b) Now assume the euro zone, a major trading partner of the United States, enters into a recession.

(i) What will be the effect on United States exports to the euro zone? Explain.

(ii) On your graph in part (a), show the effect of the change identified in part (b)(i) on real output in the United States.

(iii) What will be the effect of the change identified in part (b)(ii) on unemployment in the United States?

(c) Assume the euro zone recession causes a decrease in the demand for United States dollars in the foreign exchange market.

(i) Will the euro appreciate, depreciate, or remain unchanged against the dollar? Explain.

(ii) Draw a correctly labeled graph of the foreign exchange market for dollars, and show the effect of the decrease in the demand for dollars on the exchange rate for dollars.

(d) Assume the United States implements a combination of expansionary fiscal and monetary policies. In the absence of complete crowding out, what will be the effect of these policies on each of the following?

(i) Aggregate demand in the United States

(ii) The price level in the United States

(iii) Interest rates in the United States. Explain.

MACROECONOMICS**Section II****Planning Time—10 minutes****Writing Time—50 minutes**

Directions: You have 10 minutes to read all of the questions in this booklet, to sketch graphs, to make notes, and to plan your answers. You will then have 50 minutes to answer all three of the following questions. It is suggested that you spend approximately half your time on the first question and divide the remaining time equally between the next two questions. In answering the questions, you should emphasize the line of reasoning that generated your results; it is not enough to list the results of your analysis. Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. Use a pen with black or dark blue ink.

1. Assume that the United States economy is currently operating below the full-employment level of real gross domestic product with a balanced budget.
 - (a) Draw a correctly labeled graph of aggregate demand, short-run aggregate supply, and long-run aggregate supply, and show each of the following in the United States.
 - (i) Current output and price level, labeled as Y_1 and PL_1 , respectively
 - (ii) Full-employment output, labeled as Y_f
 - (b) The United States government increases spending on goods and services by \$100 billion, which is financed by borrowing. How will the increase in government spending affect each of the following?
 - (i) Cyclical unemployment
 - (ii) The natural rate of unemployment
 - (c) If the marginal propensity to consume is equal to 0.75, calculate the maximum possible change in real gross domestic product that could result from the \$100 billion increase in government spending.
 - (d) Using a correctly labeled graph of the loanable funds market, show the effect of the \$100 billion increase in government spending on the real interest rate.
 - (e) Based on the real interest rate change in part (d), what is the effect on the long-run economic growth rate? Explain.
 - (f) Now assume that instead of financing the \$100 billion increase in government spending by borrowing, the United States government increases taxes by \$100 billion. With this equal increase in government spending and taxes, will the real gross domestic product increase, decrease, or remain the same? Explain.