

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. Assume the economy of Jenland is in short-run equilibrium at a real output level above full-employment real output.

- A. The banking system in Jenland has ample reserves. Identify a specific monetary policy action that the central bank of Jenland would implement to return the economy to full employment in the short run.
- B. Draw a correctly labeled graph of the reserve market for Jenland, and show the effect of the central bank's action identified in part A on the policy rate.
- C. Based on the change in the interest rate shown on your graph in part B, will each of the following increase, decrease, or remain the same in Jenland in the short run?
 - i. The price of previously issued bonds
 - ii. The price level. 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 the economy of Vanderlandia is in short-run equilibrium with a real GDP of \$500 million. The full-employment level of real GDP is \$550 million.
- (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 no policy action is taken to restore full employment.
- (i) Explain how the economy will adjust in the long run.
 - (ii) Following the long-run adjustment process, will the price level in Vanderlandia be greater than, less than, or equal to PL_1 shown on your graph in part (a)?
- (c) Assume instead that policymakers in Vanderlandia are considering changing government spending to restore full employment in the short run and that the marginal propensity to save is 0.2.
- (i) Calculate the minimum change and state the direction of change in government spending required to completely close the output gap in the short run. Show your work.
 - (ii) On your graph in part (a), show the short-run effect of the change in government spending in part (c)(i), labeling the new equilibrium price level PL_2 .
- (d) Draw a correctly labeled graph of the loanable funds market, and show the effect of the change in government spending in part (c)(i) on the equilibrium real interest rate.
- (e) Based on the change in the real interest rate shown on your graph in part (d), what will happen to each of the following?
- (i) The price of previously issued bonds
 - (ii) The rate of economic growth in the long 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.

1. Assume the United States economy is in short-run macroeconomic equilibrium at an output level greater than potential output.
- (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 as Y_1 and PL_1 , respectively
 - (ii) The full-employment output, labeled as Y_F
- (b) Assume government spending increases by \$100 billion. On your graph in part (a), show the short-run effect of the change in government spending on the equilibrium real output and price level. Label the new equilibrium output as Y_2 and the new equilibrium price level as PL_2 .
- (c) Assume the marginal propensity to consume is 0.8. As a result of the increase in government spending, what is the numerical value of the maximum change in each of the following in the short run?
- (i) Real output
 - (ii) Household savings
- (d) Draw a correctly labeled graph of the money market and show the effect of the change in real output identified in part (c)(i) on the equilibrium nominal interest rate.
- (e) Based on the change in the nominal interest rate shown in part (d), what will happen to the prices of previously issued bonds in the short run?
- (f) The United States and the European Union are trading partners with flexible exchange rates. The currency in the United States is the dollar, and the currency in the European Union is the euro. Assume the inflation rate in the United States increases relative to the inflation rate in the European Union. As a result of the change in the United States inflation rate, what will happen to each of the following in the foreign exchange market?
- (i) The demand for dollars. Explain.
 - (ii) The international value of the dollar
- (g) Suppose the Federal Reserve attempts to keep the value of the dollar constant in the foreign exchange market. Based on the change in the value of the dollar in part (f)(ii), should the Federal Reserve buy or sell each of the following?
- (i) The euro
 - (ii) The dollar

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.

2. Assume that an economy is in long-run equilibrium. Assume that consumers wish to hold less money because they use credit cards more frequently to purchase goods and services than cash.
- (a) Draw a correctly labeled graph of the money market and show the effect of the reduced holdings of money on the equilibrium nominal interest rate in the short run.
 - (b) Based on the change in the interest rate in part (a), what will happen to each of the following in the short run?
 - (i) Prices of previously issued bonds
 - (ii) The price level and real income. Explain.
 - (c) With a constant money supply, based on your answer to part b(ii), will the velocity of money increase, decrease, or remain the same, or is the change indeterminate?
 - (d) If the central bank wishes to reverse the change in the interest rate identified in part (a), what open market operation would it use?
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2. The Federal Reserve can influence the supply of money.
- (a) Assume that the Federal Reserve targets a lower federal funds rate.
 - (i) What open market operation can the Federal Reserve use to achieve the lower target?
 - (ii) Given your answer to part (a)(i), what will happen to the price of government bonds?
 - (b) Using a correctly labeled graph of the money market, show the effect of the open market operation from part (a)(i) on the nominal interest rate.
 - (c) Assume that the Federal Reserve buys government bonds from commercial banks. Based only on this transaction, will the level of required reserves in the commercial banks increase, decrease, or remain the same?
 - (d) Another monetary policy action involves changing the discount rate. Define the discount rate.
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