

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.

3. The table provided shows the quantities and unit prices of shirts, bread, and pants, the only three goods produced in the country of Middleland in 2021 and 2022. Assume that 2021 was the base year.

	Shirts	Bread	Pants
Unit Prices in 2021	\$11	\$4	\$12
Unit Prices in 2022	\$10	\$5	\$15
Quantities Produced in 2021 and 2022	50	70	30

- A. Was the real GDP in 2021 in Middleland greater than, less than, or equal to the nominal GDP in 2021? Explain.
- B. Calculate the real GDP in Middleland in 2022. Show your work.
- C. Assume that Middleland was in short-run equilibrium in 2022 and that POTENTIAL real GDP was \$1,150 in 2022. Draw a correctly labeled graph of the aggregate demand, short-run aggregate supply, and long-run aggregate supply curves for Middleland in 2022, and show each of the following.
 - i. The equilibrium real output and price level, labeled Y_1 and PL_1 , respectively
 - ii. The full-employment output, labeled Y_F
- D. Assume the marginal propensity to consume in Middleland is 0.8. Calculate the minimum change and state the direction of change in government spending required to close the output gap in the short run in Middleland. Show your work.

STOP
END OF EXAM

3. Assume that Nepal is in long-run macroeconomic equilibrium and has an open economy.
- A. Draw a correctly labeled graph of the aggregate demand, short-run aggregate supply, and long-run aggregate supply curves for Nepal, and show each of the following.
- The current equilibrium real output and price level, labeled Y_1 and PL_1 , respectively
 - The full-employment output, labeled Y_F
- B. Nepal and Thailand are trading partners. Assume that Thailand experiences an increase in real income. On your graph in part A, show the short-run effect of the increase in real income in Thailand on real output and the price level in Nepal, labeling the new short-run equilibrium real output Y_2 and the new short-run equilibrium price level PL_2 .
- C. Assume that at the short-run equilibrium shown on your graph in part B, Nepal is experiencing a 400 million rupee output gap. Policymakers in Nepal want to use discretionary fiscal policy to return the economy to full employment, and the marginal propensity to consume is 0.75. 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.
- D. Assume instead that no discretionary policy actions are taken. Explain how automatic stabilizers in the short run would reduce the effect of the change in real output shown on your graph in part B.

STOP
END OF EXAM

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.
- The current equilibrium real output and price level, labeled Y_1 and PL_1 , respectively
 - 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.
- Calculate the marginal propensity to consume in Moneyland. Show your work.
 - 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?
- The quantity of national savings
 - 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 the economy of country Zen is in long-run macroeconomic equilibrium.

(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) On your graph in part (a), show the short-run effect of an increase in consumer confidence. Label the new equilibrium real output Y_2 and the new equilibrium price level PL_2 .

(c) Assume that the banking system in Zen has ample reserves. Suppose that the central bank's goal is to maintain a stable price level at PL_1 . Based on the change in the price level shown in part (b), identify one specific monetary policy action the central bank would take to achieve its goal.

(d) Based on the monetary policy action identified in part (c), will real output increase, decrease, or stay the same 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.

STOP

END OF EXAM

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.

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 economy of Artland is currently operating above full employment.

- (a) Draw a correctly labeled graph of the short-run aggregate supply, long-run aggregate supply, and aggregate demand 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 the central bank and the government do not take any policy actions to close the output gap.
 - (i) On your graph in part (a), show how the economy automatically adjusts in the long run and label the new equilibrium price level PL_2 .
 - (ii) Explain the cause of the adjustment shown in part (b)(i).
- (c) Alternatively, suppose the government wants to close the output gap using fiscal policy.
 - (i) Identify a fiscal policy action the government could implement to close the output gap.
 - (ii) How will the fiscal policy action identified in part (c)(i) affect the following?
 - The unemployment rate
 - The natural rate of unemployment
 - (iii) In closing the output gap, will the automatic adjustment identified in part (b)(i) produce a higher, a lower, or the same price level compared to the fiscal policy identified in part (c)(i) ?
- (d) Draw a correctly labeled graph of the market for loanable funds. Show the effect of the fiscal policy action identified in part (c)(i) on the equilibrium real interest rate.
- (e) Given the interest rate change identified in part (d), will the long-run aggregate supply curve shift to the right, shift to the left, or remain the same in the long run? Explain.

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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3. A country is at full employment and produces two types of goods: consumer goods and capital goods.
- (a) Draw a correctly labeled graph of the production possibilities curve, with consumer goods on the horizontal axis and capital goods on the vertical axis. Indicate a point on your graph, labeled X, that represents full employment and a possible combination in which both goods are being produced.
 - (b) Assume there is an increase in the country's national savings. Draw a correctly labeled graph of the loanable funds market, showing the change in the real interest rate from the increase in savings.
 - (c) On the same graph from part (a), show another point, labeled Z, that represents full employment and a new combination of consumer goods and capital goods consistent with the increase in the country's national savings.
 - (d) Referring to your answer to part (c), will the long-run aggregate supply curve shift to the right, shift to the left, or remain the same? Explain.

STOP**END OF EXAM**

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. 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 operating below full employment.
 - (a) Draw a correctly labeled graph of long-run aggregate supply, short-run aggregate supply, and aggregate demand, and show each of the following.
 - (i) Current equilibrium output and price level, labeled as Y_1 and PL_1
 - (ii) Full-employment output, labeled as Y_f
 - (b) Assume that the Federal Reserve targets a new federal funds rate to reach full employment. Should the Federal Reserve target a higher or lower federal funds rate?
 - (c) Given the Federal Reserve action you identified in part (b), draw a correctly labeled graph of the money market and show the effect on the nominal interest rate.
 - (d) The policy makers pursue a fiscal policy rather than the monetary policy in part (b). Assume that the marginal propensity to consume is 0.8 and the value of the recessionary gap is \$300 billion.
 - (i) If the government changes its spending without changing taxes to eliminate the recessionary gap, calculate the minimum required change in government spending.
 - (ii) If the government changes taxes without changing government spending to eliminate the recessionary gap, will the minimum required change in taxes be greater than, smaller than, or equal to the minimum required change in government spending in part (d)(i) ? Explain.
 - (e) Assume the government lowers income tax rates to eliminate the recessionary gap. Will each of the following increase, decrease, or stay the same?
 - (i) Aggregate demand. Explain.
 - (ii) Long-run aggregate supply. Explain.