

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.
- Will real output in Vortania increase, decrease, or remain the same in the short run? Explain.
  - 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?
- The capital and financial account (CFA) balance in Vortania. Explain.
  - 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.

2. The economy of Noralandia is in short-run equilibrium with an actual inflation rate that is currently higher than the expected inflation rate.
- Draw a correctly labeled graph of the short-run and long-run Phillips curves. Label the current short-run equilibrium point as X.
  - The banking system in Noralandia has ample reserves. Identify a specific monetary policy action that the central bank of Noralandia would take to bring the inflation rate closer to the expected inflation rate.
  - Noralandia has an open economy and a flexible exchange rate. Based solely on the effect of the monetary policy action identified in part (b) on interest rates in Noralandia, will there be an increase, a decrease, or no change in the flow of international financial capital into Noralandia? Explain.
  - Based on your answer to part (c), what will happen to the international value of Noralandia's currency? Explain.

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**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. The economy of Northland is in short-run equilibrium with an actual unemployment rate of 7% and an actual inflation rate of 1%. The natural unemployment rate in Northland is 5%.
- (a) Using the relevant numerical values given, draw a correctly labeled graph of the short-run and long-run Phillips curves. Label the current short-run equilibrium point as X. Plot the relevant numerical values provided on the graph.
- (b) Is the expected inflation rate greater than, less than, or equal to 1%? Explain.
- (c) Assume the marginal propensity to consume is 0.9.
- (i) If the government decreases income taxes by \$20 billion, calculate the maximum change in aggregate demand. Show your work.
- (ii) If instead the government increases spending by \$20 billion, calculate the maximum change in aggregate demand. Show your work.
- (d) On your graph in part (a), show a possible new short-run equilibrium point labeled Z that would result if the government increases spending and there is no change in inflationary expectations.
- (e) How would an increase in unemployment compensation affect aggregate demand in the short run? Explain.
- (f) Assume instead the government takes none of the preceding policy actions. (Northland is still in short-run equilibrium; the actual unemployment rate is 7%, the actual inflation rate is 1%, and the natural unemployment rate is 5%.) What will happen to each of the following in the long run?
- (i) The short-run aggregate supply curve. Explain.
- (ii) The short-run Phillips curve
- (iii) The actual unemployment rate

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2. An economy is currently in short-run equilibrium with a recessionary output gap of \$600 billion.
- (a) Draw a single correctly labeled graph with both the short-run and long-run Phillips curves. Label the initial short-run equilibrium point X.
- (b) Suppose the government implements fiscal policy in order to achieve full-employment output and the marginal propensity to consume is 0.75.
- (i) Calculate the minimum change in government spending required to increase aggregate demand by the amount of the output gap of \$600 billion. Show your work.
- (ii) Suppose instead the government wants to change taxes rather than government spending. Calculate the minimum change in taxes required to increase aggregate demand by the amount of the output gap of \$600 billion. Show your work.
- (c) Assume instead the government takes no policy action to close the output gap shown in part (a). Explain how the economy will adjust in the long run.

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2. Assume the expected inflation rate in a country is 3%, the current unemployment rate is 6%, and the natural rate of unemployment is 4%.
- (a) Draw a correctly labeled graph of the short-run and long-run Phillips curves. Label the current short-run equilibrium as point X and plot the numerical values above on the graph.
- (b) Is the actual inflation rate greater than, less than, or equal to the expected inflation rate of 3%?
- (c) Assume loans were made taking into account the expected inflation rate of 3%. Will lenders be better off or worse off after they realize the actual inflation rate identified in part (b)? Explain.
- (d) Based on the relationship between the actual and the expected inflation rates identified in part (a), what will happen to the natural rate of unemployment in the long run?

**MACROECONOMICS****Section II****Total Time—60 minutes****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 that the economy of Country X has an actual unemployment rate of 7%, a natural rate of unemployment of 5%, and an inflation rate of 3%.
  - (a) Using the numerical values given above, draw a correctly labeled graph of the short-run and long-run Phillips curves. Label the current short-run equilibrium as point B. Plot the numerical values above on the graph.
  - (b) Assume that the government of Country X takes no policy action to reduce unemployment. In the long run, will each of the following shift to the right, shift to the left, or remain the same?
    - (i) Short-run aggregate supply curve. Explain.
    - (ii) Long-run Phillips curve
  - (c) Identify a fiscal policy action that could be used to reduce the unemployment rate in the short run.
  - (d) Draw a correctly labeled graph of aggregate demand and short-run aggregate supply, and show the impact on the equilibrium price level and real gross domestic product (GDP) of the fiscal policy action identified in part (c).
  - (e) Based on the change in real GDP identified in part (d), will the supply of Country X's currency in the foreign exchange market increase, decrease, or remain the same? Explain.
  - (f) Based on your answer to part (e) and assuming a flexible exchange rate system, will Country X's currency appreciate, depreciate, or remain the same in the foreign exchange market?

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1. Assume that the United States economy is currently in a short-run equilibrium with the actual unemployment rate above the natural rate of unemployment.
  - (a) Draw a single correctly labeled graph with both the long-run Phillips curve and short-run Phillips curve. Label the current short-run equilibrium point P.
  - (b) Assuming no policy actions are taken, will the short-run Phillips curve shift to the right (upward), shift to the left (downward), or remain the same in the long run? Explain.
  - (c) If the Federal Reserve Bank wants to lower unemployment, what expansionary open-market operation should it use?
  - (d) How will the open-market operation you identified in part (c) affect each of the following?
    - (i) Federal funds rate. Explain.
    - (ii) Real interest rate in the short run.
  - (e) Given your answer in part (d)(ii), what is the effect on real gross domestic product (GDP) in the short run? Explain.
  - (f) Japan and the United States are major trading partners. Indicate how the change in real GDP you identified in part (e) will affect the demand for the Japanese yen in the foreign exchange market.
  - (g) Draw a correctly labeled graph of the foreign exchange market for the Japanese yen, showing the effect of the change in demand identified in part (f) on the value of the Japanese yen relative to the United States dollar.