

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.
2. The economies of Country L and Country A are currently in short-run equilibrium at output levels below full employment. Both countries intend to use monetary policy to close their output gaps. Country L has a banking system with limited reserves, and Country A has a banking system with ample reserves.
  - A. What open-market operation would Country L implement to move the economy toward full employment in the short run?
  - B. What specific monetary policy action would Country A implement to move the economy toward full employment in the short run?
  - C. Draw a correctly labeled graph of the reserve market in Country A, and show the effect of the monetary policy action identified in part B on the policy rate.
  - D. Assume instead that no policy actions are taken in Country A and that the economy remains in short-run equilibrium at an output level below full employment. Will short-run aggregate supply in Country A increase, decrease, or remain the same as the economy self-adjusts in the long 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.
- The equilibrium real output and price level, labeled  $Y_1$  and  $PL_1$ , respectively
  - 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.

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**END OF EXAM**

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?
- The price of previously issued bonds
  - The price level. Explain.

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

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**END OF EXAM**

2. The table below shows macroeconomic data for Country A.

| Year | Nominal GDP | GDP Deflator | Population |
|------|-------------|--------------|------------|
| 2020 | 40,000      | 100          | 100        |
| 2021 | 88,000      | 200          | 110        |

(a) Calculate each of the following for Country A in year 2021. Show your work.

(i) Real GDP

(ii) Real GDP per capita

(b) Based solely on the data provided, has the standard of living for the average person in Country A increased, decreased, or stayed the same between 2020 and 2021 ? Explain.

(c) How would an increase in government spending on education affect economic growth in Country A? Explain.

(d) Assume that Country A produces consumer goods and capital goods. Draw a correctly labeled production possibilities curve for Country A, and show the effect of the increase in government spending on education on your graph.

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