Past-paper walk-through

Monetary Policy ▪ 4.6

eXercise

Questions in this set

- 2026 Q1
- 2026 Q3
- 2025 Set 1 Q2
- 2025 Set 2 Q2
- 2024 Set 1 Q1
- 2024 Set 2 Q1
- 2023 Set 1 Q2
- 2023 Set 2 Q3
- 2021 Set 1 Q1
- 2021 Set 2 Q1

Questions in this set

- 2018 Q1
- 2015 Q1

Reading the mark scheme

- **B1** a mark that stands on its own – the point is either made or not.
- **M1** a *method* mark: the right approach, even if the number is wrong.
- **A1** an *answer* mark, and it usually needs its M mark first.
- **C1** a working mark on the way to the answer.
- // separates answers the examiner accepts equally.
- **ecf** = error carried forward: a later part is marked on your own earlier answer.
- **owtte** = "or words to that effect" – the wording need not match.

Question 1

2026 ▪ Q1

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

(a)(i) 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.

The current equilibrium real output and price level, labeled Y_1 and PL_1, respectively.

(a)(ii) 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.

The full-employment real output, labeled Y_F.

Question 1

2026 ▪ Q1

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

(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.

Question 1

2026 ▪ Q1

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

(c)(i) 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.

Identify a specific open-market operation that the central bank of Micanapy would implement to close the inflationary gap in the short run.

(c)(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.

Question 1

2026 ▪ Q1

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

(d)(i) 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?
International financial capital flows into Micanapy. Explain.

(d)(ii) 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?
The price of previously issued bonds in Micanapy.

(d)(iii) 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?
Private domestic investment spending in Micanapy.

Question 1

2026 ▪ Q1

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

(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.

Question 3

2026 ▪ Q3

Lizland is a small island nation, and its currency is the Lizland crown (LIZ). The economy of Lizland is in short-run macroeconomic equilibrium with a 600 million crown recessionary gap.

(a)(i) Policymakers in Lizland are considering taking action to close the recessionary gap in the short run.

The central bank of Lizland is considering implementing monetary policy. The banking system of Lizland has ample reserves. Identify a specific monetary policy action the central bank of Lizland would implement to close the recessionary gap in the short run.

(a)(ii) The government of Lizland is also considering changing its spending, and the marginal propensity to consume is 0.75. Calculate the minimum change in government spending and identify the direction of the change required to fully close the 600 million crown recessionary gap in the short run. Show your work.

Question 3

2026 ▪ Q3

Lizland is a small island nation, and its currency is the Lizland crown (LIZ). The economy of Lizland is in short-run macroeconomic equilibrium with a 600 million crown recessionary gap.

(b) Assume that the government of Lizland decides to change its spending as calculated in part A (ii). Based solely on this change, will the price level in Lizland increase, decrease, or remain the same in the short run? Explain.

Question 3

2026 ▪ Q3

Lizland is a small island nation, and its currency is the Lizland crown (LIZ). The economy of Lizland is in short-run macroeconomic equilibrium with a 600 million crown recessionary gap.

(c) The nations of Lizland and Andoh are trading partners with flexible exchange rates. The currency of Andoh is the Andoh note (AND). Draw a correctly labeled graph of the foreign exchange market for the Lizland crown (LIZ). Based solely on the change in the price level in part B, show the change in the international value of the Lizland crown on your graph.

Question 2

2025 Set 1 ▪ Q2

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.

Question 2

Will short-run aggregate supply in Country A increase, decrease, or remain the same as the economy self-adjusts in the long run? Explain.

Solution 2

(a)

Mark scheme

- Country L's central bank would conduct an open-market PURCHASE of bonds (buy government securities). This injects reserves into the banking system, increasing the money supply and lowering interest rates, which stimulates spending and moves the economy toward full employment. 1 point.

Solution 2

(b)

Mark scheme

- Country A's central bank would DECREASE its administered interest rate(s) — e.g., decrease the interest rate paid on reserves (or decrease the discount rate) — to lower the policy rate and stimulate the economy toward full employment. 1 point.

Solution 2

(c) Mark scheme

- Draw the reserve market in Country A: vertical axis = Policy Rate, horizontal axis = Quantity of Reserves; a vertical supply curve S_R and a demand curve D_R that intersects S_R in the flat ('ample reserves') portion of D_R, at policy rate PR_1 (1 point). Then show the monetary policy action from part B — a decrease in the administered interest rate (e.g., interest on reserves) — shifting the flat/lower-bound portion of D_R down, so the policy rate falls from PR_1 to PR_2 (equivalently accepted: show the lower bound of the demand curve shifting down with the same PR_1-to-PR_2 result) (1 point). 2 points total.

Solution 2

(d)

Mark scheme

- Short-run aggregate supply (SRAS) will INCREASE until it reaches full employment, as the economy self-corrects in the long run. With output below full employment, high unemployment pushes down input prices (e.g., nominal wages) and/or inflationary expectations, which increases (shifts right) SRAS. 1 point.

Question 2

2025 Set 2 ▪ Q2

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)(i) 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

Question 2

(c)(ii) 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 level. Explain.

Solution 2

(a)

Mark scheme

- The central bank should increase its administered interest rate(s) — e.g., increase the interest rate paid on reserves (IORB) — which raises the policy rate. Because reserves are ample, this is the specific lever the central bank uses to move the policy (federal-funds-type) rate; it is a contractionary monetary policy action, appropriate here for returning an overheated economy toward full employment.

Solution 2

(b) Mark scheme

- Draw a reserve-market graph: Policy Rate on the vertical axis, Quantity of Reserves on the horizontal axis. The demand curve D_R is downward-sloping then flat (horizontal) in the range of ample reserves; the supply curve S_R is vertical at Q1, intersecting D_R in its flat/ample-reserves segment at policy rate PR1. Then show the central bank's action from part A: the flat (lower-bound) portion of the demand curve shifts upward — from PR1 to PR2 — while S_R remains vertical at Q1, so the equilibrium policy rate rises from PR1 to PR2. Full credit requires: (1) a correctly labeled reserve-market graph with S_R and D_R intersecting in the ample-reserves (flat) range, and (2) a correct increase in the administered rate/lower bound of D_R that raises the equilibrium policy rate from PR1 to PR2.

Solution 2

(c)(i)

Mark scheme

- The price of previously issued bonds will decrease. Bond prices and interest rates move inversely, so as the policy/interest rate rises, the price of existing (fixed-coupon) bonds falls.

Solution 2

(c)(ii)

Mark scheme

- The price level will decrease. The increase in interest rates raises the cost of borrowing, which decreases interest-sensitive spending (consumption, investment, and/or net exports), decreasing aggregate demand and thus decreasing the price level.

Question 1

2024 Set 1 ▪ Q1

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.

Question 1

2024 Set 1 ▪ Q1

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%.

(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

Question 1

2024 Set 1 ▪ Q1

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%.

(c)(i) Assume that policymakers take no action to close the output gap.
Explain how Alpha's economy will adjust to full employment in the long run.

(c)(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.

Question 1

2024 Set 1 ▪ Q1

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%.

(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.

Question 1

2024 Set 1 ▪ Q1

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%.

(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.

Question 1

2024 Set 1 ▪ Q1

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%.

(f)(i) 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?

The price of previously issued bonds

(f)(ii) The price level. Explain.

Solution 1

(a)

Mark scheme

- Natural UER = Actual UER − Cyclical UER = 8% − 3% = 5%. (Equivalent method: Structural UER = Actual UER − Cyclical UER − Frictional UER = 8% − 3% − 4% = 1%; Natural UER = Frictional UER + Structural UER = 4% + 1% = 5%.) Final answer: natural rate of unemployment = 5%, with work shown by either method.

Solution 1

(b)

Mark scheme

- Draw a Price Level (vertical axis) vs. Real GDP (horizontal axis) graph. Point 1: a downward-sloping AD1 curve and an upward-sloping SRAS1 curve intersecting at a point labeled PL1 (price level) and Y1 (real GDP) directly below it. Point 2: add a vertical LRAS curve positioned to the right of Y1, with its base on the horizontal axis labeled YF (full-employment output) — showing Alpha currently below full employment (Y1 $<$ YF, a recessionary gap).

Solution 1

(c)(i)

Mark scheme

- With no policy action, the recessionary gap (Y1 $<$ YF) means unemployment exceeds the natural rate, so input prices (e.g., nominal wages) and/or inflationary expectations fall over time. This lowers production costs, causing SRAS to increase (shift right), and this continues until the economy returns to full employment output YF.

Solution 1

(c)(ii)

Mark scheme

- On the graph from part (b), shift SRAS1 rightward to SRAS2 so that it now intersects AD1 and LRAS at the same point, at output YF. Label the new, lower equilibrium price level PL2 (PL2 $<$ PL1). Also show the SRAS curve shifting right and output moving from Y1 to YF.

Solution 1

(d)

Mark scheme

- The central bank would decrease its administered interest rate(s) — e.g., decrease the interest rate paid on reserves (IOR) — or otherwise decrease interest on reserves, lowering the policy rate as expansionary monetary policy to close the recessionary output gap.

Solution 1

(e) Mark scheme

- Draw the reserve market graph: Policy Rate on the vertical axis, Quantity of Reserves on the horizontal axis. Point 1: a vertical supply curve SR and a demand curve DR that slopes down then becomes flat, intersecting SR within the flat 'ample reserves' region at PR1, Q1 — a correctly labeled graph with S intersecting D in the ample-reserves range. Point 2: show the effect of the action in part (d) — the administered rate (floor of DR) shifts down, so the flat portion of DR shifts down, producing a new, lower policy rate PR2 $<$ PR1 at the same quantity Q1 (equivalently framed as a decrease in the lower bound of the reserve demand curve lowering the policy rate).

Solution 1

(f)(i)

Mark scheme

- The price of previously issued bonds will increase. Because the policy/nominal interest rate has fallen, existing bonds carrying the older, higher fixed coupon become relatively more attractive, so their market price rises (bond prices move inversely with interest rates).

Solution 1

(f)(ii)

Mark scheme

- The price level will increase. Explanation: the decrease in the nominal interest rate lowers borrowing costs, which increases interest-sensitive spending — consumption (especially durable goods), investment, and/or net exports — thereby increasing aggregate demand (AD shifts right) and raising the price level in the short run.

Question 1

2024 Set 2 ▪ Q1

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.

(a)(i) The current equilibrium real output and price level, labeled Y_1 and PL_1, respectively

(a)(ii) The full employment output, labeled Y_F

Question 1

2024 Set 2 ▪ Q1

Assume that the economy of Moneyland is in equilibrium with an actual unemployment rate equal to the natural rate of unemployment.

(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.

(b)(i) Calculate the marginal propensity to consume in Moneyland. Show your work.

(b)(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.

Question 1

2024 Set 2 ▪ Q1

Assume that the economy of Moneyland is in equilibrium with an actual unemployment rate equal to the natural rate of unemployment.

(c) Following the decrease in consumer spending, explain how the economy would adjust in the long run in the absence of any policy actions.

Question 1

2024 Set 2 ▪ Q1

Assume that the economy of Moneyland is in equilibrium with an actual unemployment rate equal to the natural rate of unemployment.

(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.

Question 1

2024 Set 2 ▪ Q1

Assume that the economy of Moneyland is in equilibrium with an actual unemployment rate equal to the natural rate of unemployment.

(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.

Question 1

2024 Set 2 ▪ Q1

Assume that the economy of Moneyland is in equilibrium with an actual unemployment rate equal to the natural rate of unemployment.

(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?

(f)(i) The quantity of national savings

(f)(ii) Unemployment. Explain.

Solution 1

(a)

Mark scheme

- Setup instruction only (no independent points) — draw one AD–SRAS–LRAS diagram with Price Level on the vertical axis and Real GDP on the horizontal axis, showing a downward-sloping AD_1 curve and an upward-sloping $SRAS_1$ curve. The two scored elements are given in (a)(i) and (a)(ii).

Solution 1

(a)(i)

Mark scheme

- Label the intersection of AD_1 and $SRAS_1$: drop dashed lines to the axes to show equilibrium price level PL_1 (vertical axis) and equilibrium real output Y_1 (horizontal axis) at that intersection.

(a)(ii)

Mark scheme

- Add a vertical long-run aggregate supply curve (LRAS) positioned exactly at the $AD_1/SRAS_1$ intersection — i.e., at Y_1 — and label it Y_F, showing $Y_1 = Y_F$ (the economy begins at full-employment/potential output).

Solution 1

(b)

Mark scheme

- Stem/data only — consumer spending in Moneyland falls from \$110,000 to \$100,000 as disposable income falls from \$135,000 to \$110,000. Scored in (b)(i) and (b)(ii) below.

Solution 1

(b)(i)

Mark scheme

- $MPC = \dfrac{\Delta\text{Consumer Spending}}{\Delta\text{Disposable Income}} = \dfrac{\$100{,}000 - \$110{,}000}{\$110{,}000 - \$135{,}000} = \dfrac{-\$10{,}000}{-\$25{,}000} = 0.4.$
  Award the point for showing this calculation and arriving at $MPC = 0.4$.

Solution 1

(b)(ii)

Mark scheme

- On the graph from part (a), shift the AD curve leftward from AD_1 to AD_2 (a fall in consumer spending is a fall in aggregate demand). The new AD_2 curve intersects $SRAS_1$ at a lower price level, labeled PL_2 (with $PL_2 < PL_1$), and lower real output, labeled Y_2 (with $Y_2 < Y_1 = Y_F$).

Solution 1

(c)

Mark scheme

- Because Y_2 is below full-employment output Y_F, the economy has a recessionary (negative) output gap with higher-than-natural unemployment. This puts downward pressure on input prices (e.g., nominal wages) and/or lowers inflationary expectations, so short-run aggregate supply increases (SRAS shifts rightward) over time. SRAS keeps shifting right until it re-intersects AD_2 at Y_F, restoring full-employment equilibrium at a lower price level — the economy self-corrects without policy action.

Solution 1

(d)

Mark scheme

- The central bank should use expansionary monetary policy. Since the banking system has ample reserves, an open-market purchase would not move the policy rate; instead the central bank should decrease an administered rate — e.g., decrease the interest rate paid on reserve balances (interest on reserves), or decrease the discount rate — to pull the policy/floor rate down and lower the cost of borrowing, increasing consumer spending.

Solution 1

(e) Mark scheme

- Draw a reserve-market graph with Policy Rate on the vertical axis and Quantity of Reserves on the horizontal axis: a vertical reserve supply curve S_R in the ample-reserves range intersects the kinked demand curve D_R (downward-sloping then flat) on its flat segment, at quantity Q_1 and initial policy rate PR_1 (1 point). For the second point, show the effect of the monetary action from part (d): shift the flat (administered-rate) segment of D_R downward, so the new intersection with S_R occurs at the same quantity Q_1 but a lower policy rate $PR_2 < PR_1$ (a decrease in the lower bound of the demand curve for reserves, or equivalently a downward shift of the administered rate, lowers the policy rate).

Solution 1

(f)

Mark scheme

- Stem only — asks for the short-run effect of the lower policy rate from part (e) on (i) the quantity of national savings and (ii) unemployment. Scored in (f)(i) and (f)(ii) below.

Solution 1

(f)(i)

Mark scheme

- The quantity of national savings would decrease. A lower policy/interest rate reduces the return to saving, so households and firms choose to save less (equivalently, in the loanable funds market a lower interest rate corresponds to a lower quantity of national savings supplied).

Solution 1

(f)(ii)

Mark scheme

- Unemployment would decrease. Explanation: the decrease in the policy rate lowers nominal (and real) interest rates, which increases interest-sensitive spending — consumption (e.g., durable goods bought on credit), investment (business borrowing for capital), and/or net exports (via currency depreciation). This raises aggregate demand and real output, moving the economy back toward/beyond full employment and lowering the unemployment rate.

Question 2

2023 Set 1 ▪ Q2

The economy of Noralandia is in short-run equilibrium with an actual inflation rate that is currently higher than the expected inflation rate.

(a) Draw a correctly labeled graph of the short-run and long-run Phillips curves. Label the current short-run equilibrium point as X.

(b) 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.

(c) 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.

Question 2

(d) Based on your answer to part (c), what will happen to the international value of Noralandia's currency? Explain.

Solution 2

(a)

Mark scheme

- Draw a standard downward-sloping short-run Phillips curve (SRPC), with Inflation Rate on the vertical axis and Unemployment Rate on the horizontal axis — this earns Point 1. Then add a vertical long-run Phillips curve (LRPC) positioned at the natural rate of unemployment U_N, and label point X on the SRPC to the LEFT of the LRPC (i.e., at an unemployment rate below U_N, reflecting that the economy currently has unemployment below its natural rate and inflation above the long-run/expected rate) — this earns Point 2.

Solution 2

(b)

Mark scheme

- The central bank of Noralandia should increase its administered interest rate(s) (e.g., raise the policy/discount rate) or increase the interest rate paid on reserves — a contractionary monetary policy action appropriate given the banking system has ample reserves — in order to reduce inflation and move the economy back toward the long-run Phillips curve.

Solution 2

(c)

Mark scheme

- There will be an INCREASE in the flow of international financial capital into Noralandia. Explanation: the contractionary monetary policy action raises interest rates in Noralandia, so international investors seek out the higher returns now available on financial capital/assets in Noralandia, increasing capital inflows.

Solution 2

(d)

Mark scheme

- Noralandia's currency will APPRECIATE. Explanation: the increased inflow of international financial capital means foreign investors must buy Noralandia's currency to purchase Noralandian assets, which increases the demand for Noralandia's currency (or equivalently decreases the supply of it on the foreign exchange market), causing it to appreciate in international value.

Question 3

2023 Set 2 ▪ Q3

Assume that the economy of country Zen is in long-run macroeconomic equilibrium.
(a)(i) 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
(a)(ii) 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 full-employment output, labeled Y_F

Question 3

2023 Set 2 ▪ Q3

Assume that the economy of country Zen is in long-run macroeconomic equilibrium.

(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.

Question 3

2023 Set 2 ▪ Q3

Assume that the economy of country Zen is in long-run macroeconomic equilibrium.

(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.

Question 3

2023 Set 2 ▪ Q3

Assume that the economy of country Zen is in long-run macroeconomic equilibrium.

(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.

Solution 3

(a)(i)

Mark scheme

- Graph with Price Level on the vertical axis and Real GDP on the horizontal axis, showing a downward-sloping aggregate demand curve (AD_1) and an upward-sloping short-run aggregate supply curve ($SRAS_1$) intersecting at the current equilibrium, with the equilibrium price level labeled PL_1 and the equilibrium real output labeled Y_1; all curves and axes correctly labeled.

Solution 3

(a)(ii)

Mark scheme

- A vertical long-run aggregate supply curve (LRAS) is added to the same graph directly above the equilibrium real output, so that $Y_1 = Y_F$, showing the economy is currently producing at full-employment output.

Solution 3

(b)

Mark scheme

- On the AD–SRAS–LRAS graph from part (a), shift the aggregate demand curve rightward ($AD_1 \rightarrow AD_2$) to reflect the increase in consumer confidence (higher consumption spending). The new short-run equilibrium has a higher real output, labeled Y_2 (with $Y_2 > Y_1 = Y_F$), and a higher price level, labeled PL_2 (with $PL_2 > PL_1$).

Solution 3

(c)

Mark scheme

- The central bank would take a contractionary (tight) monetary policy action to pull the price level back down to PL_1: increase its administered interest rate (e.g., raise the policy/discount rate) or increase the interest rate paid on reserves (equivalently, sell government bonds on the open market to reduce the money supply and raise interest rates).

Solution 3

(d)

Mark scheme

- Real output will decrease. Explanation: the increase in interest rates raises the cost of borrowing, which decreases interest-sensitive spending (consumption, investment, and/or net exports); this decreases aggregate demand and lowers real output back toward $Y_1 = Y_F$.

Question 1

2021 Set 1 ▪ Q1

Assume the economy of Sweden is in long-run equilibrium and has a surplus in its current account.

(a) Is the Swedish capital and financial account in deficit, in surplus, or in balance? Explain.

Question 1

2021 Set 1 ▪ Q1

Assume the economy of Sweden is in long-run equilibrium and has a surplus in its current account.

(b) Draw a correctly labeled graph of short-run aggregate supply, long-run aggregate supply, and aggregate demand curves for Sweden, and show the current equilibrium real output, labeled Y_1, and the current equilibrium price level, labeled PL_1.

Question 1

2021 Set 1 ▪ Q1

Assume the economy of Sweden is in long-run equilibrium and has a surplus in its current account.

(c) Assume the United Kingdom decreases its imports from Sweden. On your graph in part (b), show the new equilibrium real output, labeled Y_2, and the new equilibrium price level, labeled PL_2, as a result of this change.

Question 1

2021 Set 1 ▪ Q1

Assume the economy of Sweden is in long-run equilibrium and has a surplus in its current account.

(d) As a result of the decrease in the United Kingdom's imports from Sweden, would policy makers in Sweden be more concerned about cyclical unemployment or inflationary pressures in the short run? Explain.

Question 1

2021 Set 1 ▪ Q1

Assume the economy of Sweden is in long-run equilibrium and has a surplus in its current account.

(e) If the Swedish central bank's goal is to return the economy to long-run equilibrium, what open-market operation should it use?

Question 1

2021 Set 1 ▪ Q1

Assume the economy of Sweden is in long-run equilibrium and has a surplus in its current account.

(f) The currency of the United Kingdom is the pound, and the currency of Sweden is the krona. Draw a correctly labeled graph of the foreign exchange market for the krona, and show the impact of the decrease in the United Kingdom's imports from Sweden on the value of the krona in the foreign exchange market.

Question 1

2021 Set 1 ▪ Q1

Assume the economy of Sweden is in long-run equilibrium and has a surplus in its current account.

(g) If the Swedish central bank's goal is to reverse the exchange rate change shown in part (f) by changing the interest rate, what open-market operation should it use?

Question 1

2021 Set 1 ▪ Q1

Assume the economy of Sweden is in long-run equilibrium and has a surplus in its current account.

(h) Explain how the open-market operation identified in part (g) would reverse the change in the exchange rate.

Solution 1

(a)

Mark scheme

- The Swedish capital and financial account (CFA) is in deficit. Explanation: the current account (CA) is stated to be in surplus, and by the balance-of-payments identity CA + CFA = 0, so if CA is positive, CFA must be negative, i.e., in deficit.

Solution 1

(b) Mark scheme

- Draw a correctly labeled AD-AS graph with vertical axis 'Price Level' and horizontal axis 'Real GDP': an upward-sloping $SRAS_1$ curve and a downward-sloping AD_1 curve intersecting at price level PL_1 and real output Y_1 (dashed reference lines to both axes). [1 point] For the second point, the same graph must additionally show a vertical LRAS curve located exactly at Y_1, i.e., LRAS, $SRAS_1$, and AD_1 all intersect at one point (PL_1, Y_1), confirming the economy begins in long-run equilibrium. [1 point] Total 2 points for a correctly labeled three-curve graph (LRAS, $SRAS_1$, AD_1) meeting at (Y_1, PL_1).

Solution 1

(c)

Mark scheme

- On the graph from part (b), shift AD_1 leftward to AD_2 (arrow pointing left), producing a new intersection with $SRAS_1$ at a lower real output Y_2 ($Y_2 < Y_1$) and a lower price level PL_2 ($PL_2 < PL_1$), both shown with dashed reference lines to the axes. This reflects the UK's decreased imports from Sweden reducing Swedish net exports and shifting AD left.

Solution 1

(d)

Mark scheme

- State that Swedish policymakers would be more concerned about cyclical unemployment than inflationary pressures in the short run. Explain: the decline in exports to the United Kingdom lowered real output below full employment (Y_2 is below the LRAS level Y_1), pushing unemployment above the natural rate of unemployment.

Solution 1

(e)

Mark scheme

- The Swedish central bank should buy bonds — an expansionary open-market purchase that increases the money supply and lowers interest rates, stimulating AD back toward long-run equilibrium output Y_1.

Solution 1

(f) Mark scheme

- Draw a correctly labeled foreign-exchange market graph for the krona: vertical axis 'Pounds per Krona,' horizontal axis 'Quantity of Krona,' with an upward-sloping supply curve S_1 and a downward-sloping demand curve D_1 intersecting at exchange rate e_1 and quantity Q_1 (dashed lines to axes). [1 point] For the second point, show the demand curve for krona shifting leftward from D_1 to D_2 (the UK now buys fewer Swedish goods, so it needs fewer krona to pay for them), giving a new lower equilibrium exchange rate e_2 ($e_2 < e_1$, marked below e_1) — i.e., a decrease in the value of the krona. [1 point] Total 2 points.

Solution 1

(g)

Mark scheme

- Sweden's central bank should sell bonds — a contractionary open-market sale that raises domestic interest rates, intended to reverse the krona's depreciation shown in part (f).

Solution 1

(h)

Mark scheme

- Explain that selling bonds decreases the money supply and increases interest rates in Sweden; the higher interest rates increase financial capital inflows into Sweden, which increases demand for the krona in the foreign exchange market, thereby leading to an appreciation (increase in value) of the krona — reversing the exchange-rate change from part (f).

Question 1

2021 Set 2 ▪ Q1

Assume Smithland is in short-run equilibrium at a level of output that exceeds the full-employment level of 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 Y_1 and PL_1, respectively

(ii) The full-employment output, labeled Y_F

Question 1

2021 Set 2 ▪ Q1

Assume Smithland is in short-run equilibrium at a level of output that exceeds the full-employment level of output.

(b) Assume Smithland's government cuts individual income taxes. On your graph in part (a), show the short-run effect of the tax cut on equilibrium real output, labeling the new short-run equilibrium real output Y_2.

Question 1

2021 Set 2 ▪ Q1

Assume Smithland is in short-run equilibrium at a level of output that exceeds the full-employment level of output.

(c)(i) Based solely on the change in real output on your graph in part (b), what will happen to each of the following in the short run?

The natural rate of unemployment

(c)(ii) Based solely on the change in real output on your graph in part (b), what will happen to each of the following in the short run?

Nominal interest rates. Explain.

Question 1

2021 Set 2 ▪ Q1

Assume Smithland is in short-run equilibrium at a level of output that exceeds the full-employment level of output.

(d) Assume instead the central bank intervenes to correct an inflationary output gap. What open-market operation should the central bank take?

Question 1

2021 Set 2 ▪ Q1

Assume Smithland is in short-run equilibrium at a level of output that exceeds the full-employment level of output.

(e) Draw a correctly labeled graph of the money market, and show the effect of the open-market operation identified in part (d) on the nominal interest rate.

Question 1

2021 Set 2 ▪ Q1

Assume Smithland is in short-run equilibrium at a level of output that exceeds the full-employment level of output.

(f) Based solely on the interest rate change identified in part (e), what will happen to the international value of Smithland's currency in the foreign exchange market? Explain.

Question 1

2021 Set 2 ▪ Q1

Assume Smithland is in short-run equilibrium at a level of output that exceeds the full-employment level of output.

(g) Based solely on the exchange rate change identified in part (f), will Smithland's imports increase, decrease, or remain the same? Explain.

Solution 1

(a)

Mark scheme

- Draw a correctly labeled AD–SRAS–LRAS graph. First point: a downward-sloping AD and upward-sloping SRAS intersecting at the current equilibrium, with dashed lines to the axes labeling the price level PL and real output Y at that intersection. Second point: add a vertical LRAS curve positioned to the LEFT of Y , with its base labeled Y_F (full-employment output), showing the economy is currently above full employment (an inflationary gap). 2 points: 1 for the correctly labeled AD/SRAS graph with PL , Y at the intersection; 1 for the vertical LRAS left of Y labeled Y_F.

Solution 1

(b)

Mark scheme

- On the same graph, show the short-run effect of the income tax cut: AD shifts rightward from AD to AD (an arrow indicating the rightward shift), intersecting SRAS at a higher real output level, labeled Y (with Y $>$ Y , shown via a dashed line and rightward arrow along the horizontal axis). 1 point for correctly showing the rightward AD shift and labeling the new short-run equilibrium output Y .

Solution 1

(c)(i)

Mark scheme

- The natural rate of unemployment will NOT change. It is determined by structural/frictional factors in the labor market, not by short-run cyclical changes in real output, so the AD-driven increase in Y from Y to Y has no effect on it. 1 point.

Solution 1

(c)(ii)

Mark scheme

- Nominal interest rates will INCREASE. Explanation: the increase in real output ($Y \rightarrow Y$) raises households' and firms' income, which increases the (transactions) demand for money; with the money supply unchanged, the higher money demand raises the equilibrium nominal interest rate. 1 point for stating the increase AND giving this explanation.

Solution 1

(d)

Mark scheme

- The central bank should SELL bonds (a contractionary open-market operation) to reduce the money supply and correct the inflationary output gap. 1 point.

Solution 1

(e) Mark scheme

- Draw a correctly labeled money market graph: vertical axis = nominal interest rate, horizontal axis = quantity of money; a vertical money supply curve MS and a downward-sloping money demand curve MD intersecting at nominal interest rate i (1 point). Second point: show MS shifting LEFTWARD to MS (consistent with the central bank selling bonds in part (d)), intersecting MD at a higher nominal interest rate i > i (dashed lines to i and i , arrow showing the leftward shift and the upward interest-rate movement). 2 points total: 1 for the correctly labeled base money-market graph, 1 for the leftward MS shift raising the nominal interest rate.

Solution 1

(f)

Mark scheme

- Smithland's currency will APPRECIATE. Explanation: the higher domestic nominal interest rate (from part (e)) attracts financial capital inflows as foreign investors seek the higher returns available in Smithland, which increases the demand for (or decreases the supply of) Smithland's currency on the foreign exchange market, causing it to appreciate. 1 point for stating appreciation AND giving this explanation.

Solution 1

(g)

Mark scheme

- Smithland's imports will INCREASE. Explanation: the appreciation of Smithland's currency makes foreign goods relatively less expensive (cheaper in domestic-currency terms) for Smithland's residents, so the quantity of imports purchased rises. 1 point for stating increase AND giving this explanation.

Question 1

2018 ▪ Q1

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.

(a)(i) Current price level, labeled PL_1

(a)(ii) Current output, labeled Y_1

Question 1

2018 ▪ Q1

Assume the United States economy is in recession.

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

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

(b)(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.

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

Question 1

2018 ▪ Q1

Assume the United States economy is in recession.

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

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

(c)(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.

Question 1

2018 ▪ Q1

Assume the United States economy is in recession.

(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?

(d)(i) Aggregate demand in the United States

(d)(ii) The price level in the United States

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

Solution 1

(a)

Mark scheme

- Draw a correctly labeled graph with Price Level on the vertical axis and Real GDP on the horizontal axis, showing a downward-sloping AD curve and an upward-sloping SRAS curve intersecting at one point, plus a vertical LRAS curve drawn to the right of that intersection (at Y_1), indicating the economy is currently producing below potential/full-employment output Y_f. This earns the point for drawing a vertical LRAS curve to the right of Y_1.

Solution 1

(a)(i)

Mark scheme

- Label the price level at the intersection of AD and SRAS as PL_1 (a dashed line from the intersection to the price-level axis). Together with correctly drawn AD/SRAS curves and the Y_1 label, this earns the one point for 'showing PL_1 and Y_1 at the intersection of AD and SRAS.'

Solution 1

(a)(ii)

Mark scheme

- Label the output level at the intersection of AD and SRAS as Y_1 (a dashed line from the intersection to the real-GDP axis). No separate point is allocated beyond 1(a)(i) — the scoring guidelines award a single combined point for showing both PL_1 and Y_1 at the AD-SRAS intersection.

Solution 1

(b)

Mark scheme

- Setup/preamble sentence introducing the euro-zone recession scenario; carries no points of its own. The 3 points for part (b) are scored across (b)(i)-(b)(iii).

(b)(i)

Mark scheme

- United States exports to the euro zone will decrease. Explanation: the recession lowers income in the euro zone, which reduces euro-zone demand for United States goods (exports).

Solution 1

(b)(ii)

Mark scheme

- On the graph from part (a), show a leftward shift of the aggregate demand curve from AD to AD_2, with the new intersection with SRAS occurring at a lower output level $Y_2 < Y_1$ (and a lower price level), showing lower U.S. real output.

Solution 1

(b)(iii)

Mark scheme

- Unemployment in the United States will increase, since lower real output/aggregate demand means firms need less labor, raising unemployment.

Solution 1

(c)

Mark scheme

- Setup/preamble sentence introducing the decrease in demand for U.S. dollars in the foreign exchange market; carries no points of its own. The 2 points for part (c) are scored across (c)(i)-(c)(ii).

Solution 1

(c)(i)

Mark scheme

- The euro will appreciate against the U.S. dollar. Explanation: the supply of euros (offered in exchange for dollars) decreases as the demand for dollars falls, OR equivalently, since the dollar depreciates against the euro, the euro must appreciate against the dollar.

Solution 1

(c)(ii)

Mark scheme

- Draw a correctly labeled graph of the foreign exchange market for dollars (Euro/U.S. Dollar exchange rate on the vertical axis, Quantity of U.S. Dollars on the horizontal axis) with an upward-sloping supply curve (S) and a downward-sloping demand curve (D) for dollars. Show the demand curve shifting leftward to D', producing a lower equilibrium exchange rate $e_2 < e_1$ — i.e., a depreciation of the dollar (equivalently, an appreciation of the euro).

Solution 1

(d)

Mark scheme

- Setup/preamble sentence introducing the combined expansionary fiscal and monetary policy scenario; carries no points of its own. The 3 points for part (d) are scored across (d)(i)-(d)(iii).

Solution 1

(d)(i)

Mark scheme

- Aggregate demand in the United States will increase, since both expansionary fiscal policy (higher government spending / lower taxes) and expansionary monetary policy (lower interest rates stimulating investment/consumption) raise aggregate demand.

Solution 1

(d)(ii)

Mark scheme

- The price level in the United States will increase, since the rightward shift of aggregate demand raises the equilibrium price level along the upward-sloping SRAS curve.

Solution 1

(d)(iii)

Mark scheme

- The change in the interest rate is indeterminate. Explanation: expansionary fiscal policy and expansionary monetary policy have opposite effects on interest rates — expansionary fiscal policy tends to increase the interest rate (government borrowing to finance the higher spending increases the demand for loanable funds), while expansionary monetary policy tends to increase the money supply and decrease the interest rate. Because these two effects work in opposite directions, the net effect on interest rates cannot be determined without more information.

Question 1

2015 ▪ Q1

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.

Question 1

(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?

Question 1

(i) Aggregate demand. Explain.

(ii) Long-run aggregate supply. Explain.

Solution 1

(a)

Mark scheme

- Setup/instruction for the graph — no separate credit. Draw axes with Price Level (vertical) and Real GDP (horizontal); a downward-sloping AD curve and an upward-sloping SRAS curve. Credit for this graph is earned via parts (a)(i) (initial equilibrium labels Y_1, PL_1) and (a)(ii) (LRAS placement) below.

Solution 1

(a)(i)

Mark scheme

- Label the initial equilibrium — where AD intersects SRAS — as Y_1 on the real-GDP axis and PL_1 on the price-level axis. One point is earned for a correctly labeled graph showing AD, SRAS, Y_1, and PL_1.

Solution 1

(a)(ii)

Mark scheme

- Draw a vertical long-run aggregate supply (LRAS) curve at Y_f, positioned to the right of Y_1 (the economy starts in a recessionary gap, so $Y_1 < Y_f$). One point is earned for drawing a vertical LRAS at Y_f to the right of Y_1.

Solution 1

(b)

Mark scheme

- The Federal Reserve should target a LOWER federal funds rate. A lower target rate is expansionary monetary policy, needed to close the recessionary gap ($Y_1 < Y_f$) and move the economy toward full employment. One point is earned for stating 'lower.'

Solution 1

(c)

Mark scheme

- Draw a correctly labeled money market graph: vertical axis = nominal interest rate, horizontal axis = quantity of money, with a downward-sloping money demand (MD) curve and vertical money supply curves MS_1/MS_2. To lower the federal funds rate, the Fed increases the money supply — shift MS_1 right to MS_2 (from M_1 to M_2), lowering the nominal interest rate from r_1 to r_2. One point for a correctly labeled graph; one point for shifting money supply right and showing the resulting decrease in the nominal interest rate.

Solution 1

(d)

Mark scheme

- Setup only — no separate credit. Given: MPC $= 0.8$ (so MPS $= 0.2$) and a recessionary gap of \$300 billion. These numbers are used in parts (d)(i) and (d)(ii) below.

(d)(i)

Mark scheme

- Spending multiplier $= 1/MPS = 1/0.2 = 5$. Minimum required change in government spending $=$ recessionary gap $\div$ spending multiplier $= \$300$ billion$/5 = \$\mathbf{60}$ billion. One point is earned for this calculation.

Solution 1

(d)(ii)

Mark scheme

- The minimum required change in taxes will be GREATER than the minimum required change in government spending from part (d)(i). Explanation: the tax multiplier $= MPC/MPS = 0.8/0.2 = 4$ is smaller in magnitude than the government-spending multiplier $= 1/MPS = 1/0.2 = 5$, because part of the initial increase in disposable income from a tax cut is saved rather than spent — only the MPC share is spent — so a larger tax cut than spending increase is needed to close the same gap. One point for stating 'greater than'; one point for this multiplier explanation.

Solution 1

(e)

Mark scheme

- Setup only — the government lowers income tax rates to eliminate the recessionary gap; effects on (e)(i) aggregate demand and (e)(ii) long-run aggregate supply are graded separately below.

Solution 1

(e)(i)

Mark scheme

- Aggregate demand will INCREASE. Explanation: lower income tax rates raise households' disposable income, which increases consumption and/or investment, shifting AD to the right. One point is earned for stating AD increases with this explanation.

Solution 1

(e)(ii)

Mark scheme

- Long-run aggregate supply — any ONE of the following earns the point: (1) LRAS stays the SAME, because lowering income taxes raises consumption/investment (demand-side) but does not change the economy's inputs (labor, capital, technology, resources); OR (2) LRAS INCREASES in the long run, because lower taxes raise savings and investment in physical capital, or increase incentives to work; OR (3) LRAS DECREASES in the long run, because lower taxes cause crowding out of private investment. One point is earned for stating and explaining any one of these three positions.