

Past-paper walk-through

Aggregate Demand (AD) ■ 3.1

eXercise

Questions in this set

- 2026 Q1
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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 1

2025 Set 1 ■ Q1

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.

Question 1

2025 Set 1 ■ Q1

Assume that the economy of Vortania is in long-run equilibrium.

(b) Assume that new residential construction projects are being implemented in Vortania.

(b)(i) Will real output in Vortania increase, decrease, or remain the same in the short run? Explain.

(b)(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.

Question 1

2025 Set 1 ■ Q1

Assume that the economy of Vortania is in long-run equilibrium.

(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.

Question 1

2025 Set 1 ■ Q1

Assume that the economy of Vortania is in long-run equilibrium.

(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?

Question 1

2025 Set 1 ■ Q1

Assume that the economy of Vortania is in long-run equilibrium.

(e) Based on the change in net exports identified in part D, what will happen to each of the following in the short run?

(e)(i) The capital and financial account (CFA) balance in Vortania. Explain.

(e)(ii) Employment in Vortania

Question 1

2025 Set 1 ■ Q1

Assume that the economy of Vortania is in long-run equilibrium.

(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.

Solution 1

(a)

Mark scheme

- Draw a downward-sloping short-run Phillips curve (SRPC) with Inflation Rate (%) on the vertical axis and Unemployment Rate (%) on the horizontal axis (1 point). Then add a vertical long-run Phillips curve (LRPC) at the natural rate of unemployment U_N , and label the point where the SRPC crosses the LRPC as P (1 point). 2 points total.

Solution 1

(b)

Mark scheme

- This line is only the stem introducing part B ('Assume that new residential construction projects are being implemented in Vortania'); it states an assumption and has no separately scorable content of its own. Both points for part B are earned under B(i) and B(ii).

Solution 1

(b)(i)

Mark scheme

- Real output will INCREASE in the short run. New residential construction projects raise investment spending (a component of aggregate demand), which increases aggregate demand and moves the economy along the SRPC to higher output. 1 point for stating 'increase' with this investment-spending explanation.

Solution 1

(b)(ii)

Mark scheme

- On the graph from part A, plot a new point S on the (unchanged) SRPC to the LEFT of point P — i.e., at lower unemployment and higher inflation than P. Because inflationary expectations are unchanged, the SRPC itself does not shift; the economy simply moves along the existing SRPC as aggregate demand rises. 1 point.

Solution 1

(c) Mark scheme

- Draw the foreign exchange market for the Vortanian crown (VTC): vertical axis = price of VTC in RHM/VTC, horizontal axis = Quantity of VTC, with a downward-sloping demand curve D_{VTC_1} and an upward-sloping supply curve S_{VTC_1} intersecting at exchange rate e_1 and quantity Q_1 (1 point). Then show that the tariffs on Rhodaran imports cause Vortanians to buy fewer Rhodaran goods, so they supply fewer crowns in the foreign exchange market: the supply curve shifts LEFT to S_{VTC_2} , raising the equilibrium exchange rate to $e_2 > e_1$ (an appreciation of the crown) and lowering the quantity traded to $Q_2 < Q_1$ (1 point). 2 points total.

Solution 1

(d)

Mark scheme

- Vortania's net exports will DECREASE. The crown appreciated (part C), making Vortanian exports more expensive to foreigners and Rhodaran imports cheaper to Vortanians, so exports fall and imports rise, decreasing net exports. 1 point.

Solution 1

(e)

Mark scheme

- This line is only the stem introducing part E ('Based on the change in net exports identified in part D, what will happen to each of the following in the short run?'); it has no separately scorable content of its own. Both points for part E are earned under E(i) and E(ii).

Solution 1

(e)(i)

Mark scheme

- The capital and financial account (CFA) balance in Vortania will move into SURPLUS. Because the current account (CA) moved into deficit (net exports fell, part D) and the balance of payments must balance ($CA + CFA = 0$), the CFA balance must move into surplus to offset the CA deficit. 1 point.

Solution 1

(e)(ii)

Mark scheme

- Employment in Vortania will DECREASE. The fall in net exports (part D) is a fall in a component of aggregate demand, so AD decreases, decreasing short-run real output and therefore employment. 1 point.

Solution 1

(f)

Mark scheme

- The central bank of Vortania would SELL Vortanian crowns in the foreign exchange market. Selling crowns increases the supply of VTC, which depreciates the crown back toward its pre-tariff international value, reversing the appreciation from part C. 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 Q_1 , intersecting D_R in its flat/ample-reserves segment at policy rate PR_1 . Then show the central bank's action from part A: the flat (lower-bound) portion of the demand curve shifts upward — from PR_1 to PR_2 — while S_R remains vertical at Q_1 , so the equilibrium policy rate rises from PR_1 to PR_2 . 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 PR_1 to PR_2 .

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 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

$$\blacksquare \text{ MPC} = \frac{\Delta \text{Consumer Spending}}{\Delta \text{Disposable Income}} = \frac{\$100,000 - \$110,000}{\$110,000 - \$135,000} = \frac{-\$10,000}{-\$25,000} = 0.4.$$

Award the point for showing this calculation and arriving at $\text{MPC} = 0.4$.

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 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

2022 Set 1 ■ Q1

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 .

Question 1

- (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.

Solution 1

(a)

Mark scheme

- Draw an AD-AS graph: downward-sloping AD_1 , upward-sloping $SRAS_1$ (axes: Price Level vertical, Real GDP horizontal), intersecting at price level PL_1 and real output Y_1 — 1 point. Add a vertical LRAS line positioned to the right of Y_1 , labeled Y_F (full-employment/potential output), showing $Y_1 < Y_F$ (a recessionary gap) — 1 point. Total 2 points for a correctly labeled graph showing both the current equilibrium (PL_1, Y_1) and full-employment output Y_F .

Solution 1

(b)

Mark scheme

- Any one expansionary fiscal policy action: an increase in government spending, a decrease in taxes, or an increase in transfer payments. 1 point for correctly identifying any one of these (each would increase aggregate demand, closing the recessionary gap and restoring full employment).

Solution 1

(c)

Mark scheme

- Minimum change in investment spending = $200 \text{ billion} \div (1/0.25) = 200 \text{ billion} \times 0.25 = 50 \text{ billion}$. *Show work: the spending multiplier = $1/MPS = 1/0.25 = 4$; $\Delta I = \Delta Y \div \text{multiplier} = 200 \text{ billion} \div 4 = 50 \text{ billion}$. 1 point for the correct answer (50 billion) with work shown.*

Solution 1

(d)

Mark scheme

- On the graph from part (a), shift AD_1 rightward to AD_2 (reflecting the increase in investment spending), intersecting $SRAS_1$ at a new equilibrium with a higher price level PL_2 ($PL_2 > PL_1$) and higher real output Y_2 ($Y_1 < Y_2 < Y_F$ — still below full-employment output). 1 point for a correctly shown rightward AD shift with PL_2 and Y_2 labeled at the new, higher intersection that remains left of Y_F .

Solution 1

(e)

Mark scheme

- The actual rate of unemployment is greater than the natural rate of unemployment. Explanation: because Y_2 is still less than Y_F (full-employment output), the economy remains in a recessionary gap — actual output is below potential output, so actual unemployment exceeds the natural rate. 1 point for the correct comparison (actual $>$ natural) together with this explanation.

Solution 1

(f)

Mark scheme

- Draw the loanable funds market: downward-sloping demand D_{LF_1} , upward-sloping supply S_{LF_1} (axes: Real Interest Rate vertical, Quantity of Loanable Funds horizontal), equilibrium at r_1 , Q_1 — 1 point. Shift the supply curve rightward ($S_{LF_1} \rightarrow S_{LF_2}$, reflecting the increase in private savings), producing a new equilibrium with a lower real interest rate r_2 ($r_2 < r_1$) and a higher quantity Q_2 — 1 point. Total 2 points.

Solution 1

(g)(i)

Mark scheme

- Real GDP will increase in the short run. Explanation: the lower real interest rate (from part f) reduces the cost of borrowing, increasing interest-sensitive spending (consumption, investment, and/or net exports), which increases aggregate demand and therefore short-run real GDP. 1 point for the correct direction (increase) with this explanation.

Solution 1

(g)(ii)

Mark scheme

- Long-run aggregate supply (LRAS) will increase. Explanation: the decrease in the real interest rate lowers the cost of borrowing, which increases investment spending on plant and equipment (capital formation); the resulting increase in the capital stock increases the economy's potential output, shifting LRAS rightward. 1 point for the correct direction (increase) with this explanation.

Question 3

2021 Set 1 ■ Q3

Flowerland is an open economy with a flexible exchange rate regime. The natural rate of unemployment is 5%, the frictional rate of unemployment is 4%, and the actual rate of unemployment is 7%.

(a) What is the numerical value of the cyclical rate of unemployment in Flowerland?

Question 3

2021 Set 1 ■ Q3

Flowerland is an open economy with a flexible exchange rate regime. The natural rate of unemployment is 5%, the frictional rate of unemployment is 4%, and the actual rate of unemployment is 7%.

(b) Assume the foreign demand for lavender oil produced in Flowerland increases.

What will happen to each of the following in Flowerland in the short run?

(b)(i) Aggregate demand. Explain.

(b)(ii) Cyclical unemployment.

Question 3

2021 Set 1 ■ Q3

Flowerland is an open economy with a flexible exchange rate regime. The natural rate of unemployment is 5%, the frictional rate of unemployment is 4%, and the actual rate of unemployment is 7%.

(c) The table shows the market basket quantities and prices of lavender oil and roses, the only two goods produced in Flowerland.

Goods	Quantity (in units)	2019 Price per Unit	2020 Price per Unit
Lavender oil	40	\$3	\$4
Roses	4	\$20	\$25

Question 3

Assume 2019 is the base year. Based on the data in the table, calculate the price index for year 2020 in Flowerland. Show your work.

Question 3

2021 Set 1 ■ Q3

Flowerland is an open economy with a flexible exchange rate regime. The natural rate of unemployment is 5%, the frictional rate of unemployment is 4%, and the actual rate of unemployment is 7%.

(d) If nominal income in Flowerland increased by 20% from 2019 to 2020, will the standard of living of the average citizen of Flowerland increase, decrease, or stay the same from 2019 to 2020? Explain.

Solution 3

(a)

Mark scheme

- The numerical value of the cyclical rate of unemployment in Flowerland is 2%.

Solution 3

(b)

Mark scheme

- This is the question stem introducing two sub-parts, (i) and (ii), about the short-run effects on Flowerland of an increase in foreign demand for lavender oil; it carries no points of its own in the scoring guidelines. The 2 points for this part are allocated entirely to 3(b)(i) and 3(b)(ii) below.

Solution 3

(b)(i)

Mark scheme

- State that aggregate demand will increase. Explain: an increase in foreign demand for lavender oil (a Flowerland export) increases net exports, a component of aggregate demand, so AD increases.

(b)(ii)

Mark scheme

- State that cyclical unemployment will decrease, as the increase in aggregate demand raises real output and employment, reducing cyclical unemployment.

Solution 3

(c)

Mark scheme

- Calculate the price index for year 2020 as 130, showing work: Price Index = $\left[\frac{\text{Value of the market basket in 2020}}{\text{Value of the market basket in 2019}} \right] \times 100 = \frac{(\$4 \times 40) + (\$25 \times 4)}{(\$3 \times 40) + (\$20 \times 4)} \times 100 = \frac{\$260}{\$200} \times 100 = 130$.

Solution 3

(d)

Mark scheme

- State that the standard of living of the average citizen of Flowerland will decrease. Explain: nominal income increased by 20% from 2019 to 2020, but this is less than the inflation rate over the same period (the price index rose from 100 to 130, i.e., 30% inflation), so real income falls, decreasing the standard of living.

Question 2

2018 ■ Q2

Assume the economy of Ucheland is currently at full employment. The government of Ucheland reduces the tax rate on household interest earnings.

- (a)** What will happen to private savings in Ucheland?
- (b)** Draw a correctly labeled graph of the loanable funds market, and show the effect of the change in private savings identified in part (a) on the equilibrium real interest rate.
- (c)** Given the real interest rate change identified in part (b), answer the following questions.
 - (c)(i)** What is the short-run effect on aggregate demand? Explain.
 - (c)(ii)** What is the long-run effect on potential real gross domestic product in Ucheland? Explain.

Solution 2

(a)

Mark scheme

- Private savings will increase, as the scenario's change (e.g. higher disposable income net of consumption/taxes) raises the amount households save.

Solution 2

(b) Mark scheme

- Draw a correctly labeled graph of the loanable funds market: Real Interest Rate on the vertical axis, Quantity of Loanable Funds on the horizontal axis, with a downward-sloping demand curve (D) and an upward-sloping supply curve (S) — this earns the first point. Then show the supply curve shifting rightward from S to S' (reflecting the increase in private savings from part (a)), producing a new, lower equilibrium real interest rate $r' < r$ at a higher equilibrium quantity $Q' > Q$ — this earns the second point for showing the rightward shift and the resulting decrease in the equilibrium real interest rate.

Solution 2

(c)

Mark scheme

- Setup/preamble sentence referencing the real-interest-rate change identified in part (b); carries no points of its own. The 2 points for part (c) are scored across (c)(i)-(c)(ii).

Solution 2

(c)(i)

Mark scheme

- In the short run, aggregate demand will increase. Explanation: the decrease in the real interest rate lowers the cost of borrowing, increasing interest-sensitive spending — consumption, investment, and/or net exports — thereby increasing aggregate demand.

Solution 2

(c)(ii)

Mark scheme

- In the long run, potential real GDP in Ucheland will increase. Explanation: the lower real interest rate increases investment spending, which increases capital formation (the capital stock); a larger capital stock raises the economy's productive capacity, increasing potential real GDP (equivalently, shifting long-run aggregate supply rightward).

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 $= \text{recessionary gap} \div \text{spending multiplier}$
 $= \$300 \text{ billion} / 5 = \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.

Question 3

2014 ■ Q3

The United States and South Korea are trading partners, and the United States has a zero current account balance. Assume now that the inflation rate in the United States decreases relative to the inflation rate in South Korea.

(a) Based on the decrease in the inflation rate in the United States, will United States exports to South Korea increase or decrease?

(b)(i) Based on the change in United States exports in part (a), answer each of the following.

Will the United States current account balance remain at zero, be in surplus, or be in deficit?

(b)(ii) What will happen to real gross domestic product in the United States in the short run? Explain.

Question 3

(c) The South Korean currency is the won. Draw a correctly labeled graph of the foreign exchange market for the United States dollar. Show the effect of the lower inflation rate in the United States on the won price per United States dollar.

Solution 3

(a)

Mark scheme

- United States exports to South Korea will increase. A decrease in the U.S. inflation rate (relative to South Korea's) makes U.S. goods and services relatively cheaper/more price-competitive on world markets, so South Korean consumers buy more U.S. exports. 1 point for stating that U.S. exports will increase.

Solution 3

(b)(i)

Mark scheme

- The United States current account balance will be in surplus. Since U.S. exports to South Korea have increased while imports are unaffected, net exports rise, moving the current account balance into surplus (or further into surplus). 1 point for stating that the current account will be in surplus.

Solution 3

(b)(ii)

Mark scheme

- Real gross domestic product in the United States will increase in the short run. Explanation: the rise in exports increases aggregate demand, since net exports (a component of $AD = C + I + G + NX$) rise; equivalently, U.S. producers increase production/output to meet the increased export demand from South Korea, raising short-run real GDP. 1 point for stating GDP increases in the short run, with a correct explanation (higher exports raise AD, or firms raise output to meet the increased export demand).

Solution 3

(c) Mark scheme

- Draw a foreign exchange market graph for the U.S. dollar with the exchange rate (won per U.S. dollar) on the vertical axis and quantity of U.S. dollars on the horizontal axis: an upward-sloping supply curve (S) of dollars and a downward-sloping demand curve for dollars (D_1), intersecting at exchange rate e_1 . Because South Korean buyers now need more dollars to purchase the increased U.S. exports, the demand for dollars shifts right from D_1 to D_2 (some solutions equivalently show the supply of dollars shifting left); the new equilibrium exchange rate e_2 (won per dollar) is higher than e_1 — the dollar appreciates (won depreciates) against the won. 1 point for a correctly labeled foreign exchange

Solution 3

market graph; 1 point for shifting the demand for dollars right (and/or supply left) and showing an increase in the won price per U.S. dollar.