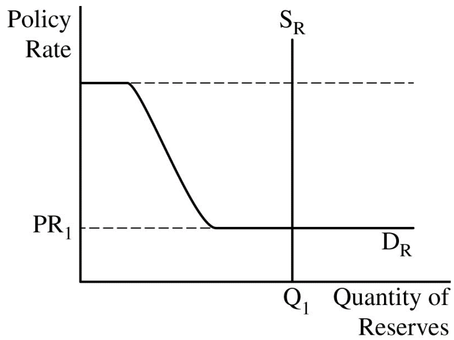
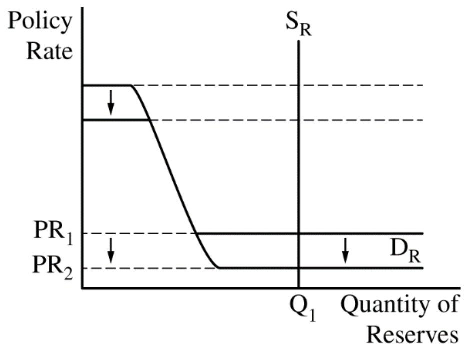
Question 2: Short — 5 points

A Point 1	State that the central bank of Country L would buy bonds.	**1 point**
B Point 2	State that the central bank of Country A would decrease its administered interest rates or decrease interest on reserves.	**1 point**
C Point 3	Draw a correctly labeled graph of the reserve market with the supply curve intersecting the demand curve in the range of ample reserves.	**1 point**

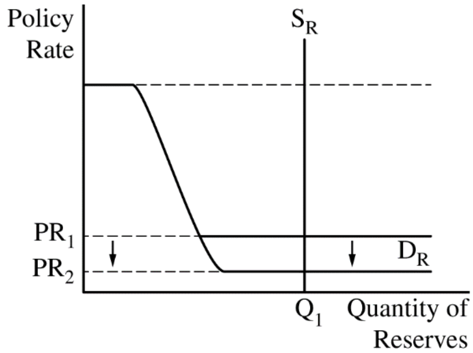


Point 4 — The graph must show a decrease in the administered interest rates, resulting in a decrease in the policy rate. — **1 point**



OR

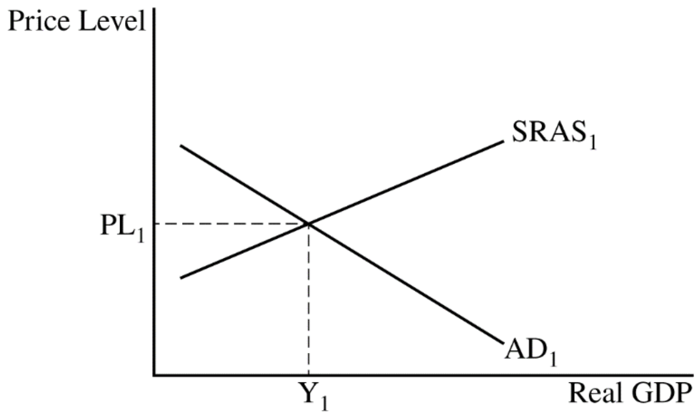
The graph must show a decrease in the lower bound of the demand curve for reserves, resulting in a decrease in the policy rate.



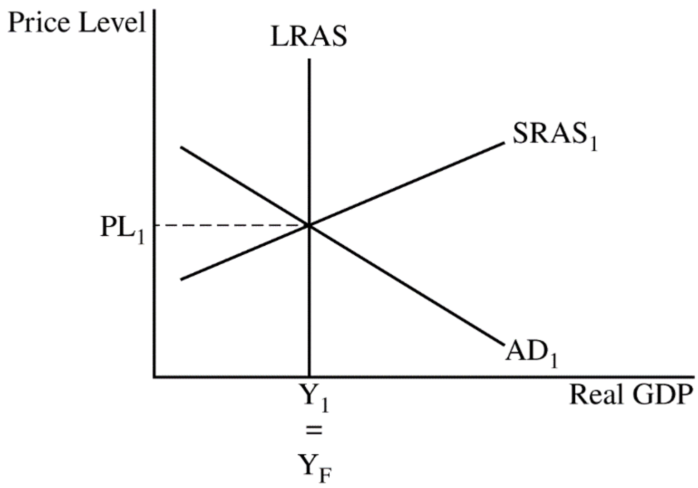
D Point 5	State that short-run aggregate supply will increase until it reaches full employment and explain that the increase in short-run aggregate supply in the long run will be caused by a decrease in input prices (e.g., nominal wages) and/or inflationary expectations.	**1 point**

Question 1: Long — 10 points

(a) Draw a correctly labeled aggregate demand–aggregate supply graph that shows PL_1 and Y_1 at the intersection of the aggregate demand (AD) and short-run aggregate supply (SRAS) curves. **1 point**



For the second point, the graph must show a vertical long-run aggregate supply (LRAS) curve at equilibrium real output $Y_1 = Y_F$. **1 point**

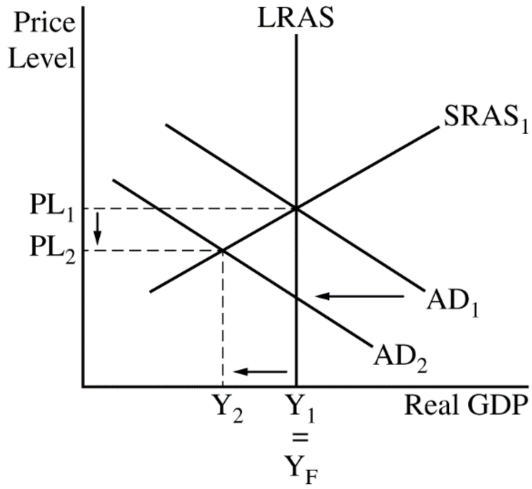


Total for part (a) 2 points

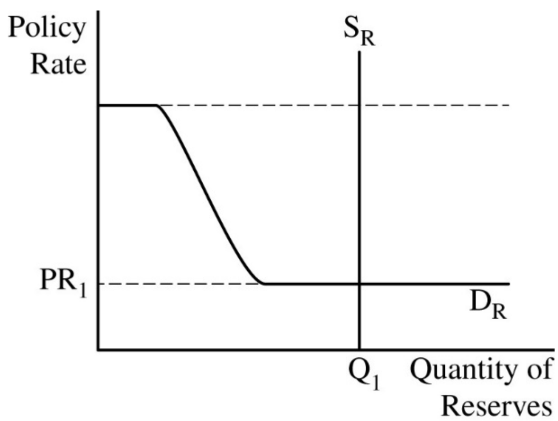
(b) (i) Calculate the marginal propensity to consume as 0.4 and show your work. **1 point**

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

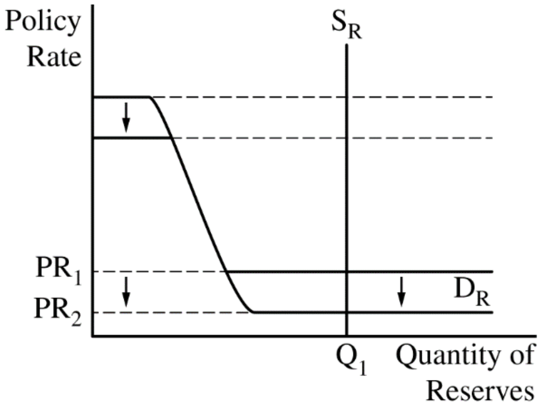
(ii)	On the graph from part (a), show the short-run effect of the decrease in consumer spending as a leftward shift of the AD curve, resulting in a decrease in the price level to PL_2 and a decrease in real output to Y_2.	**1 point**



	Total for part (b)	**2 points**
(c)	Explain that input prices (e.g., nominal wages) and/or inflationary expectations will decrease, causing SRAS to increase until it reaches full employment.	**1 point**
(d)	State that the central bank would decrease its administered interest rates or decrease interest on reserves.	**1 point**
(e)	Draw a correctly labeled graph of the reserve market with the supply curve intersecting the demand curve in the range of ample reserves.	**1 point**

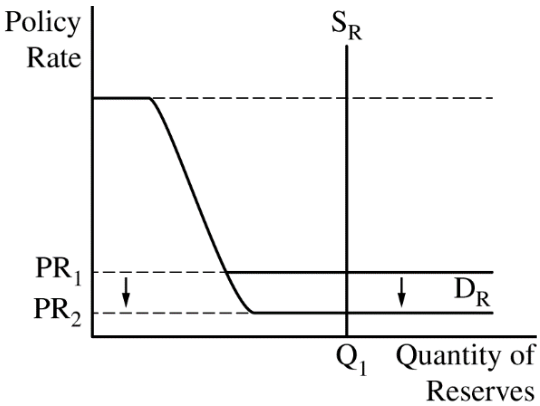


	For the second point, the graph must show a decrease in the administered interest rates, resulting in a decrease in the policy rate.	**1 point**



OR

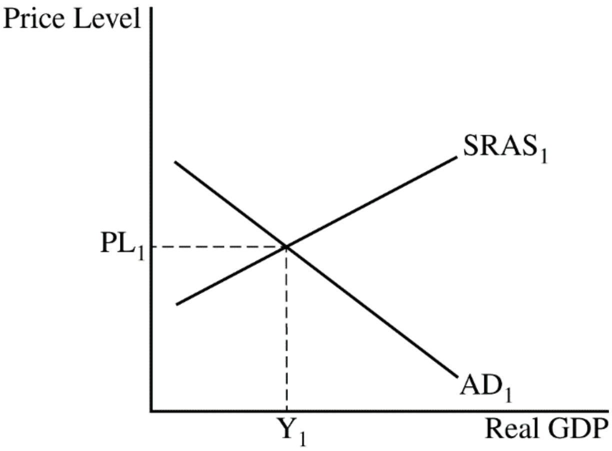
For the second point, the graph must show a decrease in the lower bound of the demand curve for reserves, resulting in a decrease in the policy rate.



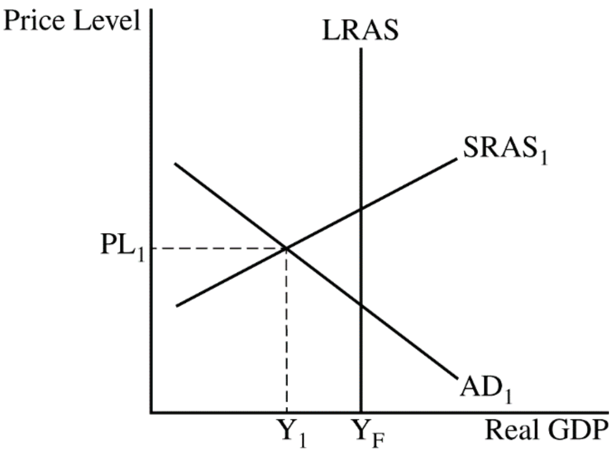
	Total for part (e)	**2 points**
(f)	For the first point, state that the quantity of national savings would decrease and the unemployment rate would decrease.	**1 point**
	For the second point, explain that the decrease in nominal interest rates will increase interest-sensitive spending (consumption, investment, or net exports), causing an increase in aggregate demand and real output.	**1 point**
	Total for part (f)	**2 points**
	Total for question 1	**10 points**

Question 1: Long — 10 points

(a)	Draw a correctly labeled aggregate demand–aggregate supply graph that shows PL_1 and Y_1 at the intersection of aggregate demand and short-run aggregate supply.	**1 point**

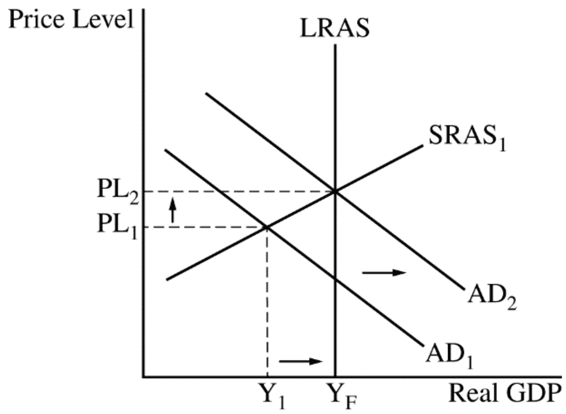


	For the second point, the graph must show a vertical long-run aggregate supply curve to the right of Y_1 and label the full-employment output as Y_F.	**1 point**

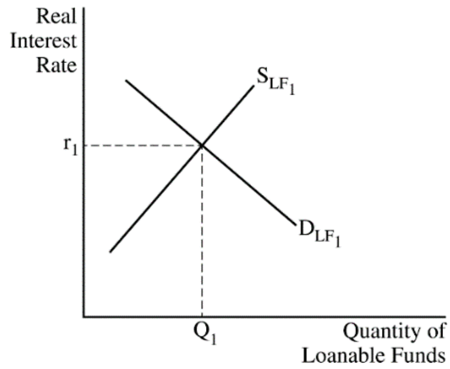
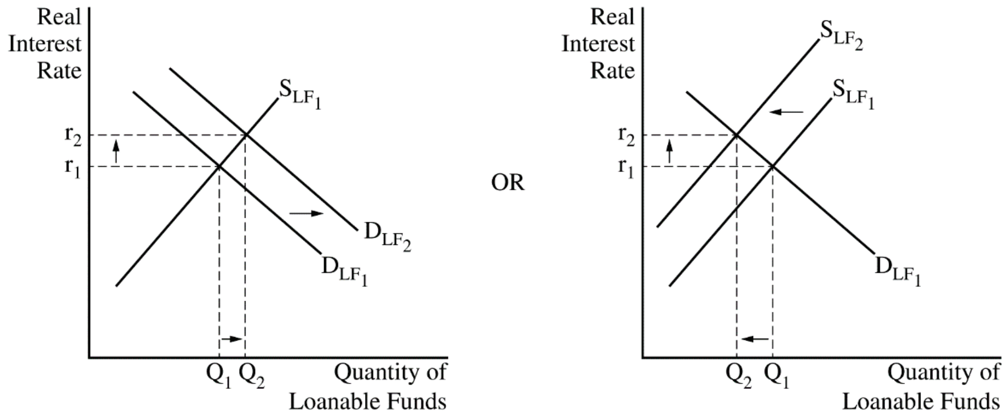


	Total for part (a)	**2 points**
(b)(i)	Explain that input prices (e.g., nominal wages) and/or inflationary expectations will decrease, causing SRAS to increase until it reaches full employment.	**1 point**
(ii)	State that the price level will be less than PL_1.	**1 point**
	Total for part (b)	**2 points**

(c) (i)	Calculate the minimum change in government spending as an increase of \$10 million and show your work. $$\textbf{Minimum Change} = \frac{\textbf{Output Gap}}{\textbf{Spending Multiplier}} = \frac{\textbf{\$50 million}}{\left(\frac{\textbf{1}}{\textbf{0.2}}\right)} = \frac{\textbf{\$50 million}}{\textbf{5}}$$ $$= \textbf{\$10 million}$$	**1 point**
(ii)	On the graph from part (a), show the short-run effect of the change in government spending as a rightward shift of the aggregate demand curve where the new short-run equilibrium intersects the long-run aggregate supply curve at a higher equilibrium price level, labeled PL_2.	**1 point**

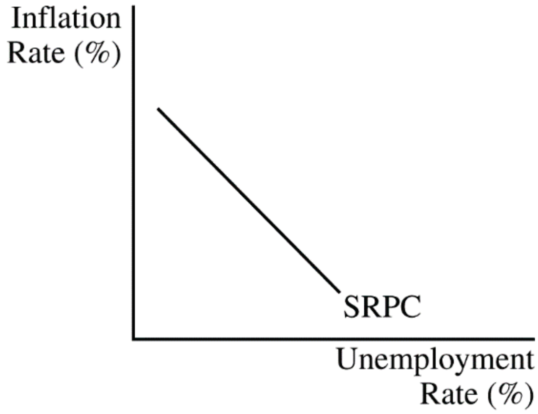


Total for part (c)	**2 points**

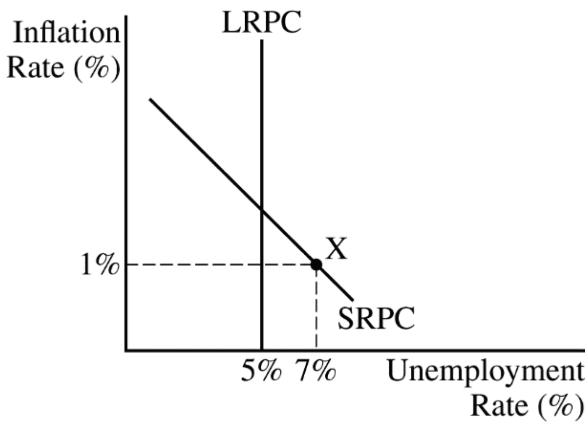
(d)	Draw a correctly labeled graph of the loanable funds market. 	**1 point**
	For the second point, the graph must show an increase in the demand for loanable funds (or a decrease in the supply of loanable funds), resulting in an increase in the equilibrium real interest rate. 	**1 point**
	Total for part (d)	**2 points**
(e)(i)	State that the price of previously issued bonds will decrease.	**1 point**
(ii)	State that the rate of economic growth in the long run will decrease and explain that an increase in the real interest rate means the cost of borrowing has increased, which will decrease investment spending on physical capital, human capital, and/or research and development.	**1 point**
	Total for part (e)	**2 points**
	Total for question 1	**10 points**

Question 1: Long — 10 points

(a)	Draw a correctly labeled graph of the short-run Phillips curve (SRPC).	**1 point**



For the second point, the graph must include a vertical long-run Phillips curve (LRPC) at the natural rate of unemployment (5%) and must include point X on the SRPC to the right of the LRPC at the actual unemployment rate (7%) and the actual inflation rate (1%). **1 point**



Total for part (a) — 2 points

(b)	State that the expected inflation rate is greater than 1% and explain that the actual unemployment rate (7%) is greater than the natural rate of unemployment (5%); or explain that the economy is in a recession.	**1 point**
(c) (i)	Calculate the maximum change in aggregate demand as \$180 billion and show your work.	**1 point**

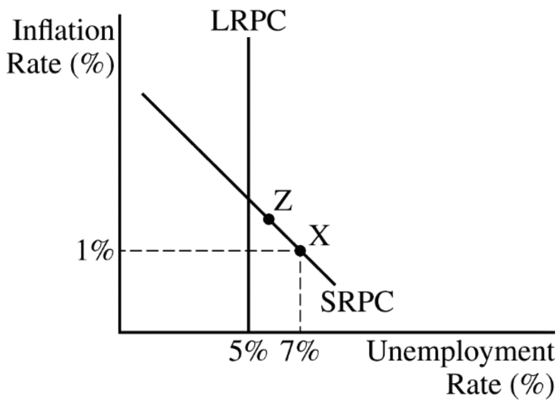
$$\text{Maximum } \Delta \text{ in AD} = -\$20 \text{ billion} \times \frac{-0.9}{1-0.9} = -\$20 \text{ billion} \times -9 = \$180 \text{ billion}$$

(ii)	Calculate the maximum change in aggregate demand as \$200 billion and show your work.	**1 point**

$$\text{Maximum } \Delta \text{ in AD} = \$20 \text{ billion} \times \frac{1}{1-0.9} = \$20 \text{ billion} \times 10 = \$200 \text{ billion}$$

Total for part (c) — 2 points

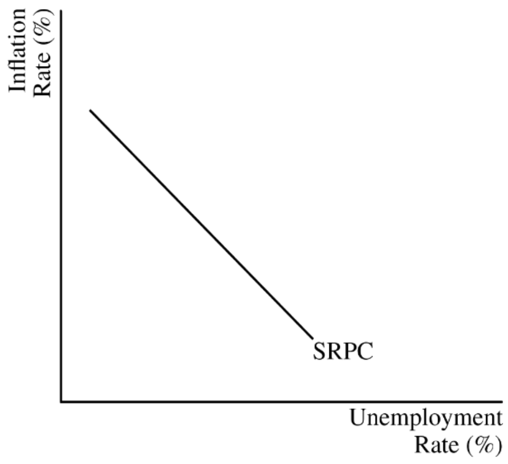
(d)	On the graph from part (a), show point Z on the SRPC to the left of point X.	**1 point**



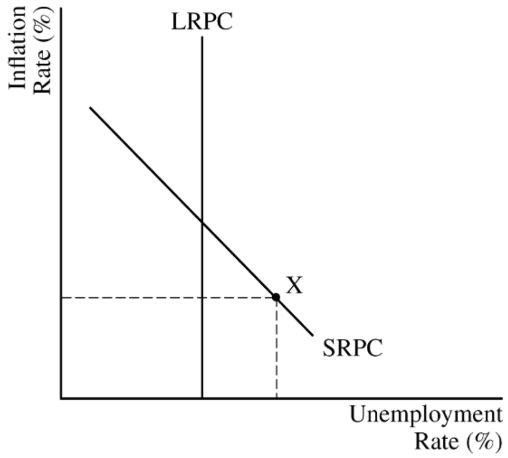
(e)	State that aggregate demand would increase and explain that the increase in disposable income would increase consumption spending.	**1 point**
(f) (i)	State that the short-run aggregate supply curve will shift to the right and explain that input prices (e.g., nominal wages) and/or inflationary expectations will decrease.	**1 point**
(ii)	State that the short-run Phillips curve will shift to the left.	**1 point**
(iii)	State that the actual unemployment rate will decrease.	**1 point**
	Total for part (f)	**3 points**
	Total for question 1	**10 points**

Question 2: Short — 5 points

(a)	Draw a correctly labeled graph of the SRPC.	**1 point**



For the second point, the graph must include a correctly labeled LRPC and show point X on the SRPC to the right of the LRPC. **1 point**



Total for part (a) — 2 points

(b) (i) Calculate the minimum change in government spending as \$150 billion and show your work. **1 point**

$$\frac{\text{Change in GDP}}{\text{Spending Multiplier}} = \frac{\$600\text{ billion}}{1/(1-0.75)} = \frac{\$600\text{ billion}}{4} = \$150\text{ billion}$$

(ii) Calculate the minimum change in taxes as \$200 billion and show your work. **1 point**

$$\frac{\text{Change in GDP}}{\text{Tax Multiplier}} = \frac{\$600\text{ billion}}{-0.75/(1-0.75)} = \frac{\$600\text{ billion}}{-3} = -\$200\text{ billion}$$

Total for part (b) — 2 points

(c) Explain that SRAS will increase in the long run due to a decrease in nominal wages, input prices, or inflationary expectations. **1 point**

Total for question 2 — 5 points

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Scoring Guidelines

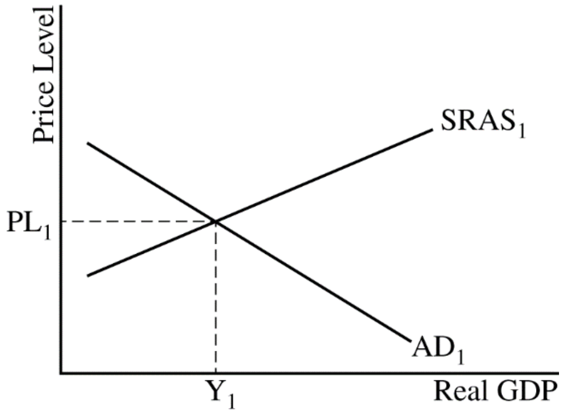
Set 1

2019 SCORING GUIDELINES

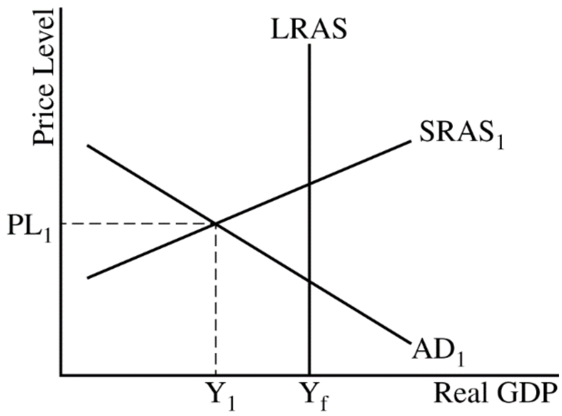
Question 1

10 Points (2 + 2 + 2 + 2 + 2)

(a) 2 points



- One point is earned for drawing a correctly labeled graph showing a downward sloping aggregate demand (AD) curve, an upward sloping short-run aggregate supply (SRAS) curve, the equilibrium output level labeled Y_1, and the equilibrium price level labeled PL_1.



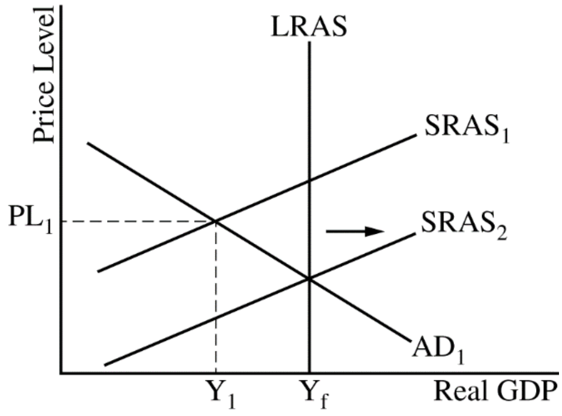
- One point is earned for drawing a correctly labeled vertical long-run aggregate supply (LRAS) curve with full employment output labeled Y_f to the right of the short-run equilibrium output level, Y_1.

(b) 2 points

- One point is earned for explaining that nominal wages, input prices, or expected inflation will decrease, causing the SRAS curve to shift to the right until real GDP reaches full employment at Y_f.

2019 SCORING GUIDELINES

Question 1 (continued)



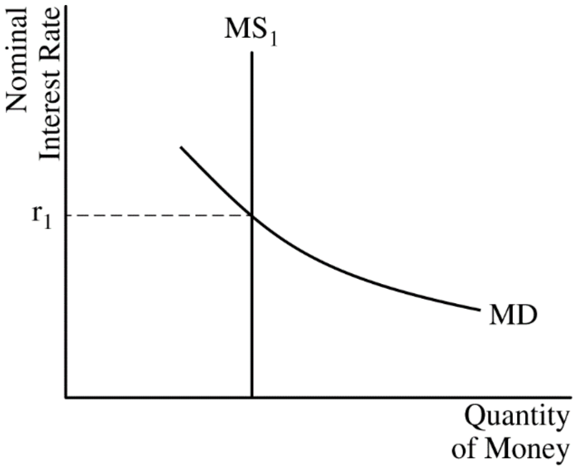
- One point is earned for showing a rightward shift in the SRAS curve intersecting the AD curve and LRAS curve at Y_f.

(c) 2 points

- One point is earned for correctly calculating the minimum change in government spending required to change aggregate demand by the amount of the output gap as an increase of $8 billion $\left(= \frac{\$40 \text{ billion}}{5}\right)$.

- One point is earned for correctly calculating the minimum change in taxes required to change aggregate demand by the amount of the output gap as a decrease of $10 billion $\left(= \frac{\$40 \text{ billion}}{-4}\right)$.

(d) 2 points



- One point is earned for drawing a correctly labeled graph of the money market.

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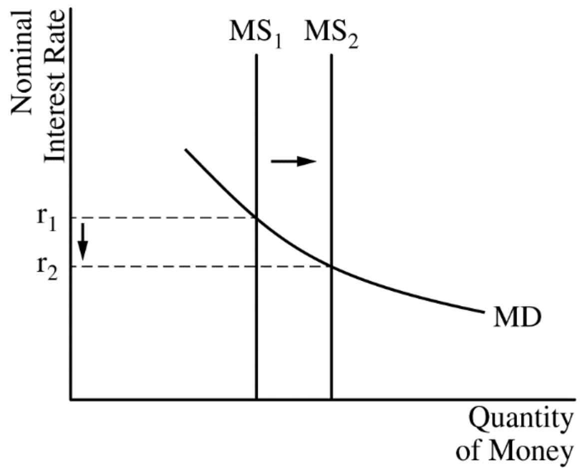
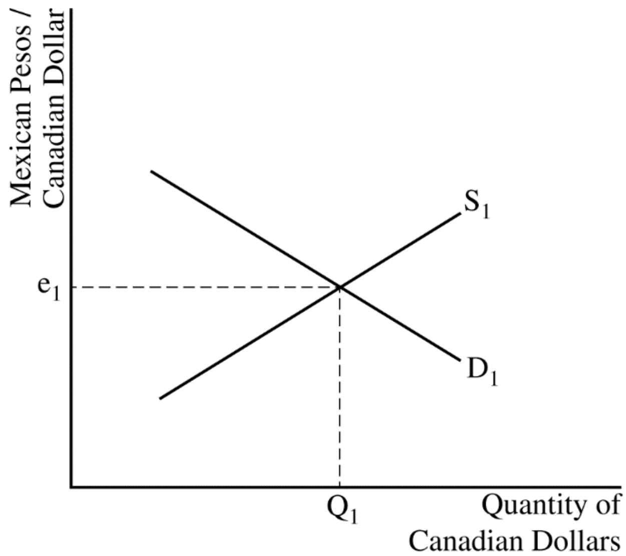
Question 1 (continued)



- One point is earned for showing a rightward shift in the money supply curve, resulting in a lower nominal interest rate.

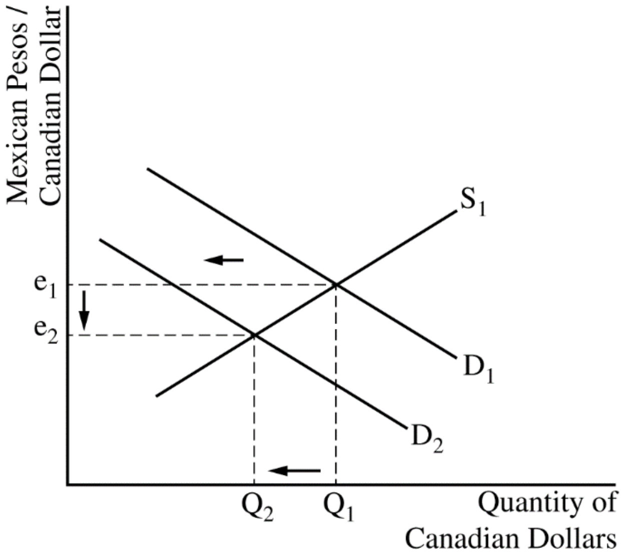
(e) 2 points



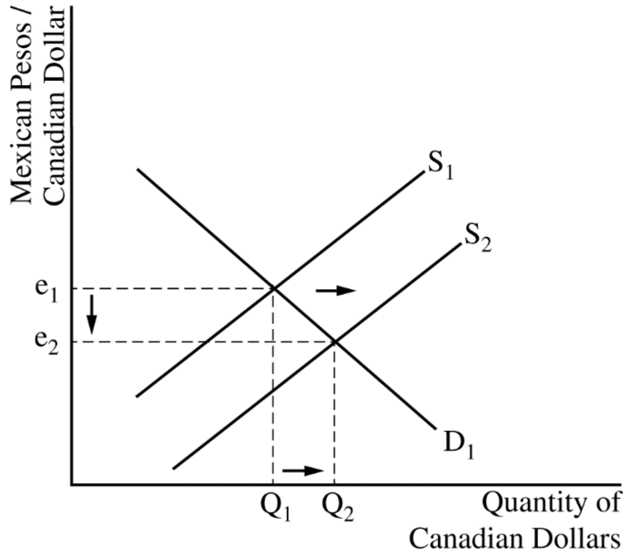
- One point is earned for drawing a correctly labeled graph of the foreign exchange market for the Canadian dollar.

2019 SCORING GUIDELINES

Question 1 (continued)



OR



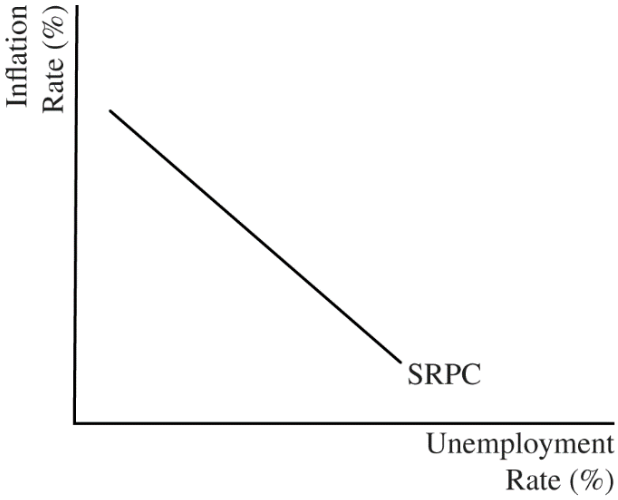
- One point is earned for showing a leftward shift of the demand curve for Canadian dollars (or a rightward shift of the supply curve of Canadian dollars) and for showing that the Canadian dollar will depreciate against the Mexican peso.

2019 SCORING GUIDELINES

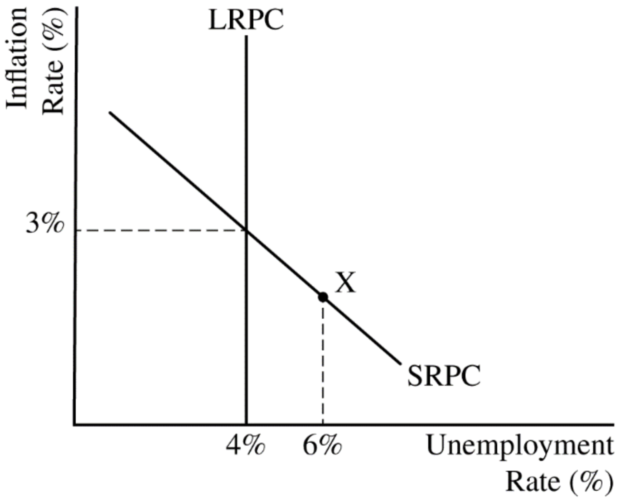
Question 2

5 Points (2 + 1 + 1 + 1)

(a) 2 points



- One point is earned for drawing a correctly labeled graph showing the short-run Phillips curve (SRPC).



- One point is earned for drawing the long-run Phillips curve (LRPC) showing the short-run equilibrium, labeled as point X, on the SRPC to the right of the LRPC, and for plotting the numbers in the correct places on the graph.

(b) 1 point

- One point is earned for stating that the actual inflation rate is less than the expected inflation rate.

2019 SCORING GUIDELINES

Question 2 (continued)

(c) 1 point

- One point is earned for stating that lenders will be better off and for explaining the real value of the loans that will be repaid will be higher than expected **OR** for explaining the relationship between the nominal and the real interest rates using the Fisher equation.

(d) 1 point

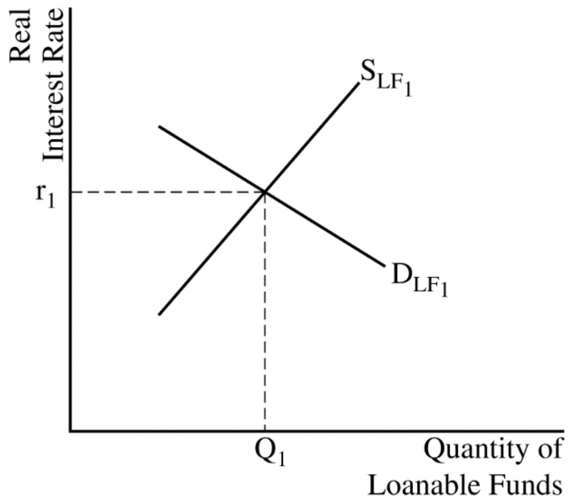
- One point is earned for stating that the natural rate of unemployment will not change in the long run.

2019 SCORING GUIDELINES

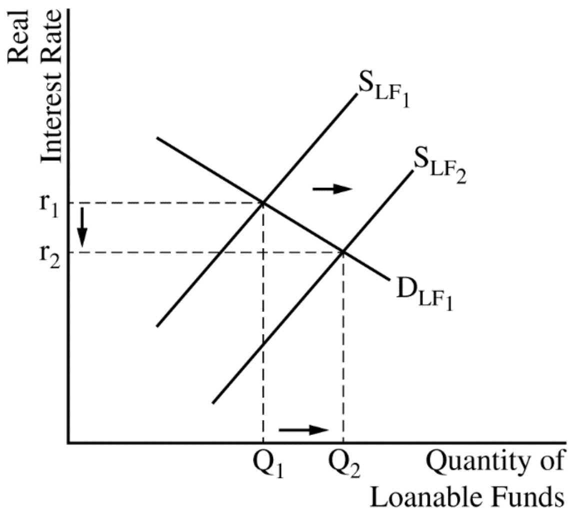
Question 3

5 Points (2 + 1 + 2)

(a) 2 points



- One point is earned for drawing a correctly labeled graph of the loanable funds market and identifying the equilibrium real interest rate and quantity of loanable funds.



- One point is earned for showing a rightward shift of the supply curve for loanable funds and for showing a lower equilibrium real interest rate.

(b) 1 point

- One point is earned for stating that Econland's purchases of foreign assets will increase and for explaining that Econland's investors will seek higher returns in other countries, which increases Econland's demand for foreign assets.

2019 SCORING GUIDELINES

Question 3 (continued)

(c) 2 points

- One point is earned for stating that Econland's currency will depreciate.

- One point is earned for stating that Econland's central bank would buy its currency in the foreign exchange market.

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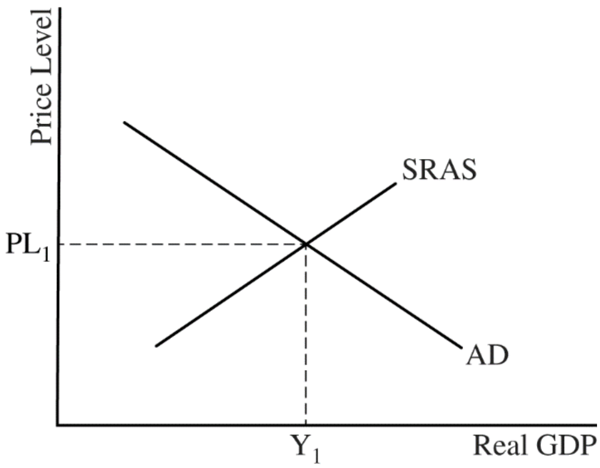
Scoring Guidelines
Set 2

2019 SCORING GUIDELINES

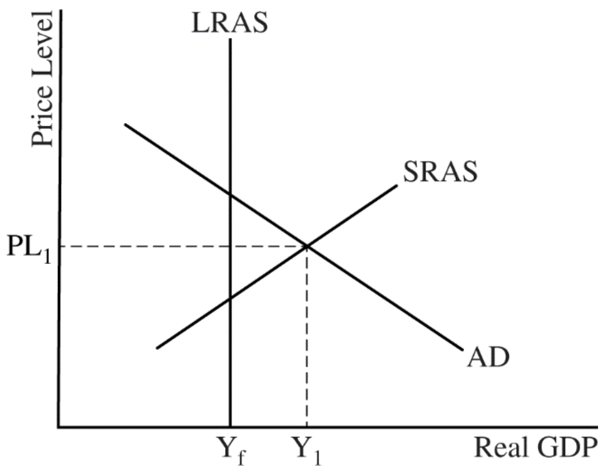
Question 1

10 points (2 + 2 + 3 + 2 + 1)

(a) 2 points



- One point is earned for drawing a correctly labeled graph showing a downward sloping aggregate demand (AD) curve, an upward sloping short-run aggregate supply (SRAS) curve, the equilibrium output level labeled Y_1, and the equilibrium price level labeled PL_1.

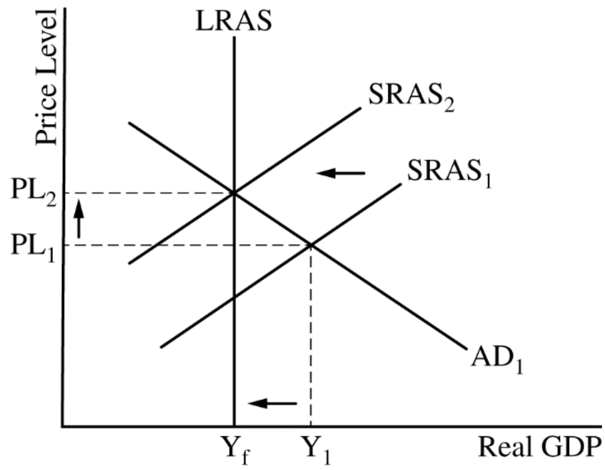


- One point is earned for drawing a correctly labeled vertical long-run aggregate supply (LRAS) curve with full employment output labeled Y_f to the left of the short-run equilibrium output level, Y_1.

2019 SCORING GUIDELINES

Question 1 (continued)

(b) 2 points



- One point is earned for showing a leftward shift in the SRAS curve and for showing PL_2 higher than PL_1.

- One point is earned for explaining that the SRAS curve will shift to the left due to the increase in input prices, nominal wages, or inflationary expectations.

(c) 3 points

- One point is earned for stating a decrease in government spending, a decrease in transfer payments, or an increase in taxes.

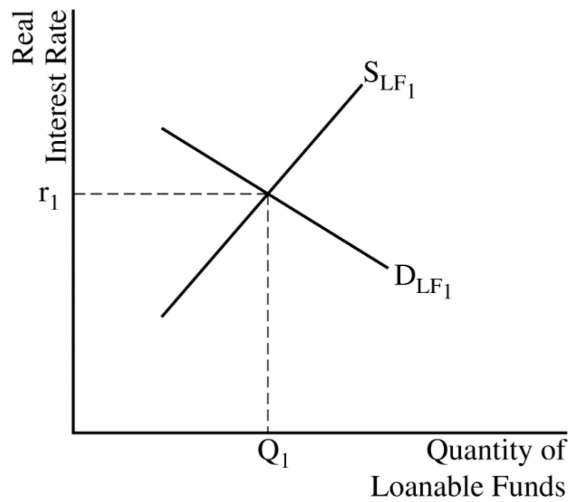
- One point is earned for stating that the unemployment rate will increase and the natural rate of unemployment will not change.

- One point is earned for stating that the automatic adjustment will produce a higher price level than the fiscal policy.

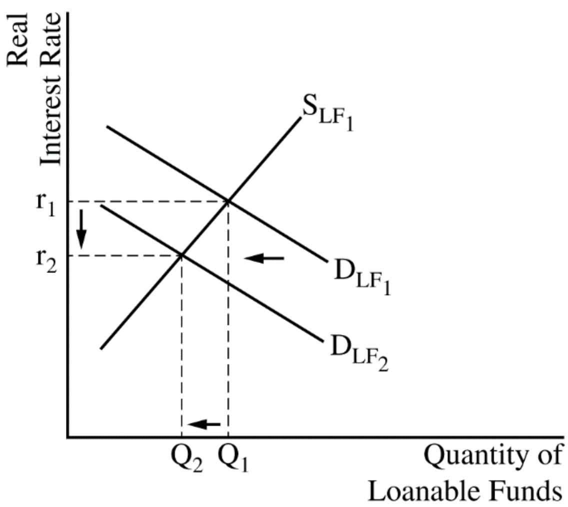
2019 SCORING GUIDELINES

Question 1 (continued)

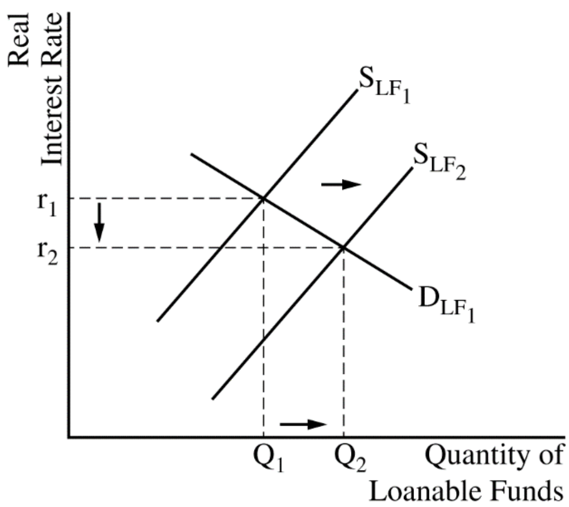
(d) 2 points



- One point is earned for drawing a correctly labeled graph of the loanable funds market.



OR



- One point is earned for showing a leftward shift of the demand for loanable funds curve (or a rightward shift in the supply of loanable funds curve) and a decrease in the real interest rate.

(e) 1 point

- One point is earned for stating that the LRAS curve will shift to the right and for explaining that the lower real interest rate will lead to increased capital formation due to increased investment spending.

2019 SCORING GUIDELINES

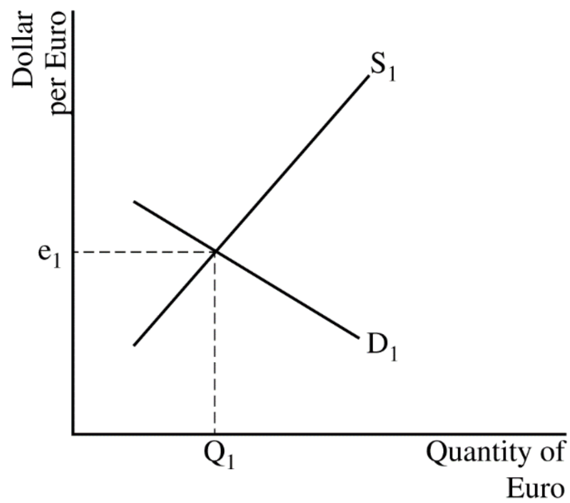
Question 2

5 points (1 + 2 + 2)

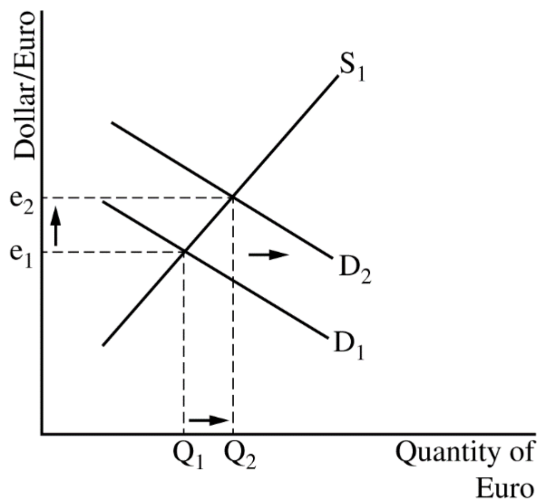
(a) 1 point

- One point is earned for stating that the U.S. current account will be in deficit and for explaining that an increase in the U.S. real GDP increases the U.S.'s demand for European goods and services, which increases imports.

(b) 2 points



- One point is earned for drawing a correctly labeled graph of the foreign exchange market for the euro.



- One point is earned for shifting the demand curve for the euro to the right and showing an increase in the value of the euro relative to the U.S. dollar.

2019 SCORING GUIDELINES

Question 2 (continued)

(c) 2 points

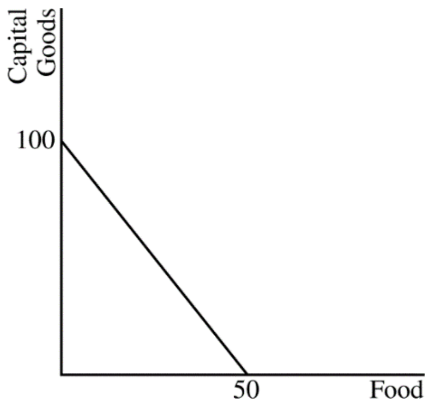
- One point is earned for stating that the demand for the dollar will decrease and for explaining that capital flows from the European Union to the U.S. will decrease.

- One point is earned for stating that the dollar will depreciate.

2019 SCORING GUIDELINES

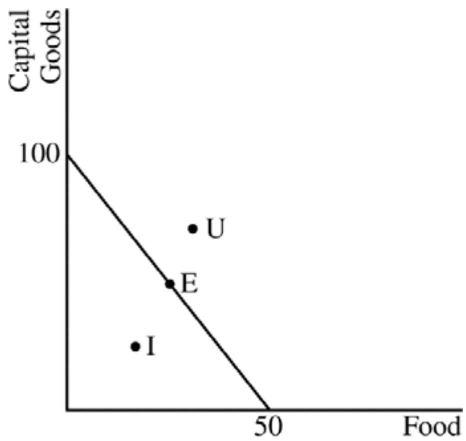
Question 3

5 points (1 + 1 + 1 + 1 + 1)



(a) 1 point

- One point is earned for drawing a correctly labeled production possibilities curve (PPC) for Sweden with food on the horizontal axis, capital goods on the vertical axis, and the relevant numerical values plotted.



(b) 1 point

- One point is earned for showing point I inside the PPC, point E on the PPC, and point U outside the PPC.

(c) 1 point

- One point is earned for stating that Sweden's economic growth rate will slow or be reduced.

2019 SCORING GUIDELINES

Question 3 (continued)

(d) 1 point

- One point is earned for stating that Norway has a comparative advantage in the production of capital goods and for explaining that it has the lowest opportunity cost in producing capital goods (the opportunity cost of producing one unit of capital goods in Norway is 1/4 a unit of food and in Sweden is 1/2 a unit of food).

(e) 1 point

- One point is earned for stating a number between 20 and 40 units of capital.

2017

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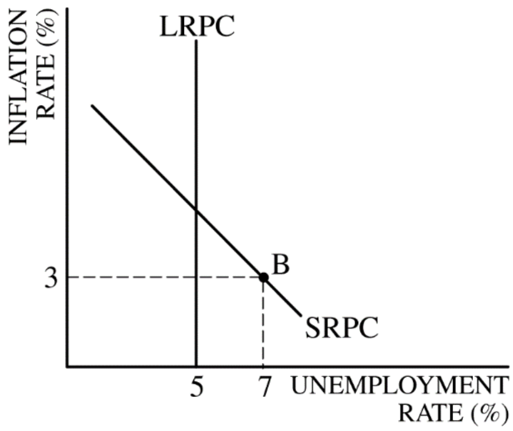
AP Macroeconomics

Scoring Guidelines

2017 SCORING GUIDELINES

Question 1

9 points (2 + 2 + 1 + 2 + 1 + 1)



(a) 2 points:

- One point is earned for drawing a correctly labeled graph of a downward-sloping short-run Phillips curve (SRPC).
- One point is earned for showing a correctly labeled vertical long-run Phillips curve (LRPC) at the natural rate of unemployment, 5%, and for showing point B on the SRPC to the right of LRPC at the actual unemployment rate, 7%, and the inflation rate, 3%.

(b) 2 points:

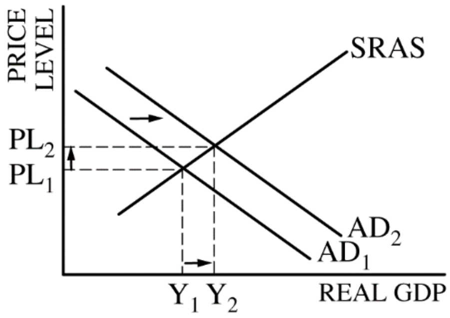
- One point is earned for stating that the short-run aggregate supply (SRAS) curve will shift to the right in the long run and for explaining that nominal wages will fall in response to high unemployment.
- One point is earned for stating that LRPC will remain unchanged.

(c) 1 point:

- One point is earned for stating that the government should either increase its expenditures (or purchases) or decrease taxes.

2017 SCORING GUIDELINES

Question 1 (continued)



(d) 2 points:

- One point is earned for drawing a correctly labeled graph showing a downward-sloping AD curve, upward-sloping SRAS curve, the equilibrium price level, and the equilibrium real GDP.

- One point is earned for showing a rightward shift of the AD curve and for showing an increase in both the price level and real GDP.

(e) 1 point:

- One point is earned for stating that the supply of country X's currency will increase and for explaining that spending on imports will increase as a result of the increase in real GDP.

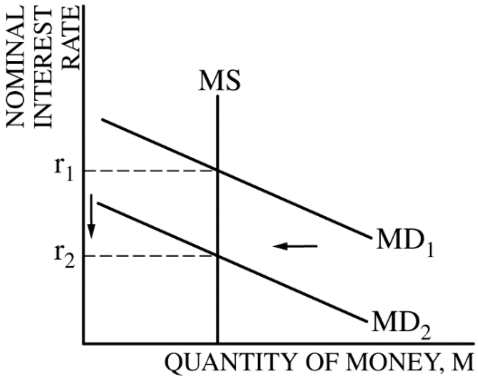
(f) 1 point:

- One point is earned for stating that country X's currency will depreciate.

2017 SCORING GUIDELINES

Question 2

6 points (2 + 2 +1 + 1)



(a) 2 points:

- One point is earned for drawing a correctly labeled graph of the money market.
- One point is earned for showing a leftward shift in the money demand curve, resulting in a lower nominal interest rate.

(b) 2 points:

- One point is earned for stating that the price of previously issued bonds will increase.
- One point is earned for stating that both the price level and real income will increase and for explaining that the lower interest rate will increase consumption, investment, and/or net exports (interest-sensitive spending), which increases aggregate demand.

(c) 1 point:

- One point is earned for stating that the velocity of money will increase.

(d) 1 point:

- One point is earned for stating that the central bank would sell bonds.

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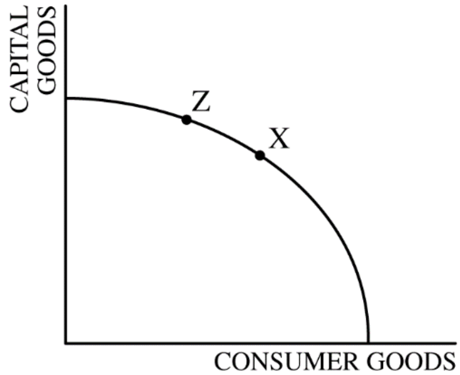
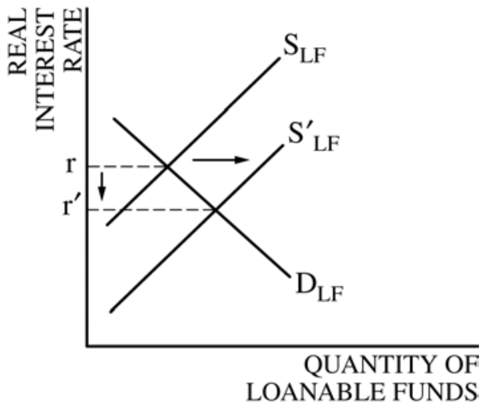
Question 3

5 points (1 + 2 + 1 + 1)



(a) 1 point:

- One point is earned for drawing a correctly labeled graph of the production possibilities curve (PPC) and for showing point X on the curve.



(b) 2 points:

- One point is earned for drawing a correctly labeled graph of the loanable funds market.

- One point is earned for showing a rightward shift of the supply curve and a decrease in the real interest rate.

(c) 1 point:

- One point is earned for showing point Z to the left of point X on the curve.

(d) 1 point:

- One point is earned for stating that the long-run aggregate supply (LRAS) curve will shift to the right and for explaining that capital accumulation will increase.