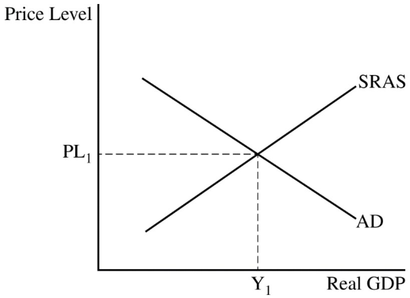
Question 3: Short — 5 points

A Point 1 — State that the real GDP in 2021 was equal to the nominal GDP in 2021 and explain that because 2021 is the base year, no price level changes have occurred, and real values always equal nominal values in the base year. **1 point**

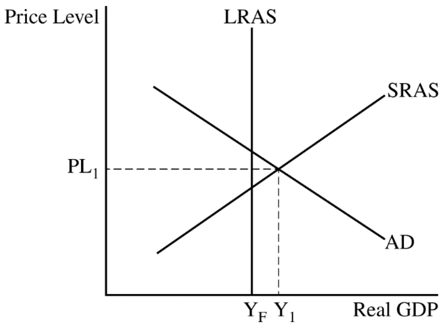
B Point 2 — Calculate the real GDP in Middleland in 2022 as $1,190 and show your work. **1 point**

$$\text{Real GDP} = (\$11 \times 50) + (\$4 \times 70) + (\$12 \times 30) = \$1{,}190$$

C Point 3 — 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**



Point 4 — The graph must show a vertical long-run aggregate supply (LRAS) curve to the left of Y_1 and label the full-employment output as Y_F. **1 point**

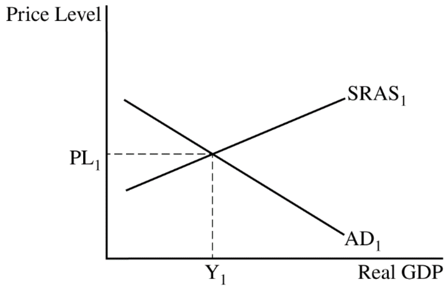


D Point 5 — Calculate the minimum change in government spending as a decrease of $8 and show your work. **1 point**

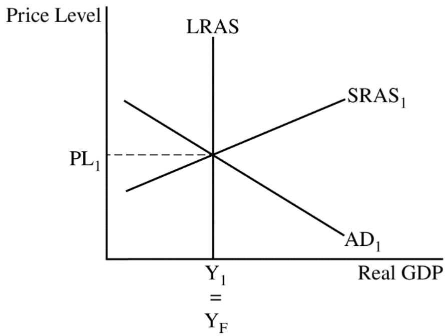
$$\text{Min Change} = \frac{\text{Output Gap}}{\text{Spending Multiplier}} = \frac{(\$1{,}150 - \$1{,}190)}{\frac{1}{(1-0.8)}} = \frac{-\$40}{5} = -\$8$$

Question 3: Short — 5 points

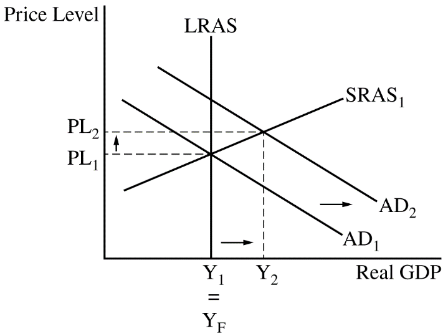
A Point 1 — Draw a correctly labeled aggregate demand–aggregate supply graph that shows PL_1 and Y_1 at the intersection of the aggregate demand (AD) and short-run aggregate supply (SRAS) curves. **1 point**



Point 2 — The graph must show a vertical long-run aggregate supply (LRAS) curve at equilibrium real output $Y_1 = Y_F$. **1 point**



B Point 3 — On the graph from part A, show the short-run effect of the increase in real income in Thailand as a rightward shift of Nepal's aggregate demand curve, resulting in an increase in real output, labeled Y_2, and an increase in the price level, labeled PL_2. **1 point**



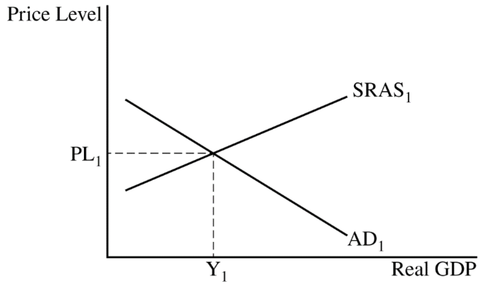
C Point 4 — Calculate the minimum change in government spending as a decrease of 100 million rupees and show your work. **1 point**

$$\text{Min Change} = \frac{-400\text{ million rupees}}{\frac{1}{(1-0.75)}} = \frac{-400\text{ million rupees}}{4} = -100\text{ million rupees}$$

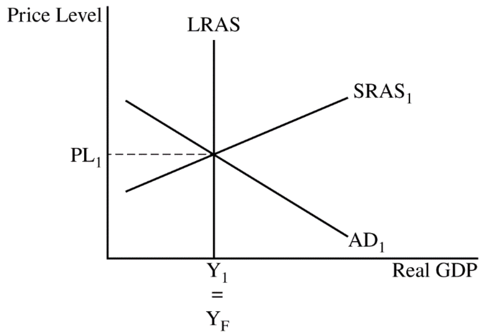
D Point 5 — Explain that as real income rises, tax revenues will increase automatically (and/or transfer payments will decrease automatically), thereby slowing the rate at which disposable income is increasing, which will slow consumption growth. **1 point**

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**

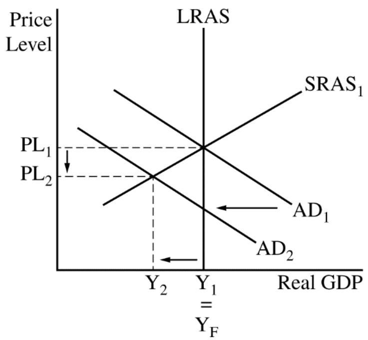


Total for part (a) 2 points

(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**

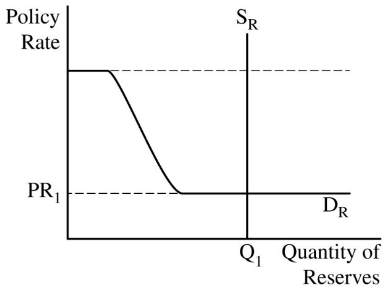


Total for part (b) **2 points**

(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**

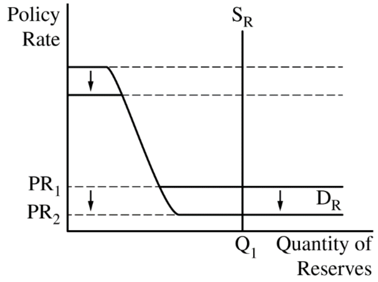
(d) State that the central bank would decrease its administered interest rates or decrease interest on reserves. **1 point**

(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**



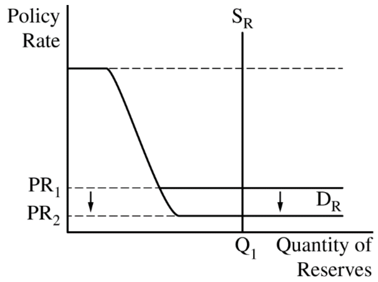
AP Macroeconomics: **2024 Set 2**

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**

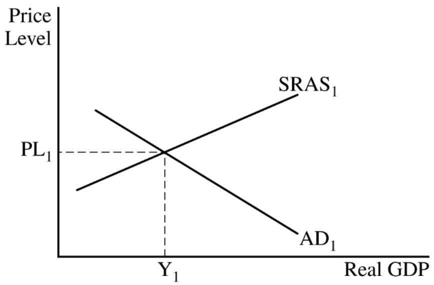
For the second point, explain that the decrease in nominal interest rates will increase interest-sensitive spending (consumption, investment, or net exports), causing an increase in aggregate demand and real output. **1 point**

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

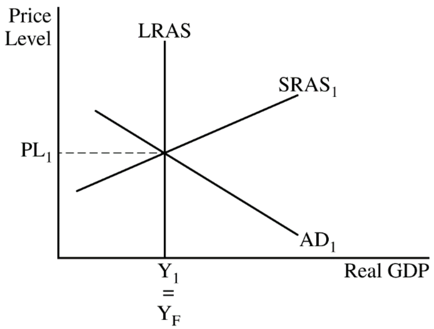
Total for question 1 **10 points**

Question 3: Short — 5 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**



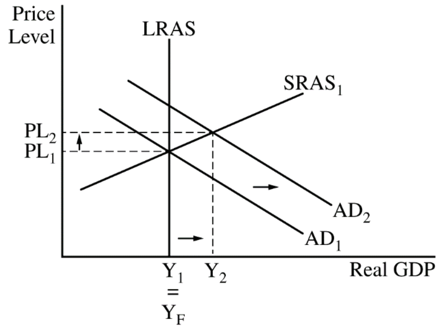
For the second point, the graph must show a vertical long-run aggregate supply curve at equilibrium real output $Y_1 = Y_F$. **1 point**



Total for part (a) 2 points

AP Macroeconomics: **2023 Set 2**

(b) On the graph from part (a), show the short-run effect of the increase in consumer confidence as a rightward shift of the aggregate demand curve, resulting in an increase in real output, labeled Y_2, and an increase in the price level, labeled PL_2. **1 point**



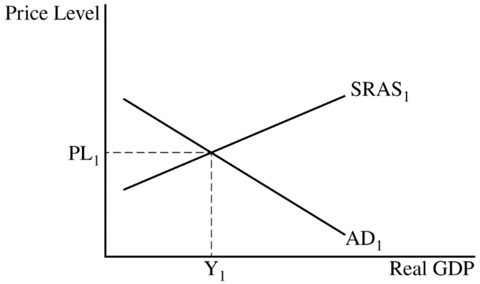
(c) State that the central bank would increase its administered interest rates or increase interest on reserves. **1 point**

(d) State that real output will decrease and explain that the increase in interest rates will decrease interest-sensitive spending (consumption, investment, or net exports), which decreases aggregate demand. **1 point**

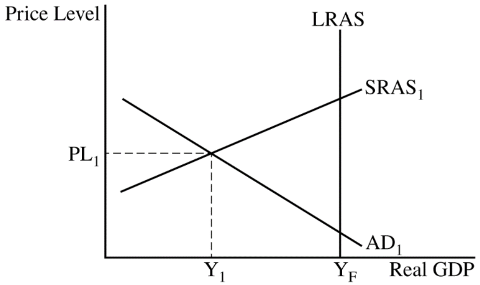
Total for question 3 5 points

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 Y_F. **1 point**



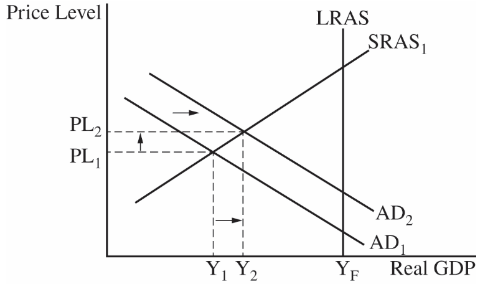
Total for part (a) 2 points

(b) State an increase in government spending, a decrease in taxes, or an increase in transfer payments. **1 point**

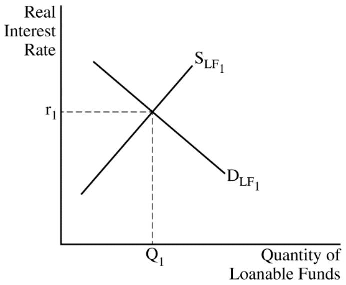
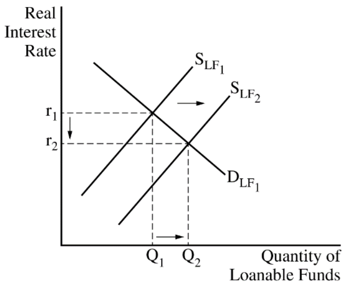
(c) Calculate the minimum change in investment spending as $50 billion and show your work. **1 point**

$$\text{Minimum Change in Investment Spending} = \frac{\$200\text{ billion}}{\left(\frac{1}{0.25}\right)} = \$50\text{ billion}$$

(d) On the graph from part (a), show the short-run effect of the change in investment spending as a rightward shift of the aggregate demand curve, resulting in a higher equilibrium price level and higher equilibrium real output that is less than full-employment output, labeled PL_2 and Y_2 respectively. **1 point**



(e) State that the actual rate of unemployment is greater than the natural rate of unemployment and explain that the economy is still in a recessionary gap. **1 point**

(f)	Draw a correctly labeled graph of the loanable funds market. 	**1 point**
	For the second point, the graph must show a rightward shift in the supply of loanable funds curve, resulting in a decrease in the equilibrium real interest rate. 	**1 point**
	Total for part (f)	**2 points**
(g) (i)	State that real GDP will increase in the short run and explain that interest-sensitive spending (consumption, investment, or net exports) will increase, which will increase aggregate demand.	**1 point**
(ii)	State that long-run aggregate supply will increase and explain that the decrease in the real interest rate means the cost of borrowing has decreased, which increases investment spending on plant and equipment and increases capital formation, which will increase potential output.	**1 point**
	Total for part (g)	**2 points**
	Total for question 1	**10 points**

2019

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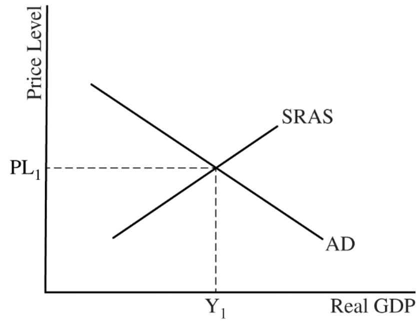
Scoring Guidelines
Set 2

2019 SCORING GUIDELINES

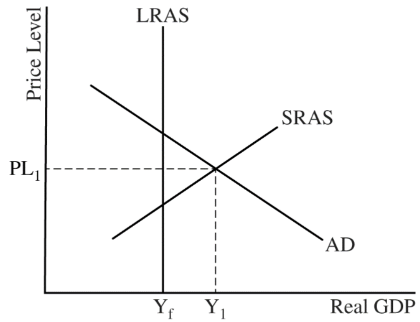
Question 1

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.

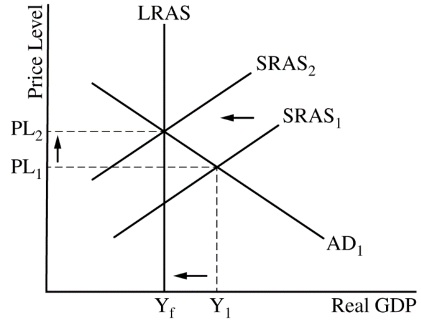


- One point is earned for drawing a correctly labeled vertical long-run aggregate supply (LRAS) curve with full employment output labeled Y_f to the left of the short-run equilibrium output level, Y_1.

2019 SCORING GUIDELINES

Question 1 (continued)

(b) 2 points



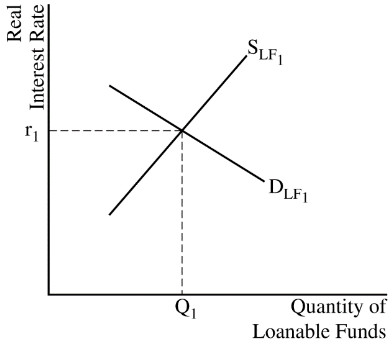
- One point is earned for showing a leftward shift in the SRAS curve and for showing PL_2 higher than PL_1.
- One point is earned for explaining that the SRAS curve will shift to the left due to the increase in input prices, nominal wages, or inflationary expectations.

(c) 3 points

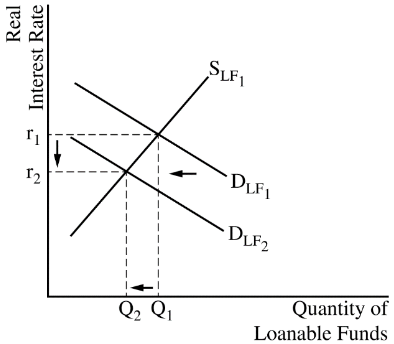
- One point is earned for stating a decrease in government spending, a decrease in transfer payments, or an increase in taxes.
- One point is earned for stating that the unemployment rate will increase and the natural rate of unemployment will not change.
- One point is earned for stating that the automatic adjustment will produce a higher price level than the fiscal policy.

Question 1 (continued)

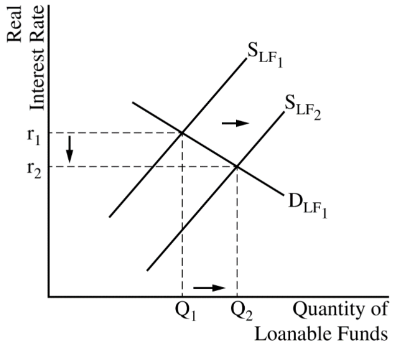
(d) 2 points



- 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.

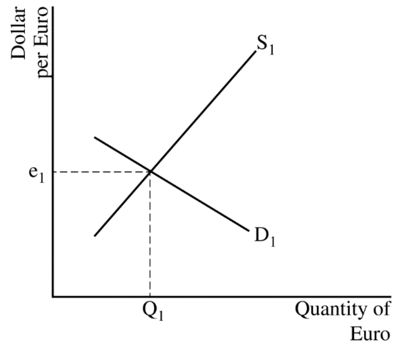
Question 2

5 points (1 + 2 + 2)

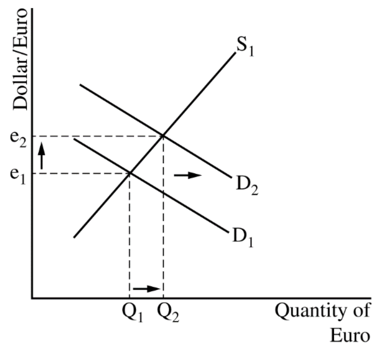
(a) 1 point

- 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

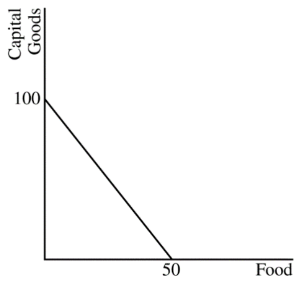
- One point is earned for stating that the demand for the dollar will decrease and for explaining that capital flows from the European Union to the U.S. will decrease.

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

2019 SCORING GUIDELINES

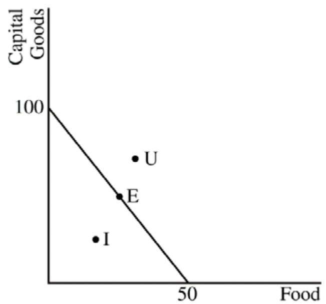
Question 3

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

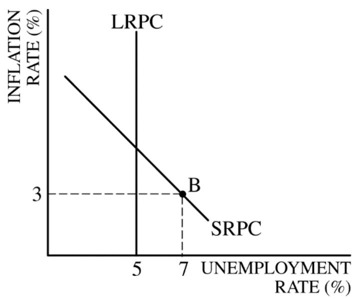
AP Macroeconomics

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:

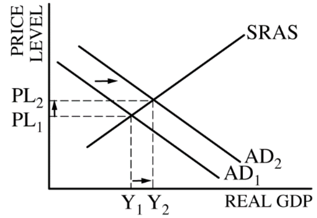
- One point is earned for stating that the short-run aggregate supply (SRAS) curve will shift to the right in the long run and for explaining that nominal wages will fall in response to high unemployment.
- One point is earned for stating that LRPC will remain unchanged.

(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.

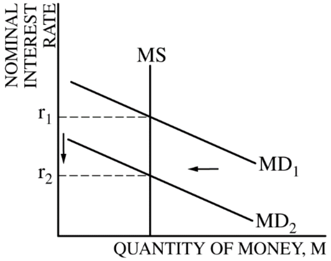
(f) 1 point:

- 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.

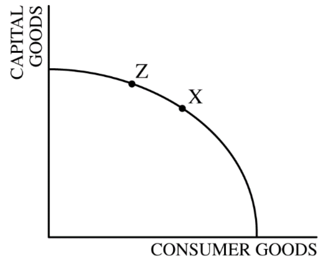
(d) 1 point:

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

2017 SCORING GUIDELINES

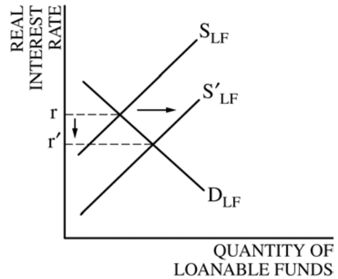
Question 3

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.

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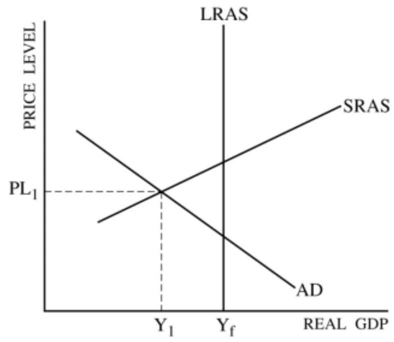
2015 Scoring Guidelines

2015 SCORING GUIDELINES

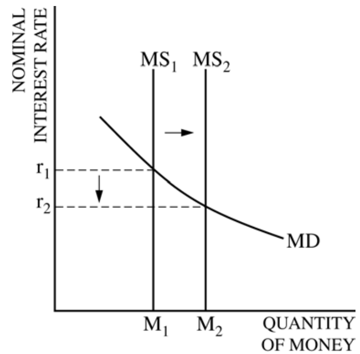
Question 1

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



(a) 2 points:
- One point is earned for drawing a correctly labeled graph showing AD, SRAS, Y_1 and PL_1.
- One point is earned for drawing a vertical LRAS at Y_f to the right of Y_1.

(b) 1 point:
- One point is earned for stating that the Federal Reserve should target a lower federal funds rate.



(c) 2 points:
- One point is earned for drawing a correctly labeled money market graph.
- One point is earned for shifting the money supply curve to the right and showing a decrease in the nominal interest rate.

2015 SCORING GUIDELINES

Question 1 (continued)

(d) 3 points:
- One point is earned for calculating the minimum required change in government spending: $60 billion ($300/5=$60).
- One point is earned for stating that the minimum required change in taxes will be greater than the minimum required change in government spending.
- One point is earned for explaining that the tax multiplier (mpc/mps = 0.8/0.2 = 4) is smaller than the government spending multiplier (1/mps = 1/0.2 = 5) because part of the initial increase in disposable income caused by the decrease in income tax will be saved rather than spent.

(e) 2 points:
- One point is earned for stating that aggregate demand will increase and for explaining that lower income tax rates will increase disposable income and/or consumption and investment.
- One point is earned for stating that long-run aggregate supply will stay the same because lowering income taxes will increase consumption and/or investment, or there is no change in inputs.
  OR
  One point is earned for stating that long-run aggregate supply will increase in the long run because lowering taxes will increase savings and investment in physical capital, or because of increased incentives to work.
  OR
  One point is earned for stating that long-run aggregate supply will decrease in the long run because lowering taxes leads to a crowding out of private investment.

2015 SCORING GUIDELINES

Question 2

5 points (1+1+2+1)

(a) 1 point:
- One point is earned for stating that Country Y has an absolute advantage in producing solar panels.

(b) 1 point:
- One point is earned for calculating the opportunity cost of a furnace for Country Y: 2 solar panels per furnace.

(c) 2 points:
- One point is earned for stating that Country X has the comparative advantage in producing furnaces.
- One point is earned for explaining that Country X has a lower opportunity cost of producing furnaces than Country Y.

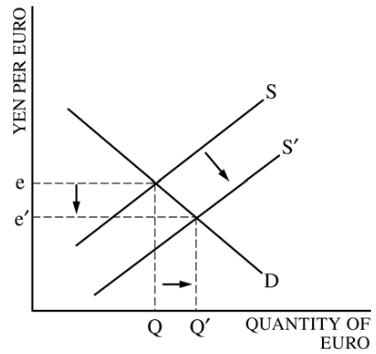
(d) 1 point:
- One point is earned for stating that Country X should produce solar panels domestically.

2015 SCORING GUIDELINES

Question 3

6 points (2+3+1)

(a) 2 points:
- One point is earned for stating that the real interest rate in Japan will increase in the short run because the supply of loanable funds will decrease or the demand for loanable funds will increase.
- One point is earned for stating that private domestic investment in plant and equipment in Japan will decrease.



(b) 3 points:
- One point is earned for drawing a correctly labeled graph of the foreign exchange market for the euro.
- One point is earned for showing that the supply curve for euros shifts to the right and for concluding that the yen price of the euro decreases.
- One point is earned for explaining that the European purchases of Japanese financial assets will increase due to the relatively higher rate of return in Japan.

(c) 1 point:
- One point is earned for stating that European Central Bank should buy euros.