

Question 3: Short 5 points

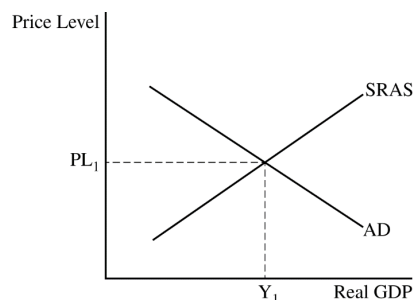
A State that the real GDP in 2021 was equal to the nominal GDP in 2021 and explain that because 2021 is the base year, no price level changes have occurred, and real values always equal nominal values in the base year. **1 point**

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

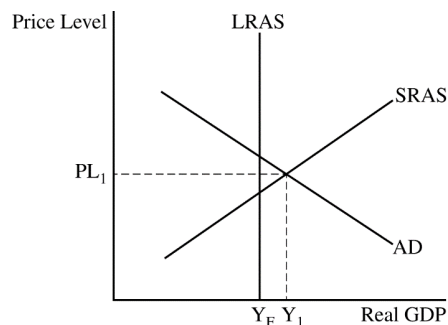
Point 2 $\text{Real GDP} = (\$11 \times 50) + (\$4 \times 70) + (\$12 \times 30) = \$1,190$

C 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 3



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

Point 5

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

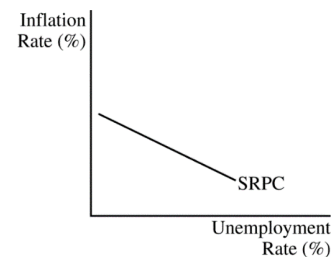
Question 1: Long 10 points

A State that the actual unemployment rate is 10%. **1 point**

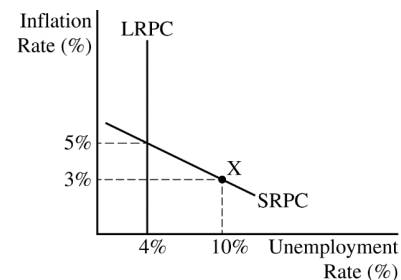
Point 1

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

Point 2



Point 3 The graph must include a vertical long-run Phillips curve (LRPC) at the natural rate of unemployment (4%), the expected inflation rate (5%) at the intersection of the SRPC and the LRPC, and a point labeled X on the SRPC to the right of the LRPC at the actual unemployment rate (10%) and the actual inflation rate (3%). **1 point**

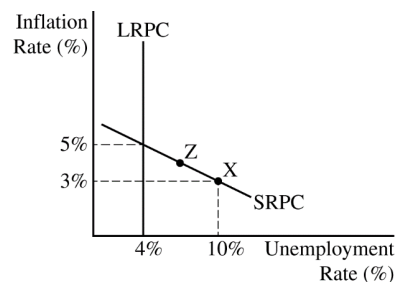


C State an increase in government spending, a decrease in taxes, or an increase in transfer payments. **1 point**

Point 4

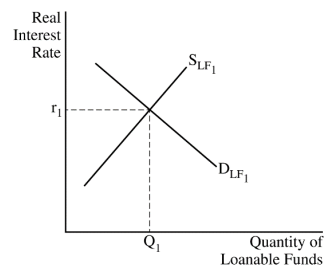
D (i) State that the government budget will move into deficit and explain that government outlays exceed revenue. **1 point**

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

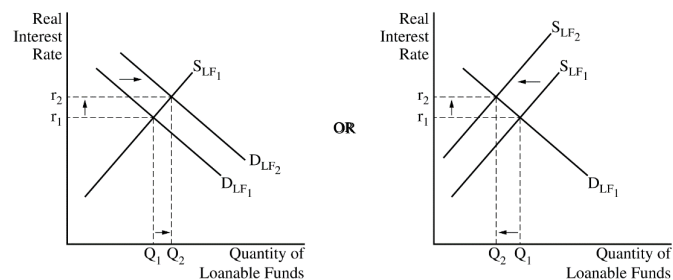


(iii) Draw a correctly labeled graph of the loanable funds market. **1 point**

Point 7



Point 8 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**



E State that Barrikos' capital and financial account (CFA) will move into surplus and explain that international investors will seek higher returns on financial capital in Barrikos, which will increase financial capital inflows into Barrikos. **1 point**

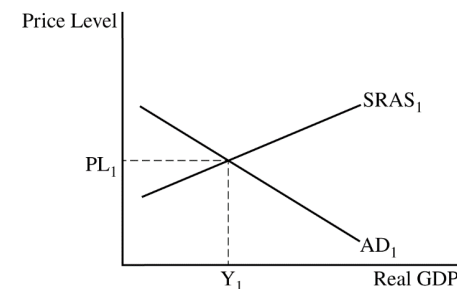
F State that Barrikos' currency will appreciate and explain that demand for the currency will increase (or the supply of the currency will decrease). **1 point**

Question 3: Short

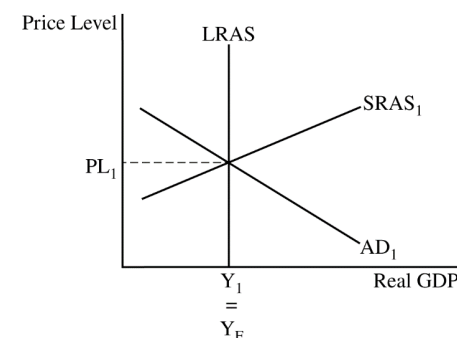
5 points

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

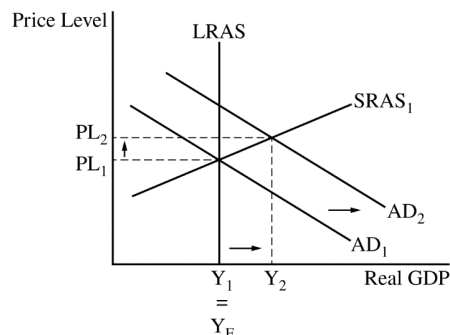
Point 1



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



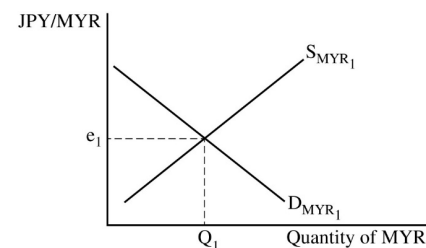
- B** On the graph from part A, show the short-run effect of the increase in real income in Thailand as a rightward shift of Nepal's aggregate demand curve, resulting in an increase in real output, labeled Y_2 , and an increase in the price level, labeled PL_2 . **1 point**
- Point 3



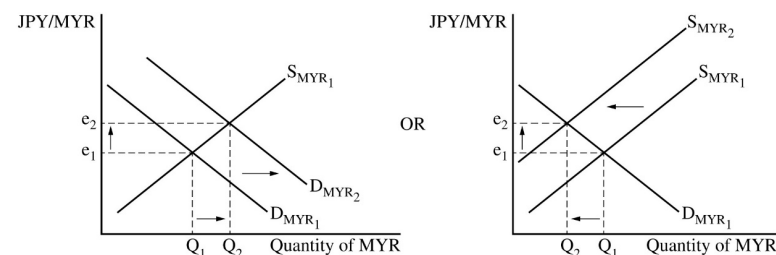
- C** Calculate the minimum change in government spending as a decrease of 100 million rupees and show your work. **1 point**
- Point 4
- $$\text{Min Change} = \frac{-400 \text{ million rupees}}{\frac{1}{(1 - 0.75)}} = \frac{-400 \text{ million rupees}}{4} = -100 \text{ million rupees}$$
- D** Explain 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**
- Point 5

Question 3: Short **5 points**

- (a) State an increase in government spending, a decrease in taxes, or an increase in transfer payments. **1 point**
- (b) State that the real interest rate will increase and explain that government borrowing will increase, which will increase the demand for loanable funds (or decrease the supply of loanable funds). **1 point**
- (c) Draw a correctly labeled graph of the foreign exchange market for the ringgit. **1 point**



- For the second point, the graph must show an increase in the demand for the ringgit (or a decrease in the supply of the ringgit), resulting in an appreciation of the ringgit. **1 point**



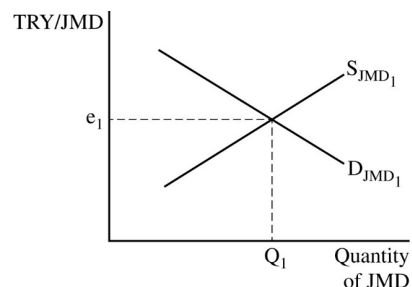
Total for part (c) 2 points

- (d) State that Malaysia's imports will increase and explain that the appreciation of the ringgit will make Japanese goods relatively less expensive than they were before. **1 point**

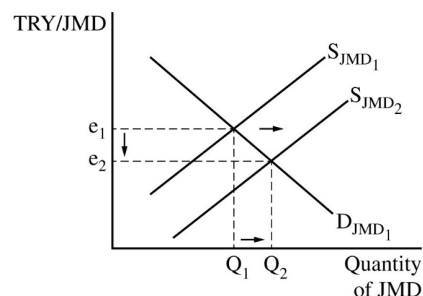
Total for question 3 5 points

Question 3: Short**5 points**

- (a) State an increase in government spending, a decrease in taxes, or an increase in transfer payments. **1 point**
- (b) State that Jamaica's net exports will decrease and explain that Jamaican demand for international goods will increase as a result of the increase in Jamaica's real income, which will increase Jamaican imports. **1 point**
- (c) Draw a correctly labeled graph of the foreign exchange market for the Jamaican dollar. **1 point**



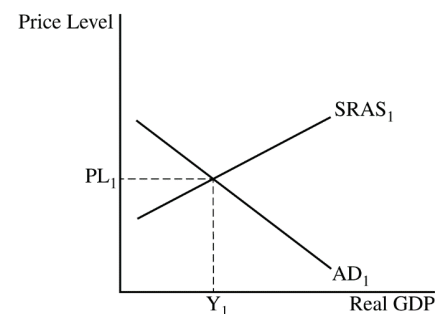
For the second point, the graph must show an increase in the supply of the Jamaican dollar, resulting in a depreciation of the Jamaican dollar. **1 point**

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

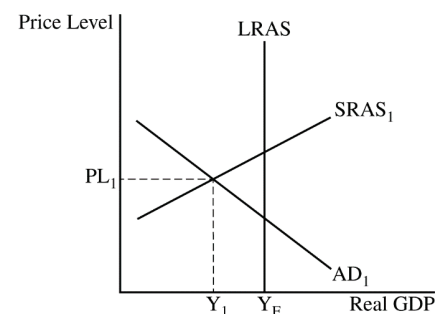
- (d) State that Jamaica's capital and financial account (CFA) will move into surplus and explain that the current account (CA) moved into deficit and the balance of payments must balance ($CA + CFA = 0$). **1 point**

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 as Y_F . **1 point**

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

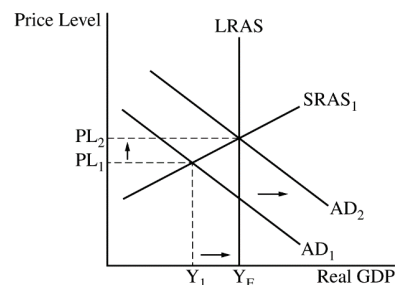
- (b)(i) Explain that input prices (e.g., nominal wages) and/or inflationary expectations will decrease, causing SRAS to increase until it reaches full employment. **1 point**
- (ii) State that the price level will be less than PL_1 . **1 point**

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. **1 point**

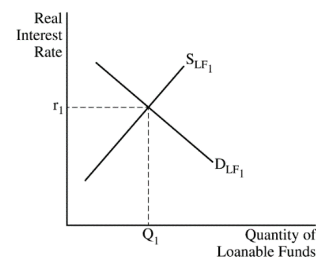
$$\text{Minimum Change} = \frac{\text{Output Gap}}{\text{Spending Multiplier}} = \frac{\$50 \text{ million}}{\left(\frac{1}{0.2}\right)} = \frac{\$50 \text{ million}}{5} \\ = \$10 \text{ million}$$

- (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 PL₂. **1 point**

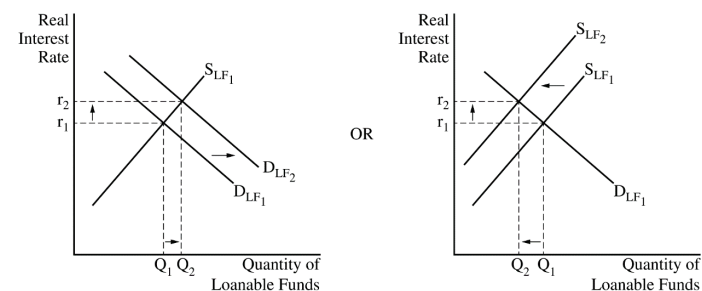


Total for part (c) 2 points

- (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**

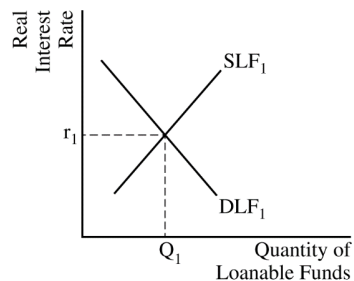
Total for part (e) 2 points

Total for question 1 10 points

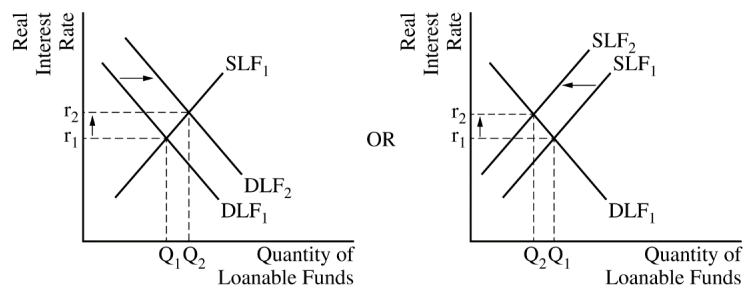
Question 2: Short**5 points**

- (a) State that the country could implement one of the following fiscal policy actions: increase government spending, increase transfer payments, or decrease taxes. **1 point**

- (b) Draw a correctly labeled graph of the loanable funds market. **1 point**



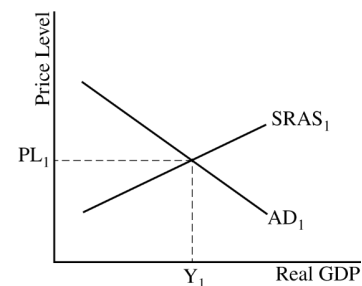
For the second point, the graph must show a rightward shift in the demand for loanable funds curve (or a leftward shift in the supply of loanable funds curve), resulting in an increase in the equilibrium real interest rate. **1 point**

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

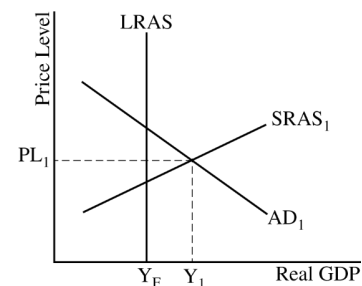
- (c) (i) State that net exports will decrease and explain that the increase in the real interest rate will increase the demand for the country's currency, which will cause the country's currency to appreciate and make domestic goods relatively more expensive than foreign goods, thereby decreasing exports. **1 point**
- (ii) State that the stock of physical capital will decrease and explain that the increase in the real interest rate will discourage investment spending in physical capital. **1 point**

Total for part (c) 2 points**Total for question 2 5 points****Question 1: Long****10 points**

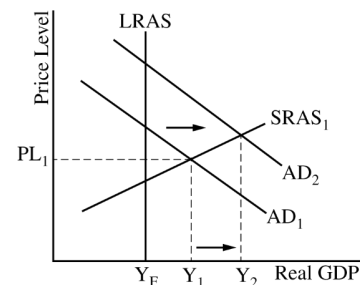
- (a) Draw a correctly labeled aggregate demand–aggregate supply graph that shows PL_1 and Y_1 at the intersection of AD_1 and $SRAS_1$. **1 point**



For the second point, the graph must show a vertical LRAS curve to the left of Y_1 and label the full employment output Y_F . **1 point**

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

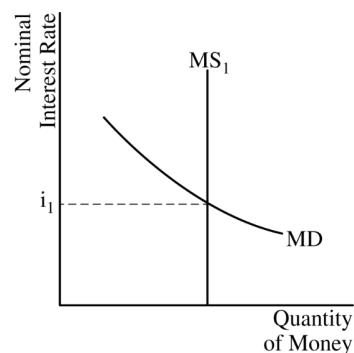
- (b) On the graph from part (a), show the impact of the government's action with a rightward shift of the AD curve and an increase in short-run equilibrium real output labeled Y_2 . **1 point**



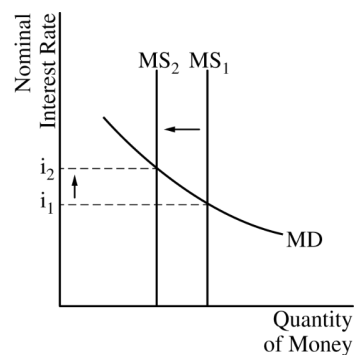
- (c) (i) State that the natural rate of unemployment will not change. **1 point**
- (ii) State that nominal interest rates will increase and explain that this is because the increase in real output will increase the demand for money. **1 point**

Total for part (c) 2 points

- (d) State that the central bank should sell bonds. **1 point**
- (e) Draw a correctly labeled graph of the money market. **1 point**



For the second point, the graph must show a leftward shift in the money supply curve, resulting in a higher nominal interest rate. **1 point**



Total for part (e) 2 points

- (f) State that Smithland's currency will appreciate and explain that this is because there will be financial capital inflows as foreign investors seek higher returns in Smithland, which will increase the demand for Smithland's currency or decrease the supply of Smithland's currency. **1 point**

- (g) State that Smithland's imports will increase and explain that this is because the appreciation of Smithland's currency means that foreign goods will be relatively less expensive. **1 point**

Total for question 1 10 points

Question 3: Short

5 points

- (a) (i) State that the government budget will move into deficit in the short run and explain that tax revenues (T) will decrease and transfer payments (TR) will increase. **1 point**
- (ii) State that the government debt will increase. **1 point**

Total for part (a) 2 points

- (b) Identify an increase in taxes or a decrease in government spending. **1 point**
- (c) State that the actual unemployment rate will increase in the short run and explain that aggregate demand will decrease, which will decrease real output. **1 point**
- (d) State that the government's efforts to maintain a balanced budget made Geeland's recession more severe in the short run and explain that in order to maintain a balanced budget, the government had to implement contractionary fiscal policy during a recession. (It is also acceptable to explain that the government's efforts to maintain a balanced budget will decrease real output or aggregate demand and that unemployment will increase.) **1 point**

Total for question 3 5 points

2018

AP CollegeBoard

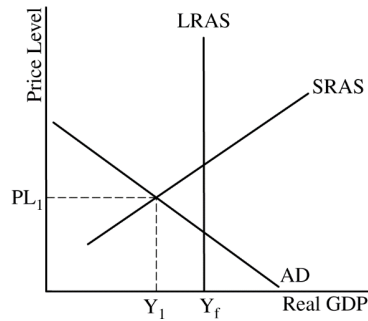
AP Macroeconomics

Scoring Guidelines

2018 SCORING GUIDELINES

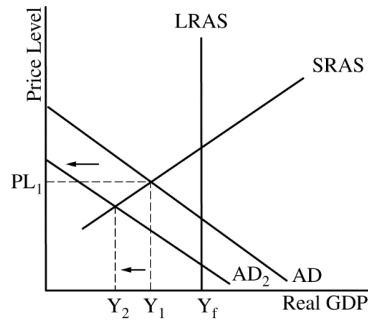
Question 1

10 points (2 + 3 + 2 + 3)



(a) 2 points:

- One point is earned for drawing a correctly labeled graph for aggregate demand (AD) and short-run aggregate supply (SRAS), showing PL_1 and Y_1 at the intersection of AD and SRAS.
- One point is earned for drawing a vertical LRAS curve to the right of Y_1 .

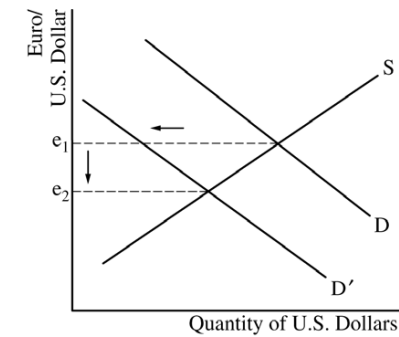


(b) 3 points:

- One point is earned for stating that United States exports will decrease and for explaining that the fall in income in the euro zone reduces the demand for United States goods.
- One point is earned for showing a leftward shift of the aggregate demand (AD) curve and showing lower United States real output on the graph.
- One point is earned for stating that unemployment in the U.S. will increase.

2018 SCORING GUIDELINES

Question 1 (continued)



(c) 2 points:

- One point is earned for stating that the euro will appreciate against the U.S. dollar because the supply of euros decreases OR because the dollar depreciates against the euro, the euro must appreciate.
- One point is earned for drawing a correctly labeled graph of the foreign exchange market for dollars and for showing a leftward shift in the demand curve for the dollar, which would result in a depreciation of the dollar.

(d) 3 points:

- One point is earned for stating that the U.S. aggregate demand will increase.
- One point is earned for stating that the U.S. price level will increase.
- One point is earned for stating that the change in the interest rate is indeterminate and for explaining that the combination of expansionary fiscal and monetary policies has opposite effects on interest rates (the expansionary fiscal policy will increase the interest rate, as government borrows to finance its spending, and the expansionary monetary policy will increase the money supply and decrease the interest rate).

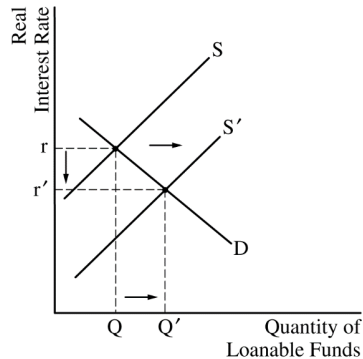
2018 SCORING GUIDELINES

Question 2

5 points (1 + 2 + 2)

(a) 1 point:

- One point is earned for stating that private savings will increase.



(b) 2 points:

- One point is earned for drawing a correctly labeled graph of the loanable funds market showing a downward sloping demand curve and an upward sloping supply curve.
- One point is earned for showing a rightward shift in the supply curve (increased private savings) and for showing a decrease in the equilibrium real interest rate.

(c) 2 points:

- One point is earned for stating that aggregate demand will increase and for explaining that the decrease in the real interest rate will result in an increase in interest-sensitive spending (consumption or investment or net exports).
- One point is earned for stating that potential real gross domestic product (GDP) will increase as a result of an increase in capital formation brought about by the increase in investment spending (or because capital formation increased the long-run aggregate supply).

2018 SCORING GUIDELINES

Question 3

5 Points (1 + 1 + 1 + 2)

(a) 1 point:

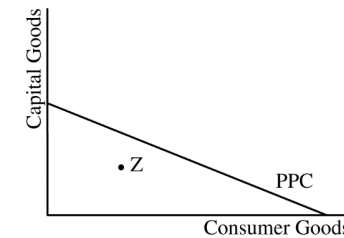
- One point is earned for stating that neither country has a comparative advantage in producing consumer goods and for explaining that the opportunity cost of producing 1 unit of consumer goods is the same for both countries (which is 1/2 a unit of capital goods).

(b) 1 point:

- One point is earned for correctly calculating the unemployment rate as 10 percent ($20,000/200,000 \times 100 = 10\%$).

(c) 1 point:

- One point is earned for correctly calculating the labor force participation rate as 66.67 percent ($200,000/300,000 \times 100 = 66.67\%$).



(d) 2 points:

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

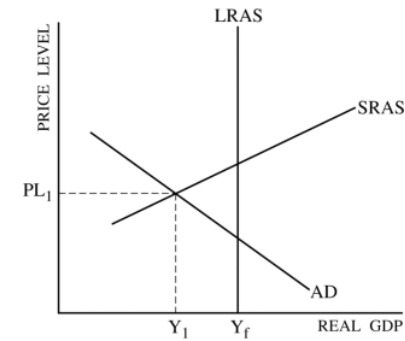
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2015 SCORING GUIDELINES

Question 1

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

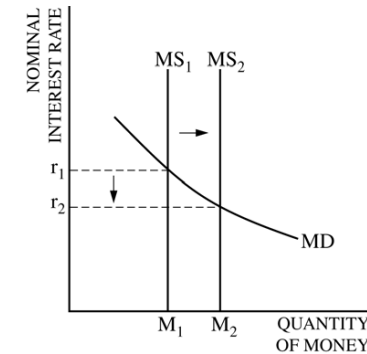


(a) 2 points:

- 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)

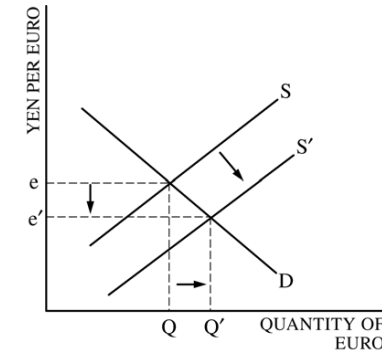
- (a) 1 point:
- One point is earned for stating that Country Y has an absolute advantage in producing solar panels.
- (b) 1 point:
- One point is earned for calculating the opportunity cost of a furnace for Country Y: 2 solar panels per furnace.
- (c) 2 points:
- One point is earned for stating that 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.