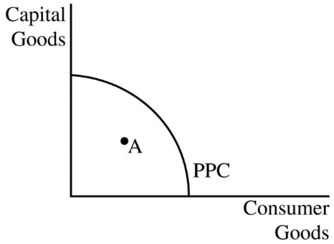
Question 3: Short — 5 points

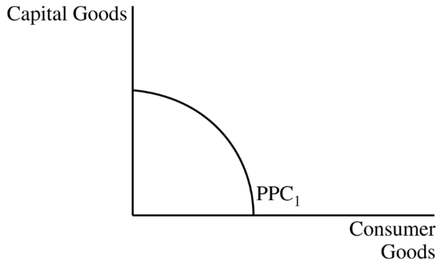
(a)	Calculate the number of people that are unemployed as 63,000 and show your work. $\text{Unemployed} = \text{Unemployment Rate} \times \text{Labor Force Participation Rate} \times \text{Adult Population} = 9\% \times 70\% \times 1{,}000{,}000 = 63{,}000$	**1 point**
(b)	State that the country of Zeta is currently experiencing a recessionary gap and explain that the current unemployment rate (9%) is higher than the natural rate of unemployment (5%).	**1 point**
(c)	Draw a correctly labeled graph of the production possibilities curve (PPC) for Zeta that shows point A below the PPC.	**1 point**



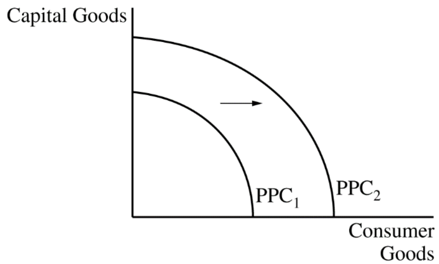
(d) (i)	State that the labor force participation rate will decrease and explain that the labor force will decrease because the workers who stopped looking for employment are no longer considered to be unemployed.	**1 point**
(ii)	State that the unemployment rate will decrease.	**1 point**
	Total for question 3	**5 points**

Question 2: Short — 5 points

(a)	Calculate Country A's real GDP in 2021 as 44,000, calculate Country A's real GDP per capita in 2021 as 400, and show your work. $\text{Real GDP} = \frac{88{,}000}{200} \times 100 = 44{,}000$ $\text{Real GDP per Capita} = \frac{44{,}000}{110} = 400$	**1 point**
(b)	State that the standard of living for the average person in Country A has stayed the same from 2020 to 2021 and explain that real GDP per capita in Country A did not change from 2020 to 2021.	**1 point**
(c)	State that an increase in government spending on education will promote economic growth in Country A and explain that human capital will increase and the labor force will become more productive.	**1 point**
(d)	Draw a correctly labeled graph of the production possibilities curve.	**1 point**



For the second point, the graph must show an outward shift of the production possibilities curve. — **1 point**



Total for part (d) — **2 points**

Total for question 2 — **5 points**

2019

AP CollegeBoard

AP® Macroeconomics

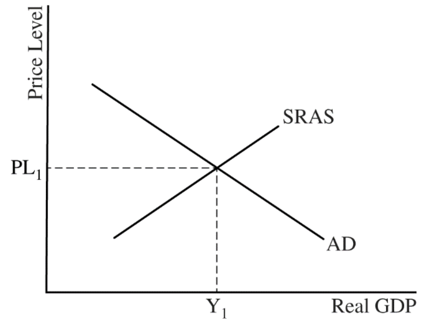
Scoring Guidelines
Set 2

2019 SCORING GUIDELINES

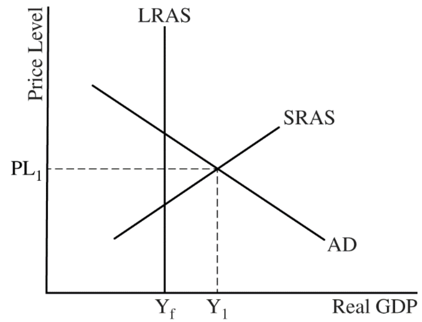
Question 1

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.

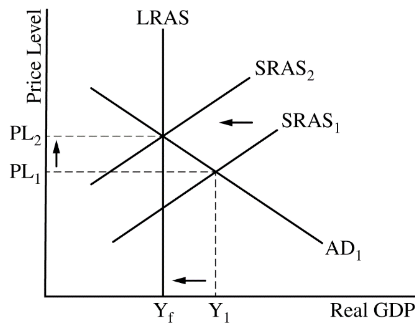


- One point is earned for drawing a correctly labeled vertical long-run aggregate supply (LRAS) curve with full employment output labeled Y_f to the left of the short-run equilibrium output level, Y_1.

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.

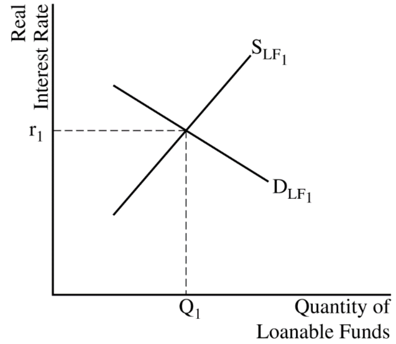
(c) 3 points

- 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.

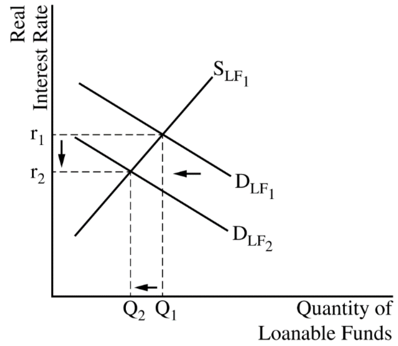
2019 SCORING GUIDELINES

Question 1 (continued)

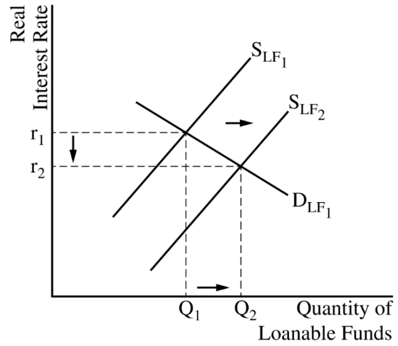
(d) 2 points



- 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

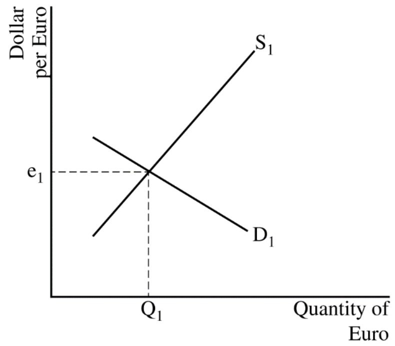
Question 2

5 points (1 + 2 + 2)

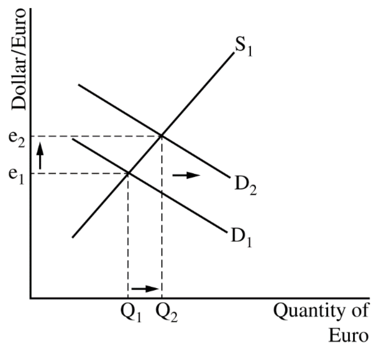
(a) 1 point

- 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

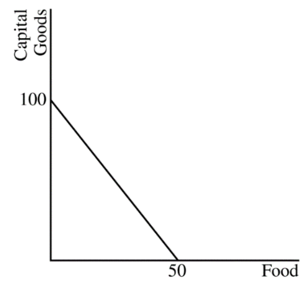
- One point is earned for stating that the demand for the dollar will decrease and for explaining that capital flows from the European Union to the U.S. will decrease.

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

2019 SCORING GUIDELINES

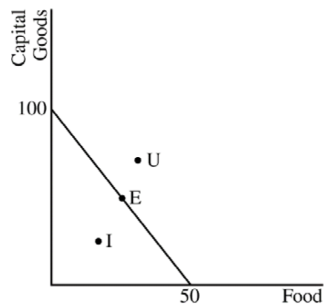
Question 3

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.

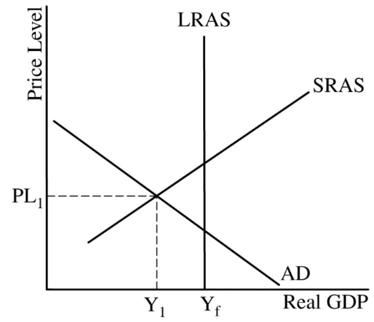
2018

AP Macroeconomics
Scoring Guidelines

2018 SCORING GUIDELINES

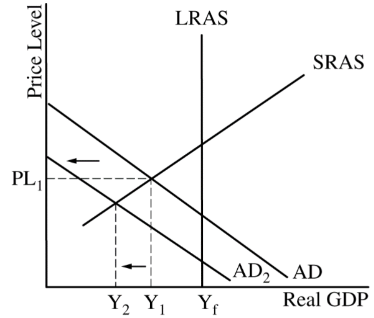
Question 1

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.

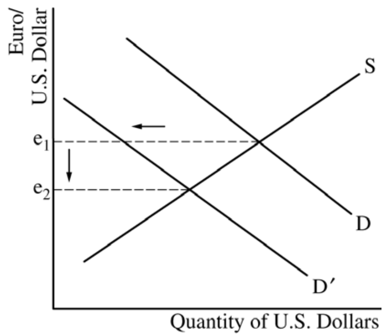


(b) 3 points:

- 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).

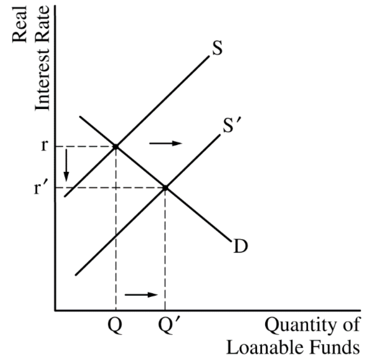
2018 SCORING GUIDELINES

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:

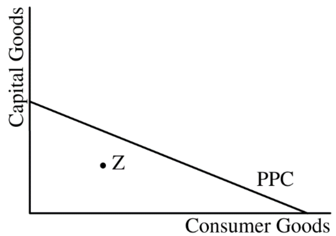
- One point is earned for stating that neither country has a comparative advantage in producing consumer goods and for explaining that the opportunity cost of producing 1 unit of consumer goods is the same for both countries (which is 1/2 a unit of capital goods).

(b) 1 point:

- One point is earned for correctly calculating the unemployment rate as 10 percent (20,000/200,000 × 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 × 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.

2017

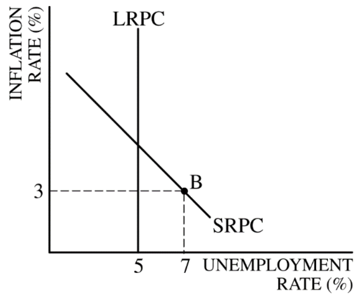
AP Macroeconomics

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:

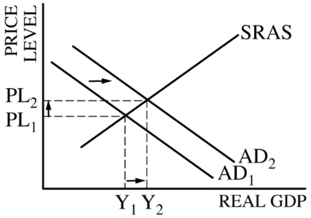
- One point is earned for stating that the short-run aggregate supply (SRAS) curve will shift to the right in the long run and for explaining that nominal wages will fall in response to high unemployment.
- One point is earned for stating that LRPC will remain unchanged.

(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.

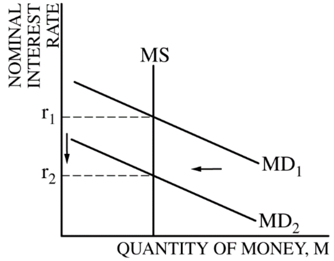
(f) 1 point:

- 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.

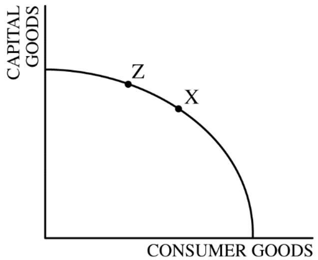
(d) 1 point:

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

2017 SCORING GUIDELINES

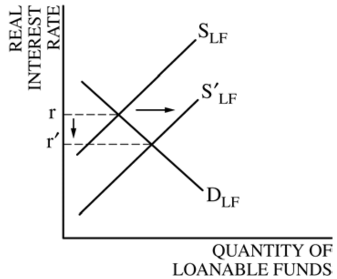
Question 3

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:

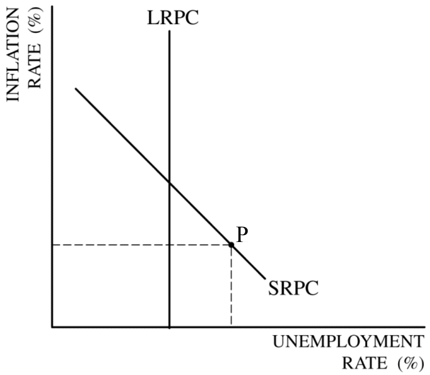
- One point is earned for stating that the long-run aggregate supply (LRAS) curve will shift to the right and for explaining that capital accumulation will increase.

AP® Macroeconomics 2016 Scoring Guidelines

2016 SCORING GUIDELINES

Question 1

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



(a) 2 points:
- One point is earned for drawing a correctly labeled graph showing a vertical LRPC and a downward sloping SRPC.
- One point is earned for showing point P on the SRPC to the right of LRPC.

(b) 1 point:
- One point is earned for stating that SRPC will shift to the left, and for explaining that producing at a level of output below full employment will create higher unemployment and lower inflationary expectations that will result in lower nominal wages and input costs.

(c) 1 point:
- One point is earned for stating that the Federal Reserve should buy bonds.

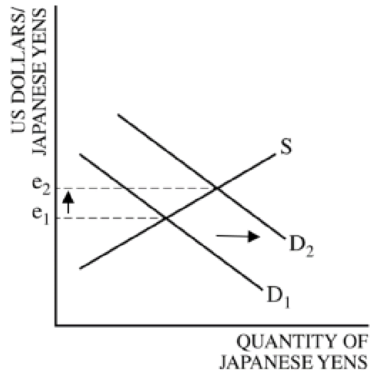
(d) 2 points:
- One point is earned for stating that the federal funds rate will decrease and for explaining that the money supply will increase, which will increase reserves and decrease the federal funds rate.
- One point is earned for stating that the real interest rate will decrease in the short run.

2016 SCORING GUIDELINES

Question 1 (continued)

(e) 1 point:
- One point is earned for stating that real GDP will increase in the short run and for explaining that a decrease in the real interest rate will increase interest-sensitive spending, which includes consumption and investment in plant and equipment, resulting in an increase in aggregate demand.

(f) 1 point:
- One point is earned for stating that the demand for the Japanese yen will increase in the foreign exchange market.



(g) 2 points:
- One point is earned for drawing a correctly labeled graph of the foreign exchange market for the Japanese yen.
- One point is earned for showing a rightward shift of the demand curve for the yen and showing an increase in the dollar price of the yen (appreciating yen).

2016 SCORING GUIDELINES

Question 2

6 points (1+1+2+1+1)

(a) 1 point:

- One point is earned for stating that new loans are zero because the bank has no excess reserves (or because the bank is already fully loaned up).

(b) 1 point:

- One point is earned for correctly calculating the maximum amount of new loans that First Superior Bank can make as $90 (= $100 x (1 – 0.10)).

(c) 2 points:

- One point is earned for correctly calculating the maximum change over time in loans in the banking system as $900 (= $90 × 10).
- One point is earned for correctly calculating the maximum change over time in demand deposits in the banking system as $1,000 (= $100 × 10).

(d) 1 point:

- One point is earned for correctly calculating the maximum change over time in the money supply in the banking system as $900 (= $90 × 10).

(e) 1 point:

- One point is earned for stating that the money supply can be smaller than the maximum change identified when the public holds more money and /or banks hold more excess reserves.

2016 SCORING GUIDELINES

Question 3

5 points (1+1+2+1)

(a) 1 point:

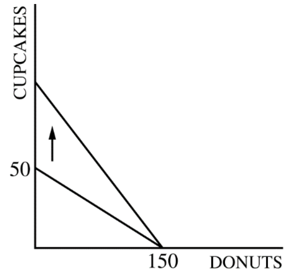
- One point is earned for stating that John has the absolute advantage in producing donuts and for explaining that John can produce more donuts than Erica in one day (200>150).

(b) 1 point:

- One point is earned for stating that Erica has a comparative advantage in producing donuts and for explaining that Erica's opportunity cost of producing one donut (1/3 of a cupcake) is less than John's opportunity cost of producing one donut (1/2 of a cupcake).

(c) 2 points:

- One point is earned for indicating that John will benefit from specialization and trade.
- One point is earned for indicating that Erica will not benefit from specialization and trade.



(d) 1 point:

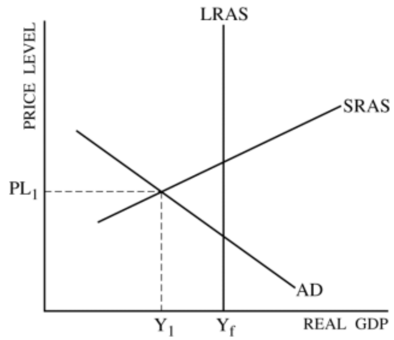
- One point is earned for drawing a correctly labeled graph of Erica's production possibilities curve, before the technology change, and for rotating the production possibilities curve outward showing greater production of cupcakes after the technology change.

AP® Macroeconomics
2015 Scoring Guidelines

2015 SCORING GUIDELINES

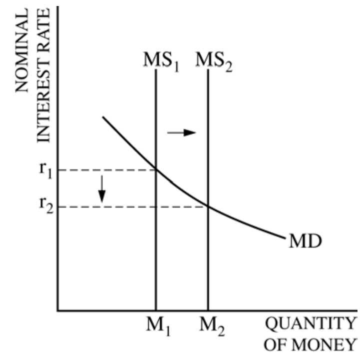
Question 1

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.

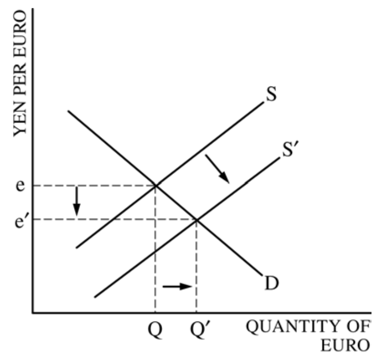
(d) 1 point:
- One point is earned for stating that Country X should produce solar panels domestically.

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.