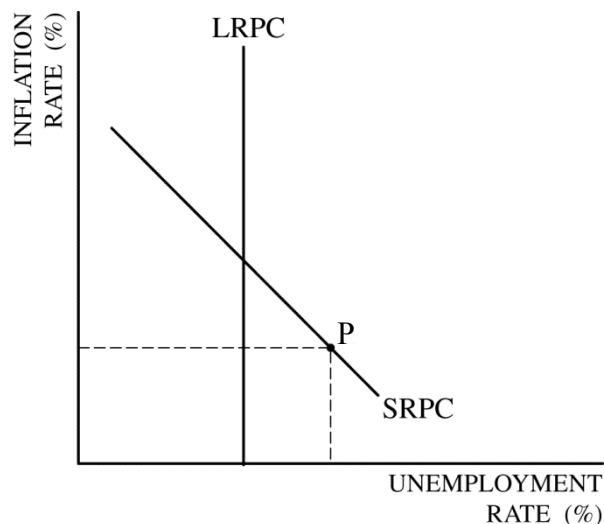


# AP<sup>®</sup> MACROECONOMICS 2016 SCORING GUIDELINES

## 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.

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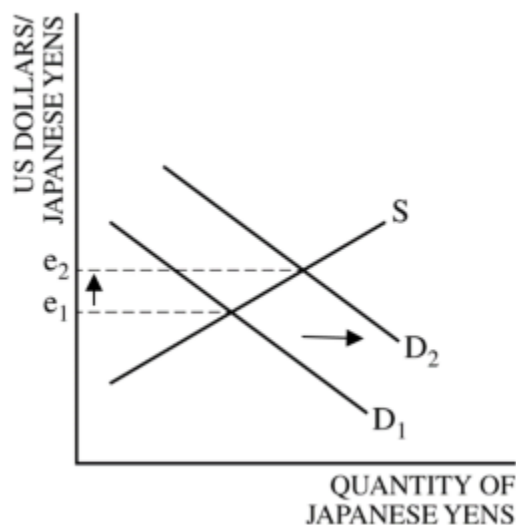
## Question 1 (continued)

(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:

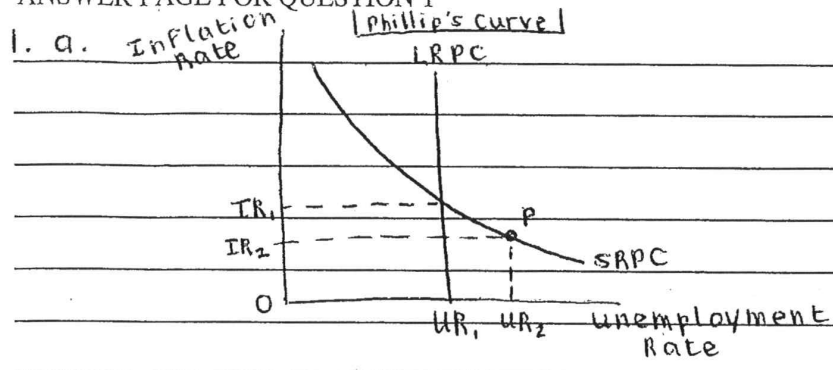
- One point is earned for stating that the demand for the Japanese yen will increase in the foreign exchange market.



(g) 2 points:

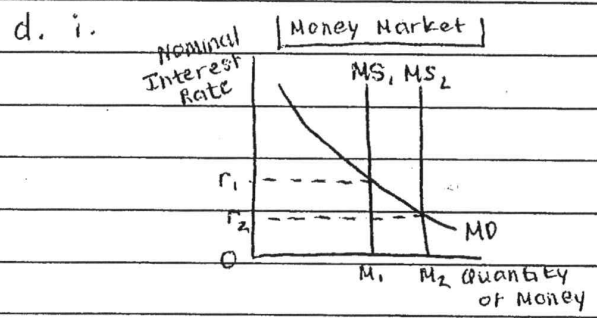
- One point is earned for drawing a correctly labeled graph of the foreign exchange market for the Japanese yen.
- One point is earned for showing a rightward shift of the demand curve for the yen and showing an increase in the dollar price of the yen (appreciating yen).

ANSWER PAGE FOR QUESTION 1



b. IF no policy actions are taken to combat the recessionary gap, in the long run the short run phillips curve will shift downward (left). This is because as wages go from sticky to flexible, they will adjust to the lower price level. This decreases the cost of inputs and due to a lower expected inflation, SRAS will shift right and SRPC will shift left.

c. To lower unemployment, the Fed should conduct an expansionary monetary policy of buying bonds.

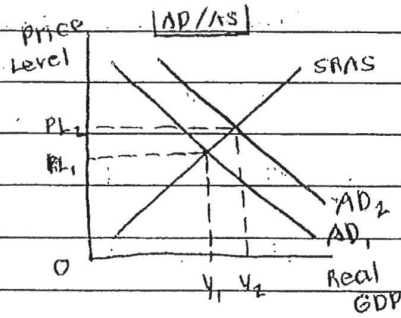


Buying bonds will  $\uparrow$  the MS from  $MS_1$  to  $MS_2 \Rightarrow \downarrow$  in the nominal interest rate from  $r_1$  to  $r_2 \Rightarrow \downarrow$  in the Fed Funds Rate due to downward pressure on rates

ii. The real interest rate will decrease in the short run because real interest rate = nominal interest rate - inflation rate and if the nominal rate  $\downarrow$  while inflation  $\uparrow$  then the real interest rate must decrease.

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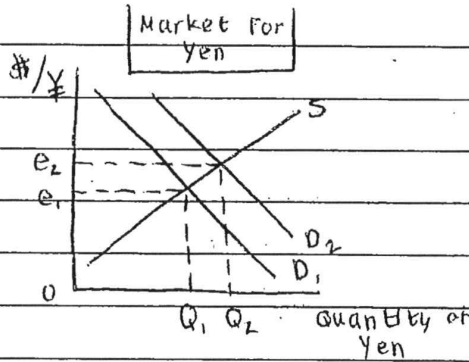
e.



~~the~~ The  $\downarrow$  in the real interest rate  $\Rightarrow$   $\uparrow$  in interest-sensitive investment and consumption  $\Rightarrow$   $\uparrow$  in  $A_d$  from  $AD_1$  to  $AD_2$   $\Rightarrow$   $\uparrow$  in real GDP from  $Y_1$  to  $Y_2$

f. Due to the  $\uparrow$  in real GDP in the US  $\Rightarrow$  US citizens will have a greater income and therefore import more from other countries  $\Rightarrow$   $\uparrow$  in the demand for Japanese Yen.

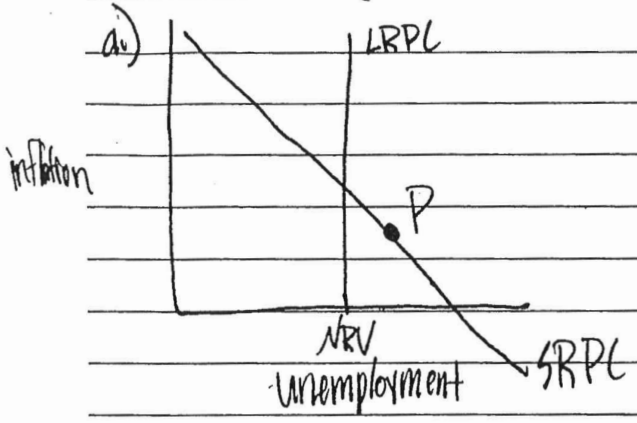
g.



The  $\uparrow$  in the demand for Japanese Yen  $\Rightarrow$  an appreciation of the yen from  $e_1$  to  $e_2$

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ANSWER PAGE FOR QUESTION 1



b.) The short-run Phillips curve will remain the same in the long-run. However, there may be movement on the short-run curve which moves the unemployment back to its natural rate, but because no policy actions are taken, there will not be a shift in the curve.

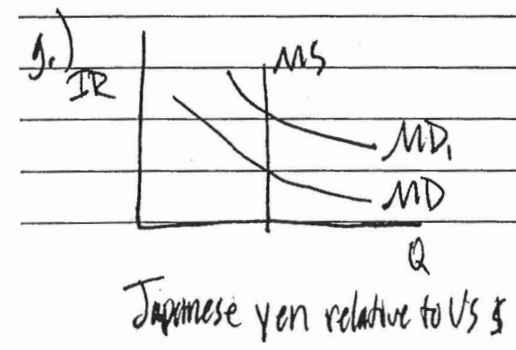
c.) If the Federal Reserve Bank wants to lower unemployment, it should buy bonds and securities on the open-market.

d.) i.) The Federal Funds rate will increase because the quantity of loanable funds will increase, which increases the Federal Funds Rate.

ii.) The interest rate will decrease.

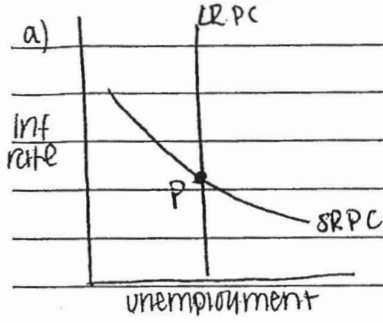
e.) Real GDP will increase because  $IR \downarrow \rightarrow I \uparrow \rightarrow AD \uparrow \rightarrow GDP \uparrow$ .

f.) The increase in real GDP will cause the demand for the Japanese yen to increase because demand for the US dollar will decrease.



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ANSWER PAGE FOR QUESTION 1



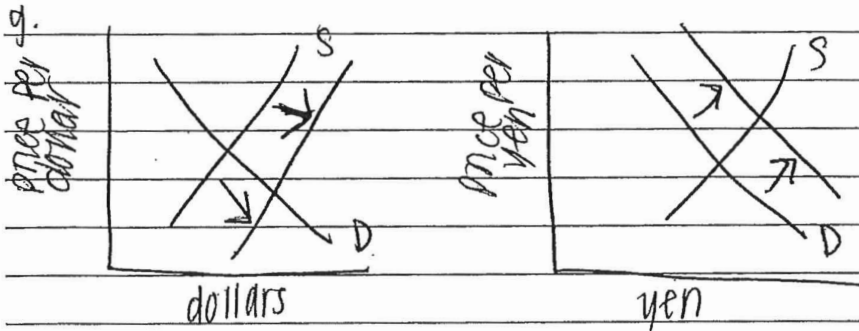
b. If no policy actions are taken, the short-run Phillips curve will remain the same in the long run. There is nothing to increase or decrease the inflation rate or unemployment.

c. If the government wants to lower unemployment, they should use expansionary fiscal policy.

d. The federal funds rate would decline and real interest rate will increase. The government will not spend as much on federal funds and consumers will get more back in interest.

e. Expansionary fiscal policy increases GDP in the short run. There are more products being produced, unemployment declines, and inflation declines.

f. Since ~~and~~ the US will have more output, the demand for Japanese yen will increase because we have more to export for import exchanges.



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# AP<sup>®</sup> MACROECONOMICS 2016 SCORING COMMENTARY

## Question 1

### Overview

This question examined the students' understanding of the Phillips Curve and the effects of monetary policy used to reduce unemployment. Part (a) required students to use the Phillips Curve model to show the relationship between inflation and unemployment in the long run (the long-run Phillips Curve) and in the short-run (the short-run Phillips Curve) and to show an economy in short-run equilibrium when actual unemployment exceeds the natural rate of unemployment. From this short-run equilibrium, part (b) asked students to explain how the short-run Phillips Curve changes in the long run when actual unemployment exceeds the natural rate of unemployment. The remainder of the question addressed the monetary policy needed to lower unemployment and the effects of that monetary policy. Part (c) asked for the open market operation necessary to lower unemployment. Part (d) asked for an explanation of how the open-market operation affects the federal funds rate and how the real interest rate in the short run is affected. Part (e) required an explanation of the effect of the change in the real interest rate on real GDP. Part (f) asked students to identify the effect of the change in real GDP on the demand for the Japanese yen, and part (g) asked them to use a graph to show the change in the demand for the yen and its effect on the value of the yen.

### Sample: 1A

**Score: 10**

The student answers all parts of the question correctly and earned all the points.

### Sample: 1B

**Score: 6**

The student did not earn 1 point in part (b) for incorrectly stating that the short-run Phillips curve will remain the same. The student did not earn the first point in part (d) for incorrectly stating that the federal funds rate will increase. The student did not earn 2 points in part (g) for drawing an incorrectly labeled graph of the foreign exchange market for the Japanese yen and for not indicating the changed value of the yen.

### Sample: 1C

**Score: 3**

The student earned the first point in part (a) for drawing a correctly labeled graph of the short-run Phillips curve and the long-run Phillips curve. The student earned 1 point in part (f) for stating that the demand for the Japanese yen will increase. The student earned the first point in part (g) for drawing a correctly labeled graph of the foreign exchange market for yen, but did not earn the second point because the change in the value of the yen is not indicated.