AP® Macroeconomics

Sample Student Responses and Scoring Commentary
Set 2

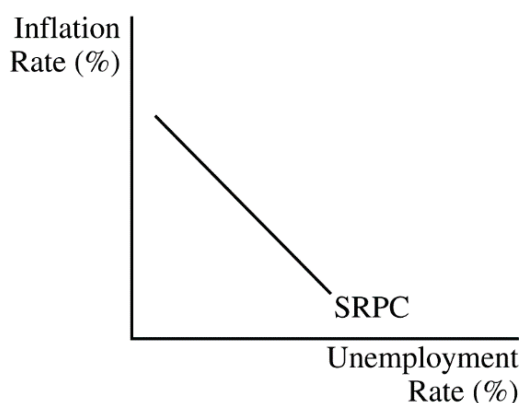**Inside:**

Free-Response Question 1

☑ **Scoring Guidelines**

☑ **Student Samples**

☑ **Scoring Commentary**

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   **1 point**
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%).
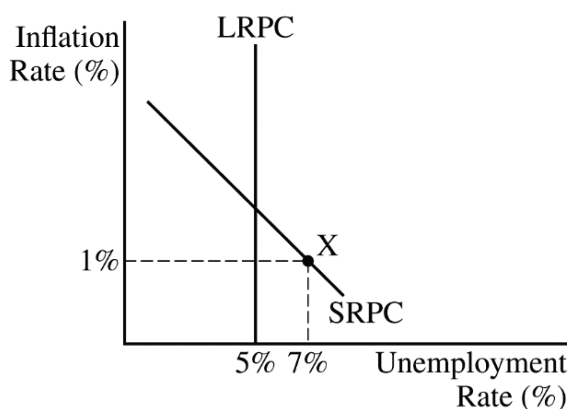
| | **Total for part (a)** | **2 points** |

(b)   State that the expected inflation rate is greater than 1% and explain that the actual   **1 point**
unemployment rate (7%) is greater than the natural rate of unemployment (5%); or
explain that the economy is in a recession.

(c) (i)   Calculate the maximum change in aggregate demand as $180 billion and show your work.   **1 point**

$$\text{Maximum } \Delta \text{ in AD} = -\$20 \text{ billion} \times \frac{-0.9}{1 - 0.9} = -\$20 \text{ billion} \times -9 = \$180 \text{ billion}$$
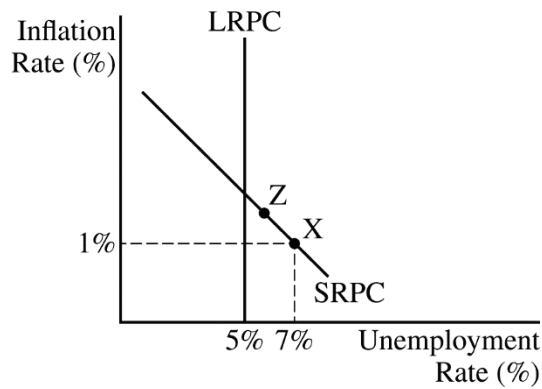
(ii)   Calculate the maximum change in aggregate demand as $200 billion and show your work.   **1 point**

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

| | **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**

Graph showing Inflation Rate (%) on vertical axis with LRPC (vertical line at 5%) and SRPC (downward sloping line). Point Z above point X at 1%, 7% Unemployment Rate (%).

| **(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**

Important: Completely fill in the circle that corresponds to the question you are answering on this page.

Question 1	Question 2	Question 3
●	○	○

Begin your response to each question at the top of a new page.

a)

d)
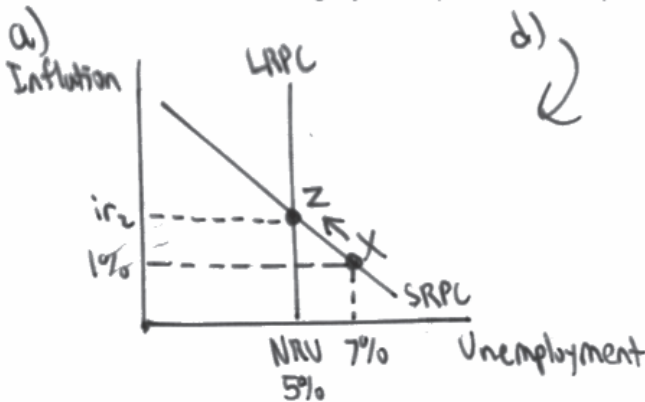
b) The expected inflation rate is greater than 1% because the government will attempt to decrease unemployment, leading to an increase in the inflation rate since they are inversely proportional.

c) i) Tax Multiplier $= -(\text{Spending Mult.} - 1) = -(\frac{1}{MPS} - 1) = -(\frac{1}{0.1} - 1) = -9$

$(-9)(-20 \text{ billion}) = \boxed{\$180 \text{ billion increase in AD}}$

ii) Spending Multiplier $= \frac{1}{MPS} = \frac{1}{0.1} = 10 \rightarrow (10)(20 \text{ billion}) = \boxed{\$200 \text{ billion increase in AD}}$

e) An increase in unemployment compensation would <u>increase AD</u> in the short run because Northland's average disposable income would increase and there would be an <u>increase in consumer spending</u>.

f) i) The SRAS would shift to the right because workers will eventually settle for lower wages, which would decrease labor costs since resources and wages are flexible in the long run.

ii) SRPC would shift to the left

iii) The actual unemployment rate will decrease

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Q5361/02

Important: Completely fill in the circle that corresponds to the question you are answering on this page.
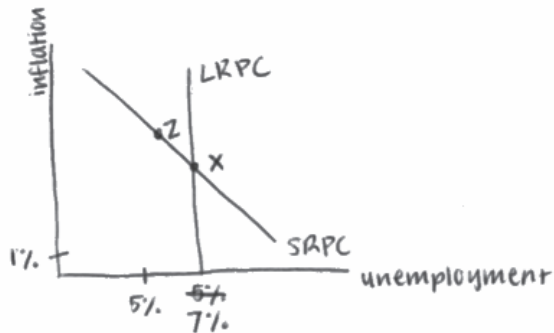
Question 1 ● Question 2 ○ Question 3 ○

Begin your response to each question at the top of a new page.

IA.

IB. The expected inflation rate is less than 1% because un-employment is above the natural rate. Thus, the actual inflation rate should be higher than the expected.

IC. i) tax mult. = $0.9/0.1 = 9$

   change in AD = 9(20 B) = $180 billion

   ii) spending mult. = $1/0.9 = 1.11$

   change in AD = 1.11(20 B) = $ 22.2 billion

ID. shown above

IE. An increase in unemployment compensation has no effect on aggregate demand because government transfer payments are not included in aggregate demand.

IF. i) The SRAS curve will decrease because unemployment is increasing and so is in inflation, which is indicative of a leftward shift of the SRAS curve because price level is increasing while real GDP ~~incr~~ decreases.

   ii) The SRPC will shift leftward towards equilibrium in the long run.

   iii) The actual unemployment rate will decrease in the long run.

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Use a pen with black or dark blue ink only. Do NOT write your name. Do NOT write outside the box.

Q5361/02
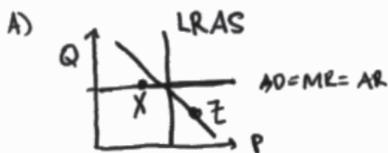
Begin your response to each question at the top of a new page.

A)

B) The expected inflation rate will be greater than 1% because the actual unemployment rate is higher than the natural unemployment rate by 2%.

c) marginal propensity to consume is 0.9

   i) $MP = 0.9$ $(\frac{1}{20})(0.9) = (0.05)(.9) = 4.5$

   ii) $MP = 0.9$ $(20)(0.9) = 1980$

d) new short run equilibrium point Z.

e) An increase in unemployment compensation, in the short run, would lead to the decrease in demand. The chart would shift to the right - on the demand curve.

f) i) the short run aggregate supply curve would show a shift to the left since the actual unemployment rate exceeds the natural unemployment rate.

   ii) The short run Phillips curve would also shift to the left

   iii) The actual unemployment rate would continue to go up since the government won't take any policy actions. since the actual unemployment rate has already passed the natural unemployment rate, policys are needed to balance it out again.

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Q5361/02

Question 1

Note: Student samples are quoted verbatim and may contain spelling and grammatical errors.

Overview

The question examined students' understanding of the Phillips curve and how to use it to represent the state of an economy in a recession. Students were asked to assume that the economy of Northland is in short-run equilibrium with an actual unemployment rate of 7% and an actual inflation rate of 1%. The natural unemployment rate in Northland is 5%. Part (a) required students to draw a correctly labeled graph of the short-run and long-run Phillips curves, to label the current short-run equilibrium point as X, and to plot the relevant numerical values provided on the graph. In part (b) students were asked to assert whether the expected inflation rate is greater than, less than, or equal to 1% and to explain the assertion. In part (c) students were told to assume that the marginal propensity to consume is 0.9. They were asked in part (c)(i) to calculate the maximum change in aggregate demand if the government decreases income taxes by $20 billion and to show their work, and they were asked in part (c)(ii) to calculate the maximum change in aggregate demand if, instead, the government increases spending by $20 billion and to show their work. In part (d) students were asked to show on their graph in part (a) a possible new short-run equilibrium point labeled Z that would result if the government increased spending and there is no change in inflationary expectations. In part (e) students were asked how an increase in unemployment compensation would affect aggregate demand in the short run and to explain the assertion. Finally, in part (f) students were told to assume that the government takes none of the preceding policy actions. In part (f)(i) students were asked to state and explain what would happen to the short-run aggregate supply curve in the long run. In parts (f)(ii) and (f)(ii) students were asked to state what would happen to the short-run Phillips curve and the actual unemployment rate in the long run.

Sample: 1A
Score: 9

The response earned the first point in part (a) for drawing a correctly labeled graph of the short-run Phillips curve (SRPC). The response earned the second point in part (a) for correctly drawing a vertical long-run Phillips curve (LRPC) at the natural rate of unemployment (5%) and showing point X on the SRPC to the right of the LRPC at the actual unemployment rate (7%) and the actual inflation rate (1%). The response did not earn the point in part (b) because it does not explain that the actual unemployment rate is greater than the natural rate of unemployment. The response earned 1 point in part (c)(i) for calculating the maximum change in aggregate demand as $180 billion and showing the work. The response earned 1 point in part (c)(ii) for calculating the maximum change in aggregate demand as $200 billion and showing the work. The response earned 1 point in part (d) for showing a new short-run equilibrium point labeled Z on the short-run Phillips curve to the left of point X. The response earned 1 point in part (e) for stating that aggregate demand would increase and explaining that the increase in disposable income would increase consumption spending. The response earned 1 point in part (f)(i) for stating that the short-run aggregate supply curve will shift to the right and explaining that nominal wages will decrease. The response earned 1 point in part (f)(ii) for stating that the short-run Phillips curve will shift to the left. The response earned 1 point in part (f)(iii) for stating that the actual unemployment rate will decrease.

Question 1 (continued)

Sample: 1B
Score: 5

The response earned the first point in part (a) for drawing a correctly labeled graph of the short-run Phillips curve (SRPC). The response did not earn the second point in part (a) because it does not draw a vertical long-run Phillips curve (LRPC) at the natural rate of unemployment (5%) and show point X on the SRPC to the right of the LRPC at the actual unemployment rate (7%) and the actual inflation rate (1%). The response did not earn the point in part (b) because it states that the expected inflation rate is less than 1%. The response earned 1 point in part (c)(i) for calculating the maximum change in aggregate demand as $180 billion and showing the work. The response did not earn the point in part (c)(ii) because it does not calculate the maximum change in aggregate demand as $200 billion. The response earned 1 point in part (d) for showing a new short-run equilibrium point labeled Z on the short-run Phillips curve to the left of point X. The response did not earn the point in part (e) because it does not state that aggregate demand would increase. The response did not earn the point in part (f)(i) because it does not state that the short-run aggregate supply curve will shift to the right. The response earned 1 point in part (f)(ii) for stating that the short-run Phillips curve will shift to the left. The response earned 1 point in part (f)(iii) for stating that the actual unemployment rate will decrease.

Sample: 1C
Score: 2

The response did not earn the first point in part (a) because it does not draw a correctly labeled graph of the short-run Phillips curve (SRPC). The response did not earn the second point in part (a) because it does not draw a vertical long-run Phillips curve (LRPC) at the natural rate of unemployment (5%) and show point X on the SRPC to the right of the LRPC at the actual unemployment rate (7%) and the actual inflation rate (1%). The response earned 1 point in part (b) for stating that the expected inflation rate is greater than 1% and explaining that the actual unemployment rate is greater than the natural unemployment rate. The response did not earn the point in part (c)(i) because it does not calculate the maximum change in aggregate demand as $180 billion. The response did not earn the point in part (c)(ii) because it does not calculate the maximum change in aggregate demand as $200 billion. The response did not earn the point in part (d) because it does not show point Z on a short-run Phillips curve. The response did not earn the point in part (e) because it does not state that aggregate demand would increase and explain that the increase in disposable income would increase consumption spending. The response did not earn the point in part (f)(i) because it does not state that the short-run aggregate supply curve will shift to the right and explain that input prices, nominal wages, and/or inflationary expectations will decrease. The response earned 1 point in part (f)(ii) for stating that the short-run Phillips curve will shift to the left. The response did not earn the point in part (f)(iii) because it does not state that the actual unemployment rate will decrease.