2022

AP® CollegeBoard

AP® Macroeconomics

Sample Student Responses and Scoring Commentary Set 1

Inside:

Free-Response Question 1

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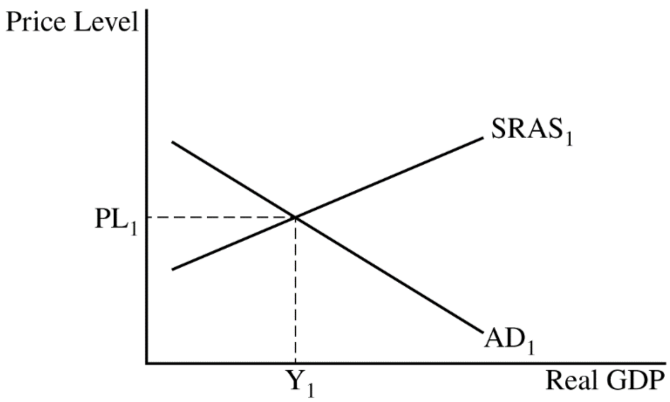
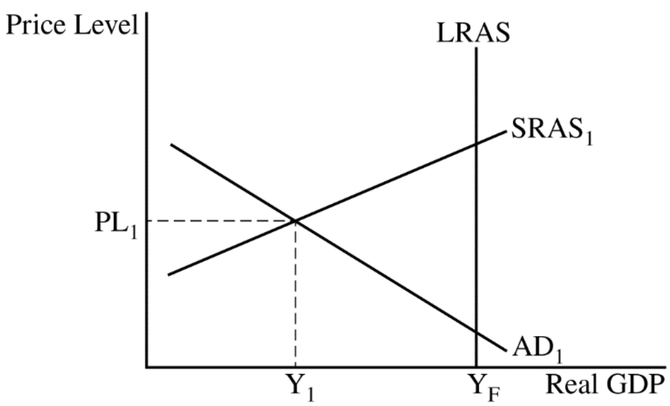
Question 1: Long — 10 points

(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**



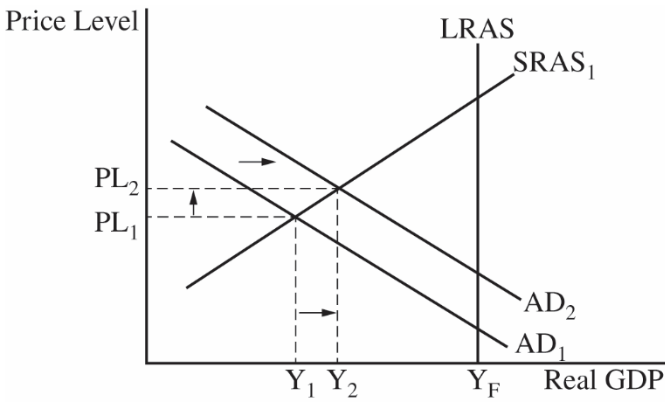
Total for part (a) — 2 points

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

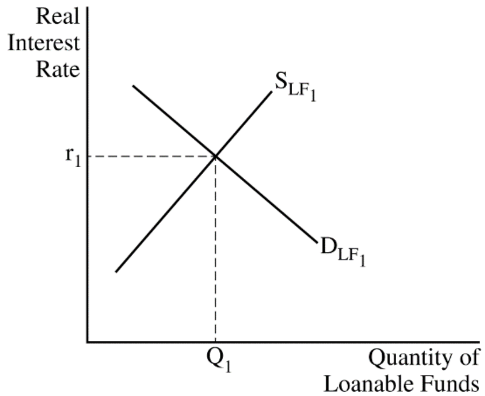
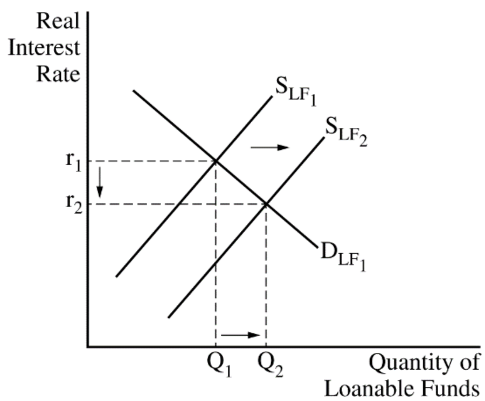
(c) Calculate the minimum change in investment spending as \$50 billion and show your work. **1 point**

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

(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**



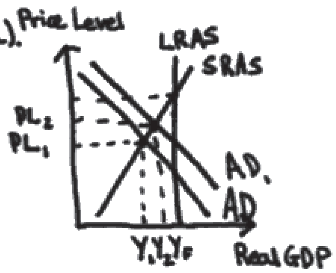
(e)	State that the actual rate of unemployment is greater than the natural rate of unemployment and explain that the economy is still in a recessionary gap.	**1 point**

(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**

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.

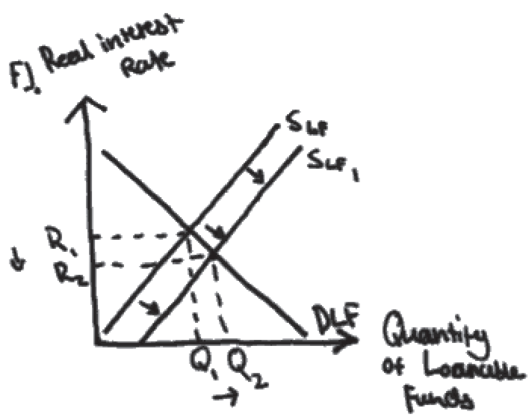
a).


b). The country's government can decrease income and buisness taxes to restore full employment.

c). The minimum change in investment spending is \$50 billion.
The spending multiplier is $\frac{1}{MPS}$ so $\frac{1}{.25} = 4$
$4X = 200 \quad X = 50$ bn \$

D). See graph in part A

E). We can assume that the actual rate of unemployment is still greater than the natural rate because even with the additional \$200 bn, the econmy is still in recession and performing below it's long run potential. This indicates that unemploynent is higher than its natural rate.

F).


g). i). Real GDP in the short run will increase because a lower interest rate promotes investment spending which will increase GDP. investment spending will boost AD.

ii). The LRAS will not shift based of a short term interest rate change.

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

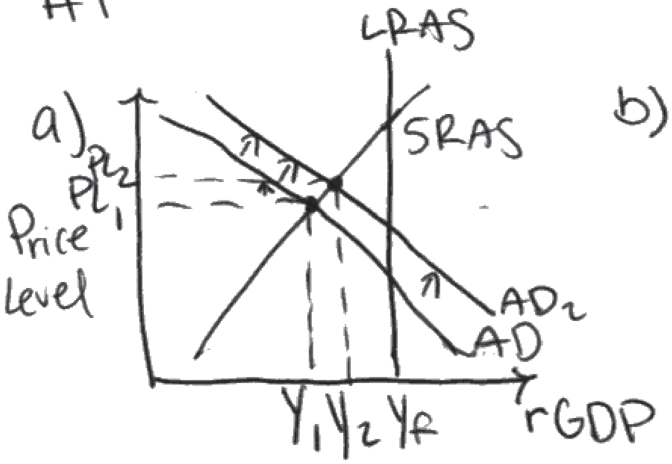
Important: Completely fill in the circle that corresponds to the question you are answering on this page.

Question 1 ● Question 2 ○ Question 3 ○

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

#1

a)



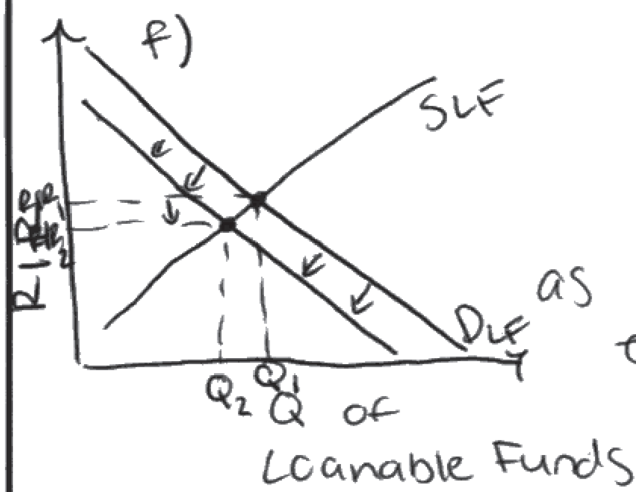
b) Increase goverment spending.

c) $200/4 = 50$

$\boxed{50 \text{ billion}}$

e) The actual rate of unemployment is less than the natural rate of unemployment because as seen on the graph, the economy is currently at Y_2, which is before the LRAS, or the natural rate of unemployment (Y_f).

f)



g)

gi) real GDP will increase because real interest rates have gone down, so aggregate demand will increase, causing a rightwards shift in rGDP.

gii) LRAS will remain constant because RIR does not shift the LRAS.

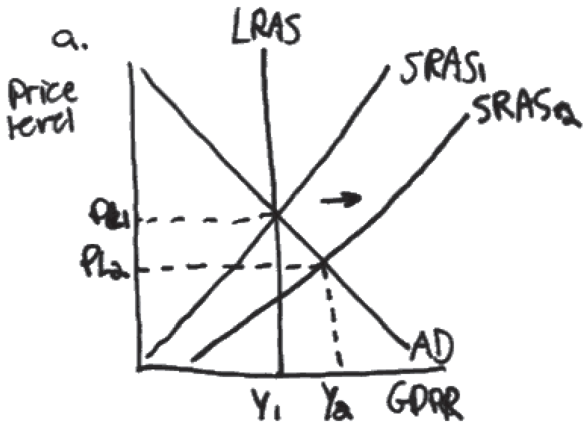
Use a pen with black or dark blue ink only. Do NOT write your name. Do NOT write outside the box.

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.



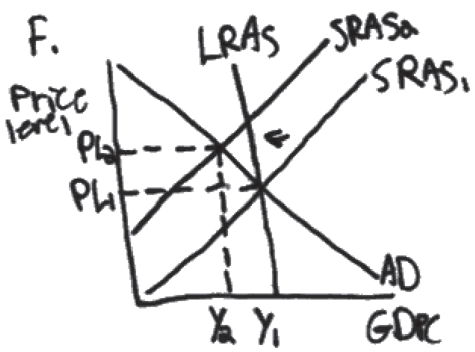
b. Government can increase taxes.

C. $\frac{200}{.25} = 80$

D. Shown on graph

E. Less than because Price level decreases.

F.



G.

i) Real GDP in Short run increased because of a left Shift

ii) LRAS was not effected

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

Question 1

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

Overview

The question examined students' understanding of the aggregate demand–aggregate supply (AD–AS) model in a recessionary gap and the fiscal policy action that can be pursued to restore full employment; the effects of a change in investment spending; the natural rate of unemployment; and the effects of a change in private savings. Part (a) required students to draw a correctly labeled graph of aggregate demand, short-run aggregate supply, and long-run aggregate supply, and show the current equilibrium and the full-employment output. In part (b) students were asked to identify one fiscal policy action the country's government can take to restore full employment. In part (c) students were asked to assume instead that no fiscal policy action is taken and to calculate the minimum change in investment spending that could have caused a given increase in real GDP. In part (d) students were asked to show the short-run effect of the change in investment spending identified in part (c) on their AD–AS graph. In part (e) students were asked to identify and explain, given their answer to part (d), whether the actual rate of unemployment is greater than, less than, or equal to the natural rate of unemployment. In part (f) students were asked to assume that private savings now increase and to draw a correctly labeled graph of the loanable funds market showing the effect of the increase in private savings on the real interest rate. Finally, in part (g) based solely on the change in the real interest rate shown in part (f), students were asked to identify and explain what will happen to real GDP in the short run and to long-run aggregate supply.

Sample: 1A
Score: 9

The response earned the first point in part (a) for drawing a correctly labeled aggregate demand–aggregate supply graph showing Y_1 and PL_1 at the intersection of AD and SRAS. The response earned the second point in part (a) for correctly showing a vertical LRAS curve to the right of Y_1 and labeling the full-employment output Y_F. The response earned 1 point in part (b) for stating that the government should decrease taxes. The response earned 1 point in part (c) for calculating the minimum change in investment spending as $50 billion and showing the work. The response earned 1 point in part (d) for correctly shifting AD to the right and showing an increase in the price level labeled PL_2 and an increase in real output labeled Y_2, where Y_2 is less than the full-employment output. The response earned 1 point in part (e) for stating that the actual rate of unemployment is greater than the natural rate of unemployment and explaining that the economy is still in a recessionary gap. The response earned the first point in part (f) for drawing a correctly labeled graph of the loanable funds market. The response earned the second point in part (f) for correctly shifting the supply of loanable funds curve to the right and showing a decrease in the equilibrium real interest rate. The response earned 1 point in part (g)(i) for stating that real GDP will increase in the short run and explaining that interest-sensitive spending will increase. The response did not earn the point in part (g)(ii) because it states that LRAS will not shift.

Question 1 (continued)

Sample: 1B
Score: 6

The response earned the first point in part (a) for drawing a correctly labeled aggregate demand-aggregate supply graph showing Y_1 and PL_1 at the intersection of AD and SRAS. The response earned the second point in part (a) for correctly showing a vertical LRAS curve to the right of Y_1 and labeling the full-employment output Y_F. The response earned 1 point in part (b) for stating that the government should increase government spending. The response earned 1 point in part (c) for calculating the minimum change in investment spending as $50 billion and showing the work. The response earned 1 point in part (d) for correctly shifting AD to the right and showing an increase in the price level labeled PL_2 and an increase in real output labeled Y_2, where Y_2 is less than the full-employment output. The response did not earn the point in part (e) because it states that the actual rate of unemployment is less than the natural rate of unemployment. The response earned the first point in part (f) for drawing a correctly labeled graph of the loanable funds market. The response did not earn the second point in part (f) because it shifts the demand for loanable funds curve. The response did not earn the point in part (g)(i) because it does not explain that real GDP will increase in the short run because of an increase in interest-sensitive spending. The response did not earn the point in part (g)(ii) because it states that LRAS will not shift.

Sample: 1C
Score: 1

The response earned the first point in part (a) for drawing a correctly labeled aggregate demand–aggregate supply graph showing Y_1 and PL_1 at the intersection of AD and SRAS. The response did not earn the second point in part (a) because it does not draw LRAS to the right of Y_1. The response did not earn the point in part (b) because it states that the government should increase taxes. The response did not earn the point in part (c) because it does not correctly show the work. The response did not earn the point in part (d) because it shifts SRAS to the right. The response did not earn the point in part (e) because it states that the actual rate of unemployment is less than the natural rate of unemployment. The response did not earn the first point in part (f) because it does not draw a loanable funds graph. The response did not earn the second point in part (f) because it does not draw a loanable funds graph with the correct shift. The response did not earn the point in part (g)(i) because it does not explain that real GDP will increase in the short run because of an increase in interest-sensitive spending. The response did not earn the point in part (g)(ii) because it states that LRAS will not shift.