

2023

AP[®]



AP[®] Macroeconomics

Sample Student Responses and Scoring Commentary Set 1

Inside:

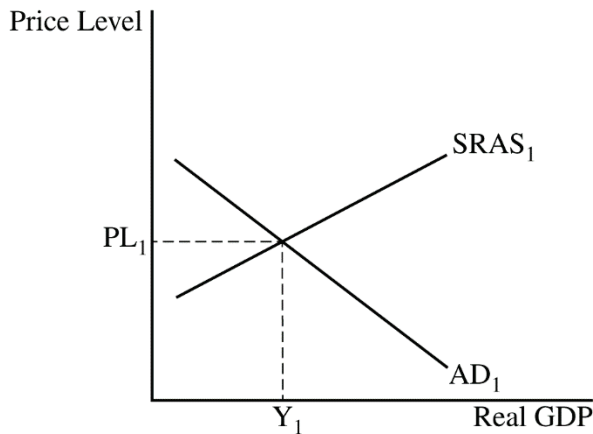
Free-Response Question 1

- Scoring Guidelines**
- Student Samples**
- Scoring Commentary**

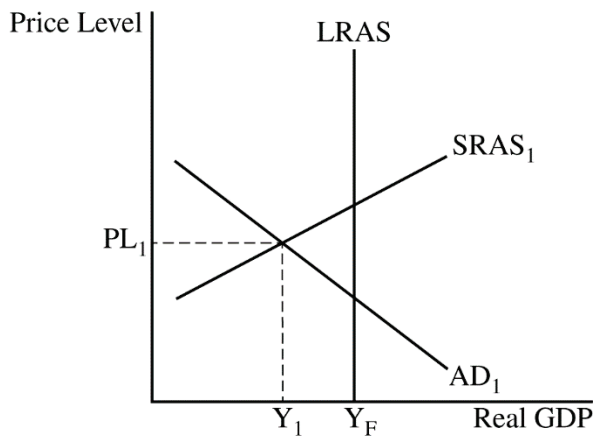
Question 1: Long

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

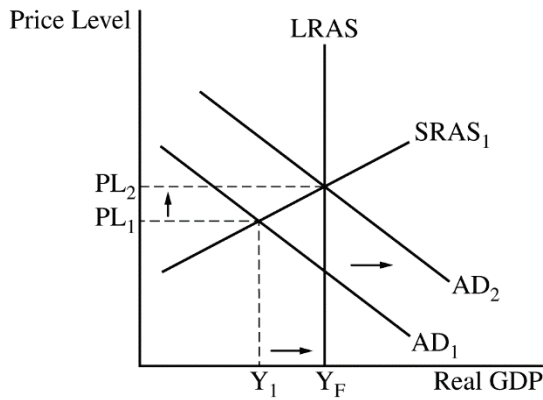
- (b)(i) Explain that input prices (e.g., nominal wages) and/or inflationary expectations will decrease, causing $SRAS$ to increase until it reaches full employment. **1 point**
- (ii) State that the price level will be less than PL_1 . **1 point**

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**

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

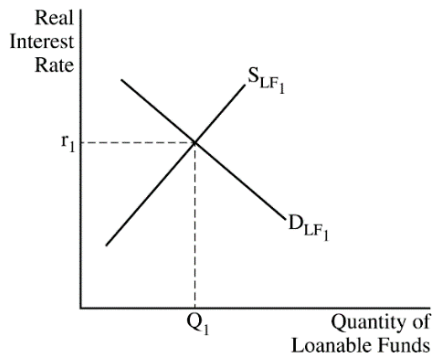
- (ii)** On the graph from part (a), show the short-run effect of the change in government spending as a rightward shift of the aggregate demand curve where the new short-run equilibrium intersects the long-run aggregate supply curve at a higher equilibrium price level, labeled PL₂. **1 point**



Total for part (c) 2 points

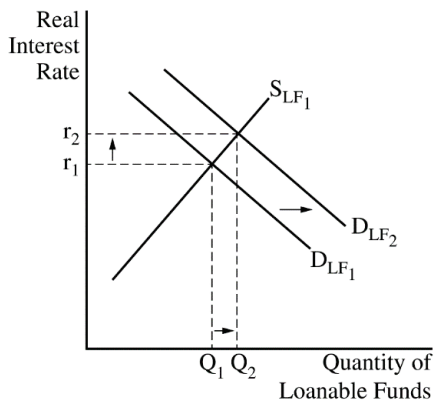
(d) Draw a correctly labeled graph of the loanable funds market.

1 point

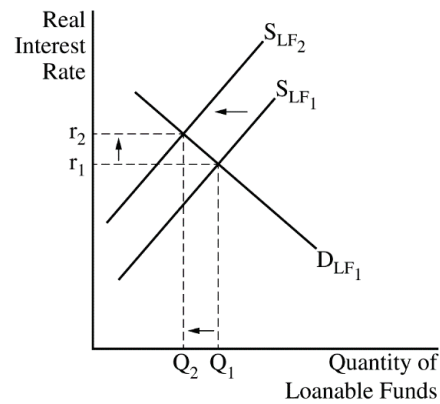


For the second point, the graph must show an increase in the demand for loanable funds (or a decrease in the supply of loanable funds), resulting in an increase in the equilibrium real interest rate.

1 point



OR



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

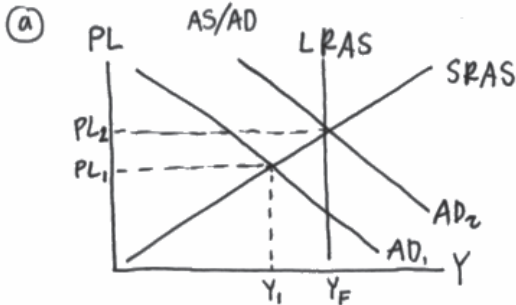
Total for part (e) 2 points

Total for question 1 10 points

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.



(b)(i) The economy will self-correct, shifting the short-run aggregate supply curve to the right.

(ii) The price level will be less than PL_1 .

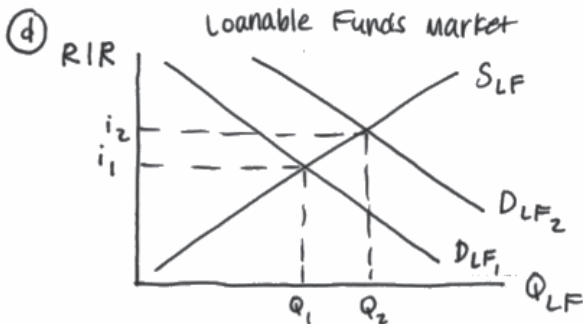
(c)(i) $MPS = 0.2$

spending multiplier = $\frac{1}{0.2} = 5$

inc. in output = \$550 mil - \$500 mil = \$50 mil

5 (spending) = \$50 mil

min. change in govt. spending = \$10 mil increase in govt. spending.



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equilibrium real interest rate increases.

(e)(i) The price of previously issued bonds decreases.

(ii) The rate of economic growth in the long run remains the same because there was no investment in the development of new technology.

Page 2

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.

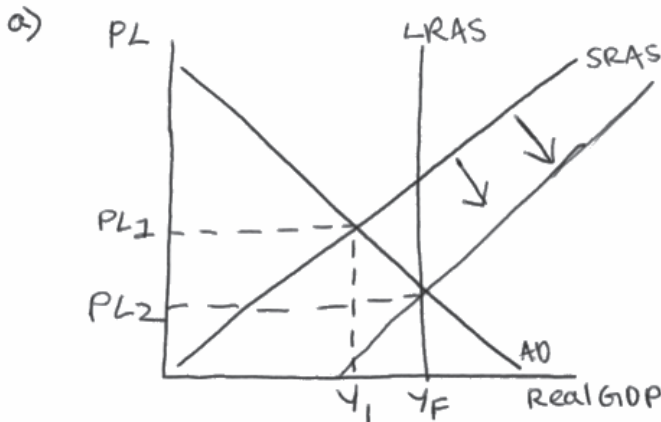
Question 1

Question 2

Question 3



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

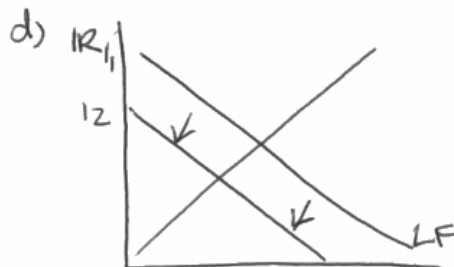


b) I. In the long run, the economy will show a rightward shift in the SRAS in order to match to the LRAS.

II. Following the Long-run adjustment process, the price level will be less than PL_1 shown on the graph in part a.

c) $\$50M / 0.2 = 250,000,000 \Rightarrow$ minimum change. The direction of change in government spending that would be required would be to the right \Rightarrow increase.

II. on graph



e) I. The price of previously issued bonds will decrease.

II. The rate of economic growth in the long run will decrease because interest rates decreased so there is less return on investment.

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

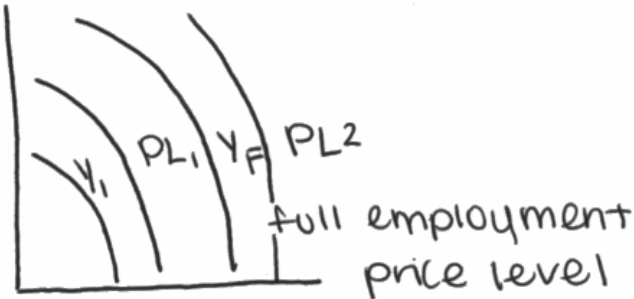
Question 2

Question 3



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

1a.



aggregate short run demand aggregate supply long run aggregate

b. the economy will have shorter work hours
the price level will be greater than PL_1 .

c. $\$550 \times .2 = \110 million.

d.



change in government spending.

e. the price of previously issued bonds will decrease and the rate of economic growth will increase

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 model in a recessionary gap environment, self-adjustment to full employment in the long run, and the effects of fiscal policy on real GDP, the price level, the loanable funds market, and economic growth. The question began by asking students to assume that the economy of Vanderlandia is in short-run equilibrium with a real GDP of \$500 million; the full-employment level of real GDP is \$550 million. In part (a) students were asked to draw a correctly labeled graph of the aggregate demand, short-run aggregate supply, and long-run aggregate supply curves and show (i) the current equilibrium real output and price level, labeling them Y_1 and PL_1 , respectively, and (ii) the full-employment output, labeling it Y_F . In part (b) students were asked to assume that no policy action is taken to restore full employment and to (i) explain how the economy will self-adjust in the long run. Students were then asked to assert whether, after the long-run self-adjustment process, the price level in Vanderlandia is greater than, less than, or equal to PL_1 shown on their graph in part (a). In part (c) students were asked to assume instead that policymakers in Vanderlandia are considering changing government spending to restore full employment in the short run and that the marginal propensity to save is 0.2. Students were asked to (i) calculate the minimum change and state the direction of change in government spending required to completely close the output gap in the short run; students must show their work. In part (c)(ii) students were asked to show the short-run effect of the change in government spending in part (c)(i) on the aggregate demand–aggregate supply graph in part (a) and label the new equilibrium price level PL_2 . In part (d) students were asked to draw a correctly labeled graph of the loanable funds market and to show the effect of the change in government spending in part (c)(i) on the equilibrium real interest rate. Finally, in part (e), based on the change in the real interest rate shown on the graph in part (d), students were asked what will happen to (i) the price of previously issued bonds and (ii) the rate of economic growth in the long run and to explain.

Sample: 1A

Score: 8

The response earned the first point in part (a) for drawing a correctly labeled aggregate demand–aggregate supply graph showing PL_1 and Y_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 as Y_F . The response did not earn the point in part (b)(i) because it does not explain how SRAS increases. The response earned 1 point in (b)(ii) for stating that the price level is less than PL_1 . The response earned 1 point in part (c)(i) for calculating the change in government spending as \$10 million and showing the work. The response earned 1 point in part (c)(ii) for correctly shifting AD in part (a) to the right to intersect LRAS at a higher equilibrium price level, labeled PL_2 . The response earned the first point in part (d) for drawing a correctly labeled graph of the loanable funds market. The response earned the second point in part (d) for showing an increase in the demand for loanable funds and an increase in the equilibrium real interest rate. The response earned 1 point in part (e)(i) for stating that the price of previously issued bonds will decrease. The response did not earn the point in part (e)(ii) because it incorrectly states that economic growth in the long run will remain the same.

Question 1 (continued)**Sample: 1B****Score: 4**

The response earned the first point in part (a) for drawing a correctly labeled aggregate demand–aggregate supply graph showing PL_1 and Y_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 as Y_F . The response did not earn the point in part (b)(i) because it does not explain that input prices, nominal wages, and/or inflationary expectations decrease, causing an increase in SRAS. The response earned 1 point in (b)(ii) for stating that the price level is less than PL_1 . The response did not earn the point in part (c)(i) because it incorrectly calculates the minimum change in government spending. The response did not earn the point in part (c)(ii) because it does not show a rightward shift of AD. The response did not earn the first point in part (d) because it does not show a correctly labeled graph of the loanable funds market. The response did not earn the second point in part (d) because it does not 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. The response earned 1 point in part (e)(i) for stating that the price of previously issued bonds will decrease. The response did not earn the point in part (e)(ii) because it does not explain that there will be a decrease in spending on physical capital, human capital, and/or research and development.

Sample: 1C**Score: 1**

The response did not earn the first point in part (a) because it does not draw a correctly labeled aggregate demand–aggregate supply graph showing PL_1 and Y_1 at the intersection of AD and SRAS. The response did not earn the second point in part (a) because it does not show a vertical LRAS curve to the right of Y_1 and does not label the full-employment output as Y_F . The response did not earn the point in part (b)(i) because it does not explain that input prices, nominal wages, and/or inflationary expectations decrease, causing an increase in SRAS. The response did not earn the point in (b)(ii) because it incorrectly states that the price level is greater than PL_1 . The response did not earn the point in part (c)(i) because it incorrectly calculates the minimum change in government spending. The response did not earn the point in part (c)(ii) because it does not show a rightward shift of AD. The response did not earn the first point in part (d) because it does not show a correctly labeled graph of the loanable funds market. The response did not earn the second point in part (d) because it does not 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. The response earned 1 point in part (e)(i) because it states that the price of previously issued bonds will decrease. The response did not earn the point in part (e)(ii) because it incorrectly states that the rate of economic growth will increase.