1. Assume Smithland is in short-run equilibrium at a level of output that exceeds the full-employment level of output.

(a) Draw a correctly labeled graph of the aggregate demand, short-run aggregate supply, and long-run aggregate supply curves, and show each of the following.

(i) The current equilibrium real output and price level, labeled $Y_1$ and $PL_1$, respectively
(ii) The full-employment output, labeled $Y_F$

(b) Assume Smithland's government cuts individual income taxes. On your graph in part (a), show the short-run effect of the tax cut on equilibrium real output, labeling the new short-run equilibrium real output $Y_2$.

(c) Based solely on the change in real output on your graph in part (b), what will happen to each of the following in the short run?

(i) The natural rate of unemployment
(ii) Nominal interest rates. Explain.

(d) Assume instead the central bank intervenes to correct an inflationary output gap. What open-market operation should the central bank take?

(e) Draw a correctly labeled graph of the money market, and show the effect of the open-market operation identified in part (d) on the nominal interest rate.

(f) Based solely on the interest rate change identified in part (e), what will happen to the international value of Smithland's currency in the foreign exchange market? Explain.

(g) Based solely on the exchange rate change identified in part (f), will Smithland's imports increase, decrease, or remain the same? Explain.

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**Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.**

2. An economy is currently in short-run equilibrium with a recessionary output gap of $600 billion.

(a) Draw a single correctly labeled graph with both the short-run and long-run Phillips curves. Label the initial short-run equilibrium point X.

(b) Suppose the government implements fiscal policy in order to achieve full-employment output and the marginal propensity to consume is 0.75.

(i) Calculate the minimum change in government spending required to increase aggregate demand by the amount of the output gap of $600 billion. Show your work.

(ii) Suppose instead the government wants to change taxes rather than government spending. Calculate the minimum change in taxes required to increase aggregate demand by the amount of the output gap of $600 billion. Show your work.

(c) Assume instead the government takes no policy action to close the output gap shown in part (a). Explain how the economy will adjust in the long run.

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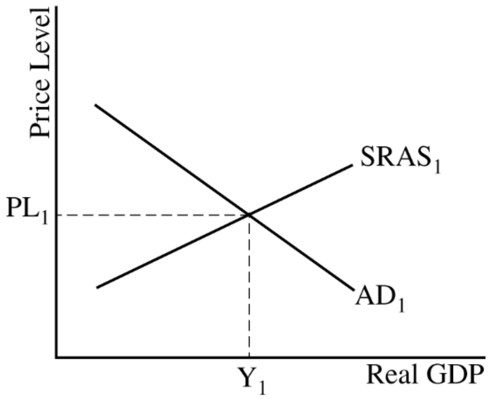
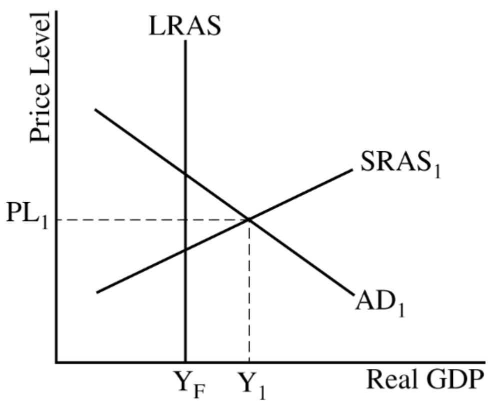
**Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.**

## 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 AD and SRAS. **1 point**

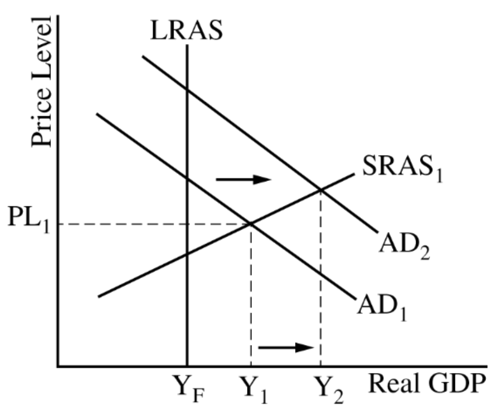



For the second point, the graph must show a vertical LRAS curve to the left of $Y_1$ and label the full employment output $Y_F$. **1 point**




**Total for part (a) — 2 points**

**(b)** On the graph from part (a), show the impact of the government's action with a rightward shift of the AD curve and an increase in short-run equilibrium real output labeled $Y_2$. **1 point**



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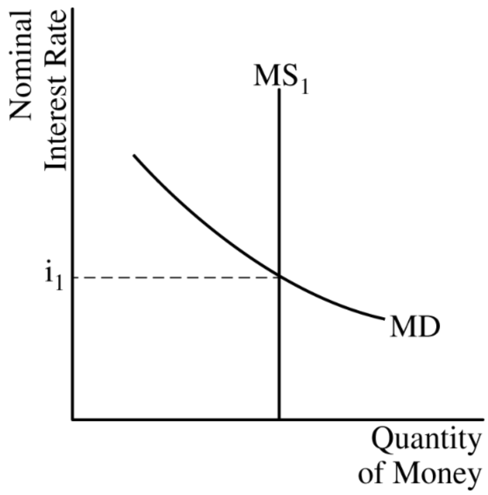
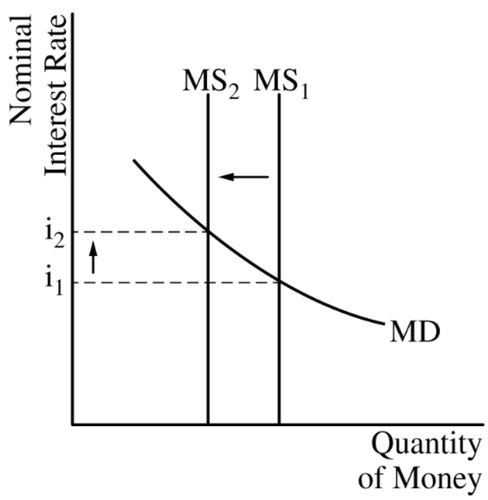
|---|---|---|
| **(c) (i)** | State that the natural rate of unemployment will not change. | **1 point** |
| **(ii)** | State that nominal interest rates will increase and explain that this is because the increase in real output will increase the demand for money. | **1 point** |
| | **Total for part (c)** | **2 points** |
| **(d)** | State that the central bank should sell bonds. | **1 point** |
| **(e)** | Draw a correctly labeled graph of the money market. | **1 point** |




For the second point, the graph must show a leftward shift in the money supply curve, resulting in a higher nominal interest rate. **1 point**

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| | **Total for part (e)** | **2 points** |
| **(f)** | State that Smithland's currency will appreciate and explain that this is because there will be financial capital inflows as foreign investors seek higher returns in Smithland, which will increase the demand for Smithland's currency or decrease the supply of Smithland's currency. | **1 point** |

| | | |
|---|---|---|
| **(g)** | State that Smithland's imports will increase and explain that this is because the appreciation of Smithland's currency means that foreign goods will be relatively less expensive. | **1 point** |
| | **Total for question 1** | **10 points** |