150 points. Please write answers in **ink**. Allocate your time efficiently. Good luck.

1. Suppose that Congress passes an investment tax credit, which subsidizes domestic investment. How does this policy affect national saving, domestic investment, net capital outflow, the interest rate, the exchange rate, and the trade balance. Please explain and illustrate your answer with a graph.

If Congress passes an investment tax credit, it subsidizes domestic investment. The desire to increase domestic investment leads firms to borrow more, increasing the demand for loanable funds, as shown in figure below. This raises the real interest rate, thus reducing net capital outflow. The decline in net capital outflow reduces the supply of dollars in the market for foreign exchange, raising the real exchange rate. The trade balance also declines, since net capital outflow, hence net exports, are lower. The higher real interest rate also increases the quantity of national saving. In summary, saving increases, domestic investment increases, net capital outflow declines, the real interest rate increases, the real exchange rate increases, and the trade balance decreases.
2. Illustrate the classical analysis of growth and inflation with aggregate demand and long-run aggregate supply curves. What factors cause the long-run economic growth? What factors give rise to the inflation? How would your graph differ if we experienced economic growth but with falling prices over the long run?

Over time, technological advances cause the long-run aggregate supply curve to shift right. Increases in the money supply cause the aggregate demand curve to shift right. Output growth puts downward pressure on the price level, but money supply growth contributes to rising prices.

3. In the 1970s people had become accustomed to high inflation. In 1979, the Fed decided to fight inflation and decreased the money supply growth rates. Many people thought that the Fed’s action would cause a recession. Is this thinking consistent with the aggregate demand and supply model? Explain. According to the monetary misperceptions theory what should have happened to output if the inflation fell more than people expected? Explain.

The decrease in the money supply would shift aggregate demand to the left causing prices to fall, but also causing output to fall. So, the aggregate demand and aggregate supply model does suggest the Fed’s actions could have created a recession.

According to the price misperceptions theory, if prices fall more (or rise less) than people expect, they will think the price of what they sell has fallen relative to the price of other goods and decrease production. This provides one explanation for the upward sloping aggregate supply curve.

To the extent that people expected inflation to fall, the aggregate supply curve should have shifted right. This would have offset some of the recessionary impact of the money supply decrease.

4. Recently, some members of Congress have proposed a law that would make price stability the sole goal of monetary policy. Suppose such a law were passed.

a. How would the Fed respond to an event that contracted aggregate demand, such as the attack on 11 September 2001?

b. How would the Fed respond to an event that caused an adverse (negative) shock to short-run aggregate supply?

a. If there were a contraction in aggregate demand, the Fed would need to increase the money supply to increase aggregate demand and stabilize the price level, as shown in the figure below.
By increasing the money supply, the Fed is able to shift the aggregate-demand curve back to $AD_1$ from $AD_2$. This policy stabilizes output as well as the price level.

b. If there were an adverse shift in short-run aggregate supply, the Fed would need to decrease the money supply to stabilize the price level, shifting the aggregate-demand curve to the left from $AD_1$ to $AD_2$, as shown in the figure below. This worsens the recession caused by the shift in aggregate supply. To stabilize output instead of the price level, the Fed would need to increase the money supply, shifting the aggregate-demand curve from $AD_1$ to $AD_3$, but this action would raise the price level.
5. Use a Phillips curve model to illustrate the effect of the Volcker disinflation policy that the Fed pursued from October 1979 through 1983. Discuss both the benefits and the costs of this disinflation policy. Why did unemployment rise to over 10% in 1982? And what does this tell us about the short-run tradeoff between inflation and unemployment? Did the disinflation of the 1980s confirm that there is no long-run tradeoff between unemployment and inflation? Explain.

The figure below shows the inflation and unemployment rates that occurred while Paul Volcker worked at reducing the level of inflation during the 1980s. As inflation fell, unemployment rose. In fact, the United States experienced its deepest recession since the Great Depression. The reason that unemployment rose so high is because of “sticky” wages. Although Volcker said he was going to stick with the anti-inflation policy, many people did not believe him. Few people thought that inflation would fall as quickly as it did. This likely kept the short-run Phillips curve from shifting as quickly as it would have had the Fed had the credibility that it has built over the last 25 years.

The costs are easier to see than the benefits. The cost included the high unemployment and the lost production. The benefits included avoiding the costs associated with high inflation. Some economists have held that this recession proves that the idea of a costless disinflation suggested by rational-expectations theorists is not possible. The cost (in terms of lost output), however, of the Volcker disinflation was not as large as many economists had predicted, suggesting, perhaps, that expectations did change faster than predicted.
1. Suppose the U.S. government institutes a "Buy American" campaign, in order to encourage spending on domestic goods. What effect will this have on the U.S. trade balance? Please explain and illustrate your answer with a graph.

Such a campaign will increase the demand for domestically produced goods and hence decrease the demand for imports. This increases the demand for dollars in the market for foreign currency. The real exchange rate of the U.S. dollar will appreciate, and the net effect will be no change in the trade balance. The level of net exports ultimately depends upon domestic saving and investment, neither of which are affected by the campaign.

2. Suppose that firms become very optimistic about future business conditions and invest heavily in new capital equipment.

a. Use an aggregate demand and supply diagram to show the short-run effect of this new optimism on the economy. Label the new levels of prices and real output. Explain in words why the aggregate quantity of output supplied changes.

If firms become optimistic about future business conditions and invest a lot, the result is shown in the figure below. The economy begins at point A with aggregate-demand curve $AD_1$ and short-run aggregate-supply curve $AS_1$. The equilibrium has price level $P_1$ and output level $Y_1$. Increased optimism leads to greater investment, so the aggregate-demand curve shifts to
$AD_2$. Now the economy is at point B, with price level $P_2$ and output level $Y_2$. The aggregate quantity of output supplied rises because the price level has risen and people have misperceptions about the price level, wages are sticky, or prices are sticky, all of which cause output supplied to increase.

b. Now use the diagram from part (a) to show the new long-run equilibrium of the economy. (For now, assume there is no change in the long-run aggregate supply curve.) Explain in words why the aggregate quantity of output demanded changes between the short run and long run.

Over time, as the misperceptions of the price level disappear, wages adjust, or prices adjust, the short-run aggregate-supply curve shifts up to $AS_2$ and the economy gets to equilibrium at point C, with price level $P_3$ and output level $Y_1$. The quantity of output demanded declines as the price level rises.

c. How might the investment boom affect the long-run aggregate supply curve? Explain.

The investment boom might increase the long-run aggregate-supply curve because higher investment today means a larger capital stock in the future, thus higher productivity and output.

3. Suppose that consumers become pessimistic about the future health of the economy, and so cut back on their consumption spending. What will happen to aggregate demand and to output? What might the president and Congress have to do to keep output stable? Is it possible that the president and Congress might make matters worse? Explain.

As consumers become pessimistic about the future of the economy, they cut their expenditures so that aggregate demand shifts left and output falls. The president and Congress could adjust fiscal policy to increase aggregate demand. They could either increase government spending, or cut taxes, or both.

Fiscal policy lags are mostly a matter of waiting to implement the policy. By the time the president and Congress can agree to and pass legislation changing expenditures or taxes, the recession may have ended. The stimulus could potentially over-heat the economy, sending unemployment below its natural rate level, and putting upward pressure on prices and wages.
4. Some economists argue that simply and suddenly reducing money supply growth is a costly way to reduce inflation and that it may not work. For example, if a government cuts money growth but makes no real reform so that people expect that the government will soon start printing more money again to pay for its expenditures, the promise to fight inflation will not be credible. Explain the importance of an inflation reduction policy that is announced ahead of time and is credible.

In a country where expected inflation has been and continues to be high, a reduction in the money supply will decrease inflation some, but it will also increase unemployment and decrease output. The more certain people are of a decrease in inflation, the lower their inflation expectations are. When inflation expectations fall, the Phillips curve shifts left and each unemployment rate is associated with a lower inflation rate.


a. show the impact of such a change in both the aggregate demand and supply diagram and in the Phillips-curve diagram. What happens to unemployment and inflation in the short run? The figure below shows the effects of a fall in the price of oil. The short-run aggregate-supply curve shifts to the right, reducing the price level and increasing the quantity of output. The short-run Phillips curve shifts to the left. In both diagrams, the economy moves from point A to point B. In equilibrium, both the inflation rate and the unemployment rate decline.

b. Do the effects of this event mean there is no short-run tradeoff between inflation and unemployment? Why or why not?

The effects of this event do not mean there is no short-run tradeoff between inflation and unemployment, as shifts in aggregate demand still move the economy along the short-run Phillips curve.