Instructions:
This exam has four short answer problems. Answer all of the questions. I recommend putting boxes around your final answers for any mathematical calculations that you do. Also be sure and show your work. Round all of your answers to the nearest tenth. You may use the back of the exam to write your answer. Partial credit will be given.

You are allowed to use a calculator for this exam.

Name:_______________________________________
1. (10 points) Suppose that the government was currently running a large budget deficit. Congress then passes a balanced budget bill that forces the government to not operate at a deficit.

   a. Discuss what would happen to Private savings, Public savings, Total savings, Investment, Consumption, Government purchases and Taxes. Note: There are several possible correct answers to this part, so explain your answer carefully!

      The first thing that would be affected is public savings. **Public savings would increase.** This could either come from higher taxes, or lower government spending, but either of these will increase public savings.

      If you used simply decreased government spending to balance the budget, the following applies. Public savings increases. Private savings stays the same because neither consumption nor taxes change. Total savings increases leading to a rightward shift of the savings curve. Investment will increase because total savings increases. Also the government is not borrowing as much, as a result there are more loanable funds available to corporations to invest.

      If you used only a tax increase to balance the budget, the following applies. Public savings increases. Private savings will fall, but not by as much as public savings therefore total savings will increase. This result comes from the savings equation, \( S = (Y-T-C) + (T-G) \). The change in taxes exactly offsets, however increased taxes will cause **consumption to be lower** this will make total savings higher. Higher total savings again shifts the savings curve to the right. Since savings increases, investment increases also.

      If you used a combination of the two (higher taxes, lower G) then your answer should look similar to the tax increase only, with the additional change that G decreased.

   b. Show on a graph the effect this policy would have on the market for loanable funds. Specifically say whether the equilibrium interest rate and the equilibrium quantity of loanable funds, increase, decrease or don't change.
As we can see from the graph, the equilibrium interest rate decreases, and the quantity of loanable funds increases.

c. Describe one reason why the government would implement this policy? State one group of people that would be helped by this policy? Why? Also state one group that would be hurt? Why?

1. The government would implement this policy to stimulate growth in the long term. This policy increases savings and investment, and higher investment leads to higher long term growth. If you said that the government implemented this policy to eliminate the deficit or to lower the debt, you needed to also state why the government might want to do that.

2. First, one group that would not be helped by this policy is the government. They may have higher tax revenue, but they cannot spend any of the additional money they raise. In addition the government has tied its own hands, and when you decrease someone's options you make them worse off. Also they will have to lower spending and cut programs, so the government does not belong in this group. So who is helped? Well, since the interest rates declines, any business that wants to expand will benefit. Also anyone who wants to purchase a house will benefit from the lower interest rate (this makes purchasing a house less expensive).

3. Given what I said above the government could be included here. More specifically, anyone who benefits from the government programs that were cut would be hurt by this policy. Also people with a lot of money in savings would be hurt by lower interest rates. Also taxpayers will be worse off due to higher taxes. If you explained above that consumption fell, then some firms may be worse off because fewer people want to buy their stuff.
d. Overall do you think this policy should be implemented? Why or why not?

This is an opinion question so lots of answers are possible. A good answer restates some of the pros and cons and discusses which ones you think are more important. Note: your answer needed to contain either a yes or a no.

e. Is it more likely that this policy would be implemented during a period of high GDP growth, or during a recession? Explain.

From part a above, this policy will decrease government purchases, and decrease consumption immediately. When this happens the instant result will be lower GDP. Over time the increased investment will lead to high future growth, however if the economy is currently in a recession this policy would make the recession worse. Also raising taxes during a recession would harm people who are already struggling. During a recession is also when lots of government programs start to pay out. So cutting government spending during a recession is generally a bad idea. When GDP growth is high, we may be willing to put up with an immediate decrease in GDP if it means higher growth in the future. So it is much more likely that this policy would be implemented during a period of high GDP growth. (Notice that a few years ago during the late 90's the U.S. was talking about a policy like this, but now that the economy has not been performing as well we aren't talking about it any more.)

2. (10 points) Assume an economy has the following statistics: Adult Population: 425 million, # of people employed: 260 million, # of discouraged workers 20 million, Total # of people not in the labor force: 135 million.

a. What is the total size of the labor force? What is the number of people who are unemployed?

The size of the labor force = Adult population – Not in the labor force = 425 million – 135 million = 290 million = Labor Force.

Labor force = # employed + # unemployed, so solving for the number of unemployed, 290 million = 260 million + # of unemployed

# of unemployed = 30 million.

b. What is the labor force participation rate? What is the unemployment rate?

\[
\text{LFPR} = \frac{\text{Labor Force}}{\text{Adult Population}} \times 100, \text{ so } \text{LFPR} = \frac{290 \text{ million}}{425 \text{ million}} \times 100 = 68.2\% 
\]
Unemployment rate = \( \frac{\text{# of Unemployed}}{\text{Labor Force}} \times 100 = \frac{30 \text{ million}}{290 \text{ million}} \times 100 = 10.3\% \)

c. How would the labor force participation rate and the unemployment rate change if the Bureau of Labor Statistics changed their policy on discouraged workers and started counting them as unemployed? (Use the numbers from the problem to answer this question.)

This change moves discouraged workers from being counted as 'not in the labor force' to being counted as unemployed. This will increase the size of the labor force by 20 million to 310 million, and increase the number of unemployed to 50 million, redoing the calculations from part b with the new numbers yields:

\[
\text{LFPR} = \frac{310 \text{ million}}{425 \text{ million}} \times 100 = 72.9\%
\]

\[
\text{Unemployment rate} = \frac{50 \text{ million}}{310 \text{ million}} \times 100 = 16.1\%
\]

So this change causes both the unemployment rate and the labor force participation rate to fall.

d. Use the results from part c to explain why a falling unemployment rate is not always a good thing. (Focus on the issue of discouraged workers.)

If the reason that the unemployment rate is falling is that more people are finding jobs, this is good. However, if the unemployment rate is falling because many workers are becoming discouraged then this is bad. When people who are unemployed become discouraged, they drop out of the labor force. This artificially lowers the unemployment rate, even though they did not find work. A good way to check to see if a falling unemployment rate is a good thing is to check the labor force participation rate. If it is also falling, then the lower unemployment rate may be due to more unemployed people becoming discouraged.

3. (10 Points) The president is up for re-election in the next year, and he has brought you on as an economic advisor. The president comes to you and asks you for advice on how to increase GDP and decrease unemployment before the election.

a. Assuming the economy is currently in long run equilibrium, use an AS/AD graph to show the president how an increase in government spending would accomplish his goals. Explain carefully the short run effects of this change.
Since one of the components that makes up the aggregate demand curve is government purchases, increasing government spending will shift the AD curve to the right, from AD$_1$ to AD$_2$. Due to this increase in aggregate demand, the equilibrium quantity of output increases in the short run. Consequently, this will increase GDP in the short run. In order to produce the additional goods and services that are demanded, firms will hire more workers which will lower the unemployment rate. Also because the nominal wage has not adjusted, the real wage has fallen. As a result it is cheaper for firms to hire workers, thus they will hire more. This is another way that unemployment will be reduced by the change in government spending.

Overall short run effects: increase in GDP, increase in the price level, decrease in the real wage, and decrease in the unemployment rate.

b. Next using both words and graphs, explain the long run consequences of the action in part a. Include a discussion of how the economy returns to equilibrium.
The increase in aggregate demand has pushed the economy out of long run equilibrium. There has been a short run increase in GDP and decrease in unemployment. However, the decrease in unemployment will lead to competition among firms for workers. This will put upward pressure on wages, and wages will start to rise. As wages start to increase the cost of production starts to rise. As the cost of production increases firms cut back on production, and less production means fewer workers. Thus as time goes by and wages begin to adjust the short run aggregate supply curve will shift to the left. This process will continue until the SRAS$_1$ curve has shifted to SRAS$_2$. At this point the economy is back in long run equilibrium.

The net long run changes in the economy are: no change in GDP, no change in unemployment, no change in real wage, higher nominal wage, and higher price level. So ultimately all this policy will do is to create inflation.

c. If the president is only concerned about the short run, what should he recommend the government spend the money on?

In order to make people as happy as possible in the short run, the government would need to spend the money on consumption goods. They could buy every household in the country a TV, or have a number of government sponsored parties and fireworks shows. Essentially if the money was spent on entertainment and consumption people would be happy now.

d. If instead the president cared about the long run, what should he recommend the government spend the money on?

If the president is concerned about long term growth then he would recommend that the money be spent on increasing the long run growth capabilities of the country. This could be things such as increasing infrastructure by building roads, increasing funding for research and development, or increasing education spending.

4. (5 points) Assume you know the following:

\[
C = 8,000 \\
G = 4,000 \\
T = 1,500 \\
\text{Consumption makes up 50\% of GDP}
\]

a. Find GDP (Y), Total Savings (S), Private savings, Public Savings, and Investment (I)

First we know that \( Y = C + I + G \), replacing with the numbers given in the problem gives us: \( Y = 8,000 + I + 4000 \). But we also know that \( C = 50\%(Y) \), or \( 8,000 = .5(Y) \), or \( Y = 16,000 \). Substituting this into our equation and solving gives us a
value of 4,000 for I. Since I = S, then S must also equal 4,000. Now we must use the savings equation to solve for public and private savings. Private savings = Y – C – T, or Private savings = 16,000 – 8,000 – 1,500 = 6,500. Public savings = T – G, or 1,500 – 4,000 = -2,500.

Y = 16,000  
S = 4,000  
I = 4,000  
Private savings = 6,500  
Public savings = -2,500

b. Assume that overall GDP doesn't change and Consumption rises dramatically. What do you think would happen to Private savings, Government spending, Taxes and Investment. Explain (No numbers are needed is this part). Also describe what the long term effects of this change would be?

Since the problem says nothing about the government, it is safe to assume that neither government spending nor taxes change. If people start buying more stuff, this does not effect the government at all, so we would not expect them to change their behavior. As a result if we look at the GDP equation, Y = C + I + G, we can explain what happens to investment. Since both Y and G are fixed, in order for this equation to remain equal if C increases, I must decrease by exactly the same amount.

If we look at the savings equation, S = (Y – C – T) + (T – G), we can see that public savings doesn’t change. Also because Y and T do not change, private savings must decrease by exactly the amount C increases. Thus private savings and investment both decrease by the amount that C increases.

So ultimately what happens is that individuals decide to save less today in order to consume more. When they decrease their savings, it decreases the supply of loanable funds, which in turn forces investment to decrease. Citizens have chosen to consume more today at the expense of doing investment today, and as a result the overall growth rate of GDP will fall.