Write your name on the cover of the test booklet and nowhere else. Enclose this sheet with the booklet. Failure to follow these directions will cost you 1 point. The test has 150 points (to be scaled up to 210 points) and is scheduled to take 75 minutes. Therefore, expect to spend 1 minute for every 2 points. For example, a 12-point question should take 6 minutes. I can give extra time but not much.

1) (10 points) Answer EITHER Part A OR Part B.
A) In this course we aggregate. What does that mean and what is the down-side of doing that?
B) Is GDP a stock or a flow? Explain your logic.

2) (14 points) Explain EITHER the equation in Part A OR the equation in Part B. If a variable appears twice, then explain both reasons for its being there.

A) $$r_{a-t} = \frac{(1-t)i - \pi^e}{1 + \pi^e}$$

B) $$uc_K = \frac{(r+d)P_K}{1 - \tau}$$

3) (14 points) Answer EITHER Part A OR Part B.
A) What does Friedman's *Permanent Income Hypothesis* imply about the MPC for temporary income? Explain your logic. How do durable goods affect the ability to check to see if it actually holds? Explain your logic.
B) In the beginning part of Modigliani's *Life Cycle Model* graph, what do we assume people are doing? Why are they doing that? If people do not have the ability to do that, then how would they respond to a temporary increase in income during that time period? Explain your logic.

4) (14 points) Answer EITHER Part A OR Part B.
A) What is the hysteresis theory of the natural rate of unemployment a.k.a. the unemployment rate at full employment? Explain why that might happen.
B) Which types of unemployment are there when the seasonally adjusted unemployment rate is at full employment? Explain your logic. What value is the unemployment rate at rull employment? Explain your logic.

5) (14 points) Answer EITHER Part A OR Part B.
A) I asserted several times that NI is what the companies get. Write the equation for calculating NI and explain why my assertion makes sense with your equation.
B) In this course, we care about the unemployment rate. In *Economic Development*, we care about how well off the citizens are. Which course emphasizes GDP and which emphasizes GNP? Explain why both of those courses emphasize the variable they emphasize.

6) (16 points) Answer EITHER Part A OR Part B. I will give 1 bonus point if you correctly draw indifference curves and correctly reference them in your explanation.
A) Draw the inter-temporal budget constraint. Illustrate the effects of a decrease in your assets, for example, a crash in the stock market. Explain why the curve moved as drawn. What happens to your

current consumption, your future consumption, and your saving? Explain how you reached your conclusion.

B) Draw the inter-temporal budget constraint. Illustrate the effects of the recent increase in interest rates. Explain why the curve moved as drawn. What happens to your current consumption, your future consumption, and your saving? Explain how you reached your conclusion.

7) (18 points) Answer EITHER Part A OR Part B.
A) Draw the MPK^f/uc_K diagram. Illustrate the effects of a decrease in the corporate tax rate on the graph. Explain why the curve(s) moved as drawn. What happens to the user cost of capital, the desired amount of capital and the amount of investment?
B) Draw the MPK^f/uc_K diagram. Illustrate the effects of a decrease in the depreciation rate on the graph. Explain why the curve(s) moved as drawn. What happens to the user cost of capital, the desired amount of capital and the amount of investment?

8) (18 points) Answer EITHER Part A OR Part B.
A) Draw the S/I diagram. Illustrate the effects of a cut in government spending. State what you are assuming about Ricardian equivalence and why you are assuming that. Explain why the curve(s) moved as drawn. What happens to the interest rate, level of saving, and level of investment?
B) Draw the S/I diagram. Illustrate the effects of an improvement in technology. Explain why the curve(s) moved as drawn. What happens to the interest rate, level of saving, and level of investment?

9) (32 points) Answer EITHER Part A OR Part B.
A) Draw the production function as a function of labor, and the labor supply/demand diagram. Mark the initial point on both graphs. Illustrate the effects of an improved technology. Explain why the curves moved as drawn. Find the new equilibrium points on the two graphs. State how you found them. What happens to GDP, level of employment at full employment, and the real wage?
B) Draw the production function as a function of capital. Illustrate the effects of an increased population. Explain why the curve moved as drawn. Draw the labor supply/demand diagram. Explain why the labor supply curve takes its shape. Make sure you mention the two effects and which one is dominant.