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 100 points (to be scaled up to 160 points) and is scheduled to take 50 minutes. Therefore, expect to spend 1 minute for every 2 points. For example, a 12-point question should take 6 minutes. I cannot give extra time because I have a class after your class.

1) (12 points) Answer EITHER Part A OR Part B.
A) Suppose I gave you NNP and asked you to calculate NI. What more information would you need? Explain how you would use it and why you would use it that way.
B) When calculating GDP and then using that to calculate GNP, I give you values for exports, imports, factor payments received from abroad, and factor payments paid abroad. Which get added at which step and which get subtracted at which step? Briefly explain your logic.

2) (12 points) Answer EITHER Part A OR Part B.
A) I created an equation to explain the permanent income model. It is $c = b_P y_P + b_T y_T$. Explain the two ys in the equation. What is your estimate for the size of b_P and b_T? Why did you choose those values?
B) Explain the equation $\Delta Y/Y = 3 - 2\Delta u$. You can treat $\Delta Y/Y$ as one variable if you define it. In addition to explaining Δu, tell me why the 3 is not 0 and why the -2 is not -1.

3) (12 points) Every economic statistic has problems with doing the calculation which could yield the results being misleading. For EITHER an increase in GDP OR a decrease in the unemployment rate, explain how that change could imply the economy is improving when in reality it may not be changing at all. Give an example of an event in your explanation. Assume that GDP starts too low and the unemployment rate is too high.

4) (14 points) Answer EITHER Part A OR Part B.
A) Given the fact that we drew labor supply sloping up, are we assuming the income effect of a wage increase or the substitution effect of a wage increase is stronger? Explain your logic.
B) In the Appendix to Chapter 4, we said (and will use in Chapter 4) that an increase in the interest rate will increase savings. What is the economic reason for this conclusion? Why might the increase in the interest decrease the savings?

5) (20 points) Answer EITHER Part A OR Part B.
A) Draw the graph for Modigliani's Life Cycle Model. Illustrate the effects of a temporary tax cut. Explain why the curve(s) moved as drawn. Does your graph agree with Ricardian Equivalence? Explain your logic.
B) Draw the inter-temporal budget constraint. Illustrate the effects of a decrease in the interest rate. Explain why the curve moves as drawn, including explaining what happened to the point near the middle of the graph which we said was a key point.

6) (30 points) Answer EITHER Part A OR Part B.
A) Draw the production function with **<u>labor</u>** on the horizontal axis. Also draw the labor supply and demand diagram. Illustrate the effects of an improved technology. Explain why the curve(s) moved as drawn. What happens to GDP, real wages, and the number of employed people?
B) Draw the production function with **<u>capital</u>** on the horizontal axis. Also draw the labor supply and demand diagram. Illustrate the effects of people deciding that they want more leisure time because they value family more. Explain why the curve(s) moved as drawn. What happens to GDP, real wages, and the number of employed people?