Wilf Csaplar Jr.   Economics 302   Homework #6   **Due Friday 3/1**

Place your name on the back of this sheet of paper and nowhere else. Staple your answers face up on the front of this sheet of paper. Failure to follow these directions will cost you 10 points. Your assignment will be typed, except graphs can be drawn by hand and mathematical equations can be done by hand. Failure to type it will cost you 10 points. If you use double-sided printing or print on the back of scrap paper, I will give you one additional point.

1) (20 points) Explain the equation below. You can treat $\Delta X/X$ as one variable. For the a_K and a_N, just state their values and why one of them is bigger than the other one and why they are not equal to 1. $\dfrac{\Delta Y}{Y} = a_K \dfrac{\Delta K}{K} + a_N \dfrac{\Delta N}{N} + \dfrac{\Delta A}{A}$

2) (15 points) Suppose the capital grew 2%, labor grew 1%, and GDP grew 2.5%. How much did total factor productivity grow? Show all work.

3) (20 points) Draw the Solow Growth Model diagram. Assume that graph was Italy 10 years ago. Look at the webpage listed below find the population growth rate of Italy a decade ago and Italy now. Add another line to your diagram show the current Italian situation. Explain why the curve(s) moved as drawn. What happens to output per worker and capital-labor ratio?
https://www.macrotrends.net/countries/ITA/italy/population-growth-rate

4) (20 points) Draw the Solow Growth Model diagram. Climate change has been increasing the wear and tear on buildings. Illustrate the effects of climate change on the graph. Explain why the curve(s) moved as drawn. What happens to the GDP per capita and the capital-labor ratio?

5) (5 points) Why isn't k_{MAX} the ideal place for an economy to be?

6) (20 points) Draw the Solow Growth Model diagram putting both Australia and Argentina on the same graph. Assume that all aspects of their economies are identical except for the saving rate. Use the article below to find the current saving rates. Explain why you put the two countries' lines where you put them. Based solely upon your graph, which country's GDP per capita will be greater in the future?
https://data.worldbank.org/indicator/NY.GDS.TOTL.ZS?locations=AR-AU