Write your name on the cover of the test booklet and nowhere else. Enclose this sheet with the booklet. The Excel file will be handed in via Moodle. Your name will only appear on a page of the file that has nothing else on it. Failure to follow these directions will cost you 1 point. The test has 240 points (to be scaled down to 200 points) and is scheduled to take 120 minutes 4. Therefore, expect to spend 1 minute for every 2 points. For example, a 10-point question should take 5 minutes. I **cannot** give extra time because one of you has an exam after this.

1) (12 points) For EITHER higher inflation OR higher interest rates, how does that affect the debt to GDP ratio? Explain your logic.

2) (12 points) Use the tables at end to answer EITHER Part A OR Part B. Note that the original tables had an * after the word unemployment. So it said "Average Duration of Unemployment*".
A) Suppose the average duration of unemployment went up 7% during an expansion. What is the probability the economy is reversing? Explain your logic and state what it would be reversing to.
B) Suppose the average duration of unemployment went down for three consecutive months during a recession. What is the probability the economy is reversing? Explain your logic and state what it would be reversing to.

3) (12 points) Answer EITHER Part A OR Part B.
A) Is "The Index of Consumer Expectations" leading, lagging, or roughly coincident? Is it pro-cyclical, counter-cyclical, or acyclical? Explain your logic.
B) Suppose the economy were just before the trough of the business cycle. Your supplemental textbook rates variables as +, +?, ?, -?, and -. What would you expect the values of roughly coincident variables to be? Explain your logic. Your answer could be something like, "I would expect 30% to be + and the rest - because ..."

4) (16 points) Answer EITHER Part OR Part B.
A) Suppose consumers decide to decrease their currency-deposit ratio. How does that affect the monetary base, the money multiplier, and the money supply. Explain the economics of why those effects occur.
B) According to the Congressional Budget Office, the Federal Budget Deficit for fiscal year 2017 was $666 Billion (ironic number) and according to the Treasury, the interest payments on the debt for the same year were $485 Billion. Given the unemployment rate was under 5% for the whole period, what can you tell me about the size of the full-employment budget and the primary budget? Explain your logic and show any calculations you do.

5) (16 points) Answer EITHER Part A OR Part B.
A) Using Tab 5A on the computer file, forecast the rest of the Steelers' margin of victory using the same value, same change, same percent change, 3 period moving average, 5 period weighted moving average.
B) Using Tab 5B on the computer file, calculate the CPI using the Laspeyres price index, a Paasche price index, and the PCE, all with 2013 as the base year. Calculate the inflation rate for all of the indices.

6) (20 points) Answer EITHER Part A OR Part B.
A) Draw the IS/LM/FE diagram. Illustrate the effects of a tax cut assuming Ricardian Equivalence **does hold**. Explain why the curve(s) moved as drawn. What happens to the price level and GDP?
B) Draw the SRAS/LRAS/AD diagram for the Neo-Classical, a.k.a. Rational Expectations, a.k.a. Misperceptions Theory. Illustrate the effects of a tax cut on that graph assuming Ricardian Equivalence **does not hold**. Explain why the curve(s) moved as drawn. What happens to the price level and GDP?

7) (20 points) Answer EITHER Part A OR Part B.
A) Draw the Phillips Curve diagram. Start with expected inflation at 4% and 7% unemployment. Explain how you know your diagram shows expected inflation of 4% and 7% unemployment. Illustrate the effects of an increase in the money supply of 6% while people change their views to expect an increase in the money supply of 8%. Explain why the curve(s) moved as drawn and how you found the new ending point.
B) Draw the supply and demand for the US$ on the foreign exchange market with the British pound £ as the other currency. Illustrate the effects the British GDP being hurt by Brexit. Explain your logic as to why the curve(s)

moved as drawn. Which currency is appreciating? Explain your logic.

8) (24 points) Both the Neo-Keynesian School and the Neo-Classical School predict the cyclicality of a variable wrong. For ONE of them, which variable do they predict wrong? Use an appropriate graph to explain how they reach their conclusion. Give their explanation as to why their model is actually correct.

9) (28 points) Answer EITHER Part OR Part B.
A) Suppose $C_t = 100 + .9[(\text{Average of } Y_t, Y_{t-1}, Y_{t-2}) - T_t]$, $I_t = .6(Y_t - Y_{t-1})$, $G_t = 1000$, and $X_t = 200 - .1Y_t$. Solve the system for this year's GDP as a function of exogenous variables and lagged variables. Show all work. Use that system to find the short-run government spending multiplier. State how you found it. Use the system of equations and Tab 9A on the computer file, to find the GDP for the next 20 years if the past two years' GDPs were \$2,200 last year and \$2,000 the year before.
B) Using Tab 9B on the computer file, to run a regression to find the sales of bananas as a function of income, price of bananas, the price of ice cream, and the price of chocolate bars. Do you feel the overall results are good? Explain your logic? Check for multi-colinearity. Do you have a problem with it? Explain your logic. **If you find a problem**, solve the problem and explain why you did what you did. **If you did NOT find a problem**, tell me how many bananas you would you expect to sell if your income is \$1000, the price of bananas is \$2/lb, the price of ice cream is \$3/gallon, and the price of chocolate is \$1.50/bar.

10) (32 points) Answer ONE of the following parts.
A) Use Tab 10A on the computer file, to predict the sales through 2017 with seasonality in it. (I am **NOT** asking you to seasonally adjust the data.)
B) Use Tab 10B on the computer file to run a regression to predict sales as a function of price. Check for **both** heteroscedasticity and autocorrelation. Tell me your results and state how you reached **both** conclusions. **If you found just heteroscedastity**, run the formal test and briefly explain what you did and what your conclusion was. **If you found either autocorrelation or both**, then correct for autocorrelation. Explain how you reached your conclusion and why you corrected it in the manner you chose. **If you find neither**, tell me if the overall results are good and which variables are significant. Explain your logic.

11) (48 points) Draw the LRAS/SRAS/AD (original Keynesian SRAS), IS/LM/FE, and real MS/real MD diagrams. Illustrate the effects of EITHER the event in Part A OR the event in Part B. Explain why the curves moved as drawn. What happens to the price level, GDP, real interest rates, real money supply, and the unemployment rate. Only worry about the short-run effects.
A) The Fed buys bonds.
B) Artificial intelligence (AI) makes everybody more productive.

Table 3
Proportions of Occurrences In Which Trends of Various DURATIONS Involved Cyclical Reversals of Business Activity

	Decreasing Trends During Cyclical Expansions								Increasing Trends During Cyclical Contractions							
	Months of Duration								*Months of Duration*							
Primary Leading	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
Average Duration of Unemp	0.16	0.21	0.27	0.43	0.45	0.48	0.50	0.56	0.35	0.47	0.82	0.90	1.00	1.00	1.00	1.00

Table 4
Proportions of Occurrences In Which Trends of Various MAGNITUDES Involved Cyclical Reversals of Business Activity

	Decreasing Trends During Cyclical Expansions								Increasing Trends During Cyclical Contractions							
	Percentage Decrease Larger Than								*Percentage Increase Larger Than*							
Primary Leading	*0.0*	*0.3*	*0.5*	*1.0*	*3.0*	*5.0*	*10.0*	*20.0*	*0.0*	*0.3*	*0.5*	*1.0*	*3.0*	*5.0*	*10.0*	*20.0*
Ave Duration of Unemp	0.16	0.16	0.16	0.20	0.30	0.37	0.83	0.91	0.38	0.38	0.38	0.59	0.83	1.00	1.00	1.00