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 100 points (to be scaled up to 170 points) and is scheduled to take 50 minutes (but you can take the full 2 hours.) Therefore, expect to spend 1 minute for every 2 points. For example, a 10-point question should take 5 minutes.

1) Suppose consumption is \$100 more than 90% of (average of this year's GDP and the previous two years' GDP minus this year's taxes). The tax rate is 1/5 of GDP. Investment is 40% of the this year's GDP. Government spending is \$400. Exports are \$200 and imports are 2% of this year's GDP.
A) (4 points) Write these equations.
B) (12 points) Solve the equations for Y_t as a function of exogenous variables and lagged values of GDP. Show all work. What is the short-run government spending multiplier? Briefly state how you found it.
C) (10 points) If GDP had been \$2000 for several years, then have Excel calculate the levels of GDP for the next 20 years. Suppose there was a permanent decrease in government spending of \$20. Use Excel to calculate the long-run government spending multiplier. (Assume long-run is 20 years for this question.)
D) (10 points) Plot the data for GDP on the Excel sheet making sure everything is labeled. What is the pattern of the graph? State how you reached that conclusion

2) (10 points) Use the tables at the bottom of the page to answer EITHER Part A OR Part B OR Part C. 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) The numbers under "decreasing trends during cyclical expansions" are all less than the corresponding column of "increasing trends during cyclical contractions." I would have expected the opposite. What about unemployment do I think would imply the numbers should be swapped? Explain your logic.
C) The numbers under "decreasing trends during cyclical expansions" are all less than the corresponding column of "increasing trends during cyclical contractions." What about unemployment do you think causes this difference? Explain your logic. (Obviously, I will grade this leniently because of Part B.)

3) (12 points) Answer EITHER Part A OR Part B.
A) Are "housing permits" leading, lagging, or roughly coincident? Are they pro-cyclical, counter-cyclical, or acyclical? Explain your logic.
B) Suppose the economy were at the exact peak 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) (42 points) Answer EITHER Part A OR Part B.
A) Draw the LRAS/SRAS/AD, IS/LM/FE, real MS/MD diagrams for an economy with an unemployment rate of 8%. Explain how you know the unemployment rate is 8%. Illustrate the effects of the economy self-correcting. Explain why the curves moved as drawn. What happens to the real interest rate, the real GDP, and the price level?
B) Draw the LRAS/SRAS/AD, IS/LM/FE, real MS/MD diagrams. Use them to prove the neutrality of money.

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