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 90% of the average of this year's GDP, last year's GDP, and the GDP from two years ago. Investment is 50% of the value of (this year's GDP - last year's GDP). Government spending is $400. Exports are $600 and imports are 5% of this year's GDP.
A) (6 points) Write these equations.
B) (10 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) (8 points) If GDP had been $5000 for several years, then have Excel calculate the levels of GDP for the next 10 years.
D) (10 points) Plot the data for GDP on the Excel sheet making sure everything is labeled. What is the pattern of the graph?

2) (10 points) For EITHER *currency* OR *smoothness*, explain what it means and why a variable needs that to be a good indicator used in forecasting.

3) (10 points) For EITHER *Commercial and Industrial Loans Outstanding*, OR *New Private Housing Permits*, determine if it is pro-cyclical, counter-cyclical, or acyclical. Explain your logic. Determine if the same variable is leading, roughly coincident, or lagging. Explain your logic.

4) (10 points) Answer EITHER Part A OR Part B.
A) Table 4 of your supplemental text is entitled **Proportions of Occurrences In Which Trends of Various MAGNITUDES Involved Cyclical Reversals of Business Activity.** Part of the table is recreated below. If new housing permits increased 4% in one month, what would that tell you? Explain your logic.

Increasing Trends During Cyclical Contractions	*Percentage Increase Larger Than*							
	0.0	0.3	0.5	1.0	3.0	5.0	10.0	20.0
Housing Permits	0.30	0.36	0.37	0.42	0.50	0.67	0.77	1.00

B) Table 3 of your supplemental text is entitled **Proportions of Occurrences In Which Trends of Various DURATIONS Involved Cyclical Reversals of Business Activity.** Part of the table is recreated below. If the non-agricultural employment decreased for 6 months during a cyclical expansion, what would that tell you? Explain your logic.

Decreasing Trends During Cyclical Expansions	*Months of Duration*							
	1	2	3	4	5	6	7	8
Non-agricultural Employment	0.18	0.56	0.77	0.83	1.00	1.00	1.00	1.00

5) (36 points) Answer EITHER Part A OR Part B.
A) Illustrate an increase in the required reserve ratio on the LRAS/SRAS/AD, IS/LM/FE, and real MS/real MD diagrams. Explain why the curve(s) moved as drawn. What happens to the price level, interest rates, and GDP?
B) Illustrate an increase in the expected future income tax on the LRAS/SRAS/AD, IS/LM/FE, and real MS/real MD diagrams. Explain why the curve(s) moved as drawn. What happens to the price level, interest rates, and GDP?