

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 perceived disposable income. Perceived disposable income is calculated by subtracting this year's taxes from the average of this year's GDP, last year's GDP, and two years ago's GDP. This year's taxes are 20% of this year's GDP. Investment is 50% of the value of (this year's GDP - two years ago's GDP). Government spending is \$300. Exports are \$200 and imports are 2% 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 \$500 for several years, then have Excel calculate the levels of GDP for the next 40 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? State how you reached that conclusion

2) (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 average workweek in manufacturing decreased 0.4% in one month, what would that tell you? Explain your logic.

Decreasing Trends During Cyclical Expansions	Percentage Increase Larger Than							
	0.0	0.3	0.5	1.0	3.0	5.0	10.0	20.0
Average Workweek in Manufacturing	0.24	0.38	0.48	0.67	1.00	1.00	1.00	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 M1 Increased for 3 months during a cyclical expansion, what would that tell you? Explain your logic.

Increasing Trends During Cyclical Contractions	Months of Duration							
	1	2	3	4	5	6	7	8
M1 Money Supply	0.25	0.36	0.43	0.56	0.60	0.75	0.75	0.75

3) (10 points) For *statistical adequacy*, explain what it means and why a variable needs that to be a good indicator used in forecasting.

B) What is meant by *Months of Cyclical Dominance (MCD)*? Why is it important?

4) (10 points) For EITHER *Average Duration of Unemployment*, OR *Average Weekly Initial Claims for Unemployment Insurance*, 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.

5) (36 points) Answer EITHER Part A OR Part B.

A) Illustrate an increase in the future marginal productivity of capital ( $MPK^f$ ) 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 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?