

Write your name on the cover of the test booklet, on the worksheet “name” of the computer file you submit to me and nowhere else. Enclose this sheet with the booklet. E-mail the Excel file to me at my Bethany account, wcsaplar@bethanywv.edu. 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. Therefore, expect to spend 1 minute for every 2 points. For example, a 14-point question should take 7 minutes. However, you will be allowed the full two hours of the lab time.

1) Use the following table to answer the questions below.

Year	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Q	462	616	422	651	918	647	1195	1268	1032	903	1162	1573

A) (8 points) Enter the data into an Excel file. Graph the points over time.

B) (12 points) Which of the following forecast methods: no change model, same change model, same percent change model (a.k.a. same ratio), partial adjustment model, moving average, weighted moving average, or moving averages of differences, do you think will achieve the most accurate forecast of Q? Explain why you chose that method as the most accurate forecast.

C) (8 points) Do a 4-period, moving average of differences forecast for at least the next 20 periods.

D) (12 points) Do EITHER a **parabolic regression forecast** for at least the next 20 years OR linear regression backcast for at least 20 years prior to 1991.

2) Suppose the economy is described by the following equations:

$$C = 0.7Y_{t-1} + 0.5(Y_t - Y_{t-1})$$

$$I = 0.6(C_t - C_{t-1})$$

$$G = G_0$$

$$X - M = 0.$$

A) (14 points) Derive the equation for the current level of GDP. What is the value of the short-run government spending multiplier? Why did you choose that number?

B) (8 points) Run a simulation of GDP for at least 20 periods if government spending is 30 in all periods and GDP from the past two years was 0.

3) (12 points each) For TWO of the variables below, determine if the variable is best described as having monotonic convergence, monotonic explosion, damped oscillation, or explosive oscillation. Then determine if it is best forecast using the same change, same ratio, moving average, or moving average of differences. Explain your logic.

A) GDP

B) The unemployment rate

C) The speed of personal computers.

4) (14 points) Do EITHER part A OR part B.

A) Did the stochastic or the non-stochastic simulations run by the NBER and/or Adelman and Adelman, yield business cycles? Why did that one create a cycle? Why did the other simulation fail to create a cycle?

B) What are Type I and Type II shocks? Which had a bigger effect on the economy? Why did it have a big effect? Why did the other type of shock fail to have a big effect?