Regression Analysis Exercises:

1. Do exercises 5, 8, 12 from Chapter 5 in Mansfield etal

2. Consider this output from the Microfit Package

Consumption Function

```
                        Ordinary Least Squares Estimation
*******************************************************************************
 Dependent variable is  GC
 31 observations used for estimation from   50 to   80
*******************************************************************************
 Regressor              Coefficient       Standard Error         T-Ratio[Prob]
 C                          .17962             .30856             .58211[.566]
 GY                         .49352            .063938             7.7187[.000]
 GP                        -.15915            .045708            -3.4818[.002]
 LC(-1)                    -.13116             .13460            -.97438[.339]
 LY(-1)                     .11688             .10961             1.0663[.296]
 LP(-1)                   .0055090           .0062041             .88796[.383]
*******************************************************************************
 R-Squared                      .88724   F-statistic F( 5,  25)   39.3436[.000]
 R-Bar-Squared                  .86469   S.E. of Regression            .0061285
 Residual Sum of Squares     .9390E-3   Mean of Dependent Variable     .021620
 S.D. of Dependent Variable   .016661   Maximum of Log-likelihood     117.2858
 DW-statistic                   1.7875
*******************************************************************************

                               Diagnostic Tests
*******************************************************************************
*    Test Statistics  *        LM Version         *         F Version         *
*******************************************************************************
*                     *                            *                           *
* A:Serial Correlation*CHI-SQ(  1)=   .13917[.709]*F(  1,  24)=   .10823[.745]*
*                     *                            *                           *
* B:Functional Form   *CHI-SQ(  1)=  .033271[.855]*F(  1,  24)=  .025786[.874]*
*                     *                            *                           *
* C:Normality         *CHI-SQ(  2)=   1.1822[.554]*       Not applicable      *
*                     *                            *                           *
* D:Heteroscedasticity*CHI-SQ(  1)=   .32602[.568]*F(  1,  29)=   .30823[.583]*
*                     *                            *                           *
* E:Predictive Failure*CHI-SQ(  9)=  34.8489[.000]*F(  9,  25)=   3.8721[.003]*
*                     *                            *                           *
* F:Chow Test         *CHI-SQ(  6)=  24.2887[.000]*F(  6,  28)=   4.0481[.005]*
*******************************************************************************
  A:Lagrange multiplier test of residual serial correlation
  B:Ramsey's RESET test using the square of the fitted values
  C:Based on a test of skewness and kurtosis of residuals
  D:Based on the regression of squared residuals on squared fitted values
  E:A test of adequacy of predictions (Chow's second test)
  F:Test of stability of the regression coefficients

List of Variables and their Descriptions

            C             : Intercept term
            CE            : Cons Exp Current Prices
            GC            : lc-lc(-1)
            GP            : lp-lp(-1)
            GY            : ly-ly(-1)
            LC            : log(rce-rde)
            LP            : log(ce/rce)
            LY            : log(rpdi)
```

(a) Briefly discuss the model and what these results tell us about the determination of consumption.

(b) Briefly explain what the R -Squared, the DW-statistic, the Maximum of Log-

likelihood and S.E. of the regression are and what they tell us about the regression results.

(c) Briefly explain the diagnostic tests A, B, C and D and what they tell us about the model.

(d) Given the following results:

```
                        Ordinary Least Squares Estimation
*******************************************************************************
 Dependent variable is  GC
 31 observations used for estimation from   50 to   80
*******************************************************************************
 Regressor              Coefficient       Standard Error         T-Ratio[Prob]
 C                         .011474           .0030629             3.7461[.001]
 GY                         .53933            .056606             9.5278[.000]
 GP                       -.073380            .027197            -2.6981[.012]
*******************************************************************************
 R-Squared                      .83703   F-statistic F( 2,  28)   71.9062[.000]
 R-Bar-Squared                  .82539   S.E. of Regression            .0069620
 Residual Sum of Squares     .0013571   Mean of Dependent Variable     .021620
 S.D. of Dependent Variable   .016661   Maximum of Log-likelihood     111.5767
 DW-statistic                   1.6741
*******************************************************************************
```

Test the restriction that all of the lagged levels variables are jointly zero using the F-test or the likelihood ratio test.