Introduction to Econometrics (Econ 107)
Drake University, Spring 2010
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MIDTERM EXAMINATION #4 ANSWER KEY

VERSION A

I. MULTIPLE CHOICE

(1)c. (2)d. (3)b. (4)g. (5)b. (6)b.
(7)f.

II. SHORT ANSWER

(1) a. (iii) b. (iv) c. (vi).
(2) a. (iv) b. (iii) c. (vi) d. (v) e. (vii)
f. (viii) g. (0).
(3) a. yes b. yes c. no d. yes e. no.

III. PROBLEMS

(1) [Finite distributed lag] a. dynamic b. 2.1 c. 3.9.
(2) [Breusch-Godfrey test] a. $\hat{\varepsilon}_t$ b. a. $x_t, y_{t-1}, \hat{\varepsilon}_{t-1}$.
c. DOF=1 d. 4.4 e. 3.84 f. yes, reject null hypothesis.
(3) [Quasi-differencing]

Transformed data		
y_i	Replacement for intercept	x_i
22	0.75	10
28	0.75	13

(4) [Random walk] a. 2.1t b. 0.53t c. nonstationary
d. 2.1 e. 0.53 f. 130.1.
(5) [Dickey-Fuller test] a. has a unit root b. -1.6 c. no cannot reject.
(6) [Forecasting, trends and seasonality] a. perfect multicollinearity
b. 103.9 c. 104.5.
(7) [Forecasting, forecast interval] a. Should not be transformed
b. $\widetilde{gdp}_{t-1} = gdp_{t-1} - 14.1, \ and \ employ_{t-1} = \widetilde{employ}_{t-1} - 218$
c. 221 d. 4 e. 221±7.84 = (213.16, 228.84).
(8) [Forecasting, AR model] a. 5 b. 5.4 c. 5.5.

VERSION B

I. MULTIPLE CHOICE

(1)b. (2)b. (3)a. (4)f. (5)d. (6)c.
(7)c.

II. SHORT ANSWER

(1) a. (i) b. (v) c. (vi).
(2) a. (viii) b. (0) c. (iv) d. (iii) e. (vi)
f. (v) g. (vii).
(3) a. yes b. no c. yes d. yes e. no.

III. PROBLEMS

(1) [Finite distributed lag] a. dynamic b. 4.8 c. 3.3.
(2) [Breusch-Godfrey test] a. $\hat{\varepsilon}_t$ b. a. $x_t, y_{t-1}, \hat{\varepsilon}_{t-1}$.
c. DOF=1 d. 4.05 e. 3.84 f. yes, reject null hypothesis.
(3) [Quasi-differencing]

Transformed data		
y_i	Replacement for intercept	x_i
16	0.5	8
21	0.5	10

(4) [Random walk] a. 1.7t b. 1.4t c. nonstationary
d. 1.7 e. 1.4 f. 88.7.
(5) [Dickey-Fuller test] a. has a unit root b. -4.5 c. yes reject.
(6) [Forecasting, trends and seasonality] a. perfect multicollinearity
b. 107.9 c. 108.5.
(7) [Forecasting, forecast interval] a. Should not be transformed
b. $\widetilde{gdp}_{t-1} = gdp_{t-1} - 13.8, \; and \; employ_{t-1} = \widetilde{employ}_{t-1} - 201$
c. 205 d. 3 e. 205±5.88 = (199.12, 210.88).
(8) [Forecasting, AR model] a. 4.7 b. 4.81 c. 6.

VERSION C

I. MULTIPLE CHOICE

(1)a. (2)a. (3)b. (4)e. (5)a. (6)a.
(7)c.

II. SHORT ANSWER

(1) a. (iv) b. (i) c. (iii).
(2) a. (vi) b. (v) c. (vii) d. (viii) e. (0)
f. (iv) g. (iii).
(3) a. no b. yes c. yes d. no e. yes.

III. PROBLEMS

(1) [Finite distributed lag] a. dynamic b. 1.9 c. 1.2.

(2) [Breusch-Godfrey test] a. $\hat{\varepsilon}_t$ b. a. $x_t, y_{t-1}, \hat{\varepsilon}_{t-1}$.
c. DOF=1 d. 3.24 e. 3.84 f. no, cannot reject null hypothesis.

(3) [Quasi-differencing]

Transformed data		
y_i	Replacement for intercept	x_i
10	0.25	6
9	0.25	4

(4) [Random walk] a. 3.5t b. 2.6t c. nonstationary
d. 3.5 e. 2.6 f. 195.5.

(5) [Dickey-Fuller test] a. has a unit root b. -1.2 c. no cannot reject.

(6) [Forecasting, trends and seasonality] a. perfect multicollinearity
b. 111.9 c. 112.5.

(7) [Forecasting, forecast interval] a. Should not be transformed
b. $\widetilde{gdp}_{t-1} = gdp_{t-1} - 12.8, \ and \ employ_{t-1} = \widetilde{employ}_{t-1} - 179$
c. 185 d. 2 e. 185±3.92 = (181.08, 188.92).

(8) [Forecasting, AR model] a. 4.75 b. 5.025 c. 5.2.

[end of answer key]