

FINAL EXAMINATION ANSWER KEY
December 18, 2007

VERSION A

I. MULTIPLE CHOICE

- (1)e. (2)d. (3)d. (4)b. (5)c. (6)a. (7)a. (8)e. (9)a. (10)a.
(11)b. (12)d. (13)b. (14)f. (15)b. (16)d.

II. MULTIPLE ANSWER

- (1) a. yes b. no c. no d. no e. yes.
(2) a. yes b. no c. no d. no e. no.
(3) a. yes b. yes c. no d. no.
(4) a. no b. yes c. no d. yes.
(5) a. yes b. no c. no d. yes.
(6) a. no b. yes c. no d. yes e. yes.

III. PROBLEMS

- (1) a. 0.5. b. 6. c. 7, 6.5, 7.5 d. -1, 0.5, 0.5.
(2) a. \$960. b. \$480. c. 2.6 d. $-1920 \pm 107.8 = (-2027.8, -1812.2)$
e. value of test statistic = 4, critical point = ± 1.96 , reject null hypothesis.
(3) a. \$25 thousand. b. \$22.4 thousand.
c. Transform regressors by subtracting values to be used in prediction:
transformed *size* = *size* - 2000.
transformed *baths* = *baths* - 3.
transformed *garage* = *garage* - 1.
d. \$203.9 thousand. e. 5.
f. $\$203.9 \text{ thousand} \pm 9.8 = (\$194.1 \text{ thousand}, \$213.7 \text{ thousand})$.
(4) a. dynamic model b. 1.4. c. 2.4.

IV. CRITICAL THINKING

- (1) a. The second regressor in the auxiliary equation should be the lagged least-squares residual $\hat{\epsilon}_{t-1}$, not the dependent variable y_t from the main equation.
b. Since the least-squares residual is defined as $\hat{\epsilon}_t = y_t - \beta_1 - \beta_2 x_t$, a perfect fit may be obtained with $\alpha_1 = -5.3$, $\alpha_2 = -1.7$, and $\alpha_3 = 1$. With a perfect fit, the new residual in the auxiliary equation \hat{v}_t will be zero for every observation.
(2) The second forecast (28.9) is better because it is the conditional mean of p_t given *all* the data in the sample, including the last observation p_{80} . For the second forecast, the variance of the forecast error is only 0.4. By contrast, the first forecast (32.8) is the unconditional mean given only the first observation p_1 . For the first forecast, the variance of the forecast error is $80 \times 0.4 = 32$.

VERSION B

I. MULTIPLE CHOICE

- (1)b. (2)a. (3)a. (4)a. (5)a. (6)e. (7)b. (8)c. (9)c. (10)d.
(11)e. (12)b. (13)a. (14)e. (15)a. (16)c.

II. MULTIPLE ANSWER

- (1) a. no b. yes c. yes d. yes e. no.
(2) a. yes b. yes c. yes d. no e. no.
(3) a. no b. yes c. no d. no.
(4) a. yes b. no c. yes d. no.
(5) a. no b. yes c. yes d. no.
(6) a. yes b. yes c. no d. yes e. no.

III. PROBLEMS

- (1) a. 2. b. 1. c. 7, 9, 5 d. -4, 2, 2.
(2) a. \$935. b. \$330. c. 1.95 d. $-1045 \pm 88.2 = (-1133.2, -956.8)$
e. value of test statistic = 2.75, critical point = ± 1.96 , reject null hypothesis.
(3) a. \$30 thousand. b. \$19.5 thousand.
c. Transform regressors by subtracting values to be used in prediction:
transformed *size* = *size* - 2000.
transformed *baths* = *baths* - 3.
transformed *garage* = *garage* - 1.
d. \$218.2 thousand. e. 6.
f. $\$218.2 \text{ thousand} \pm 11.76 = (\$206.44 \text{ thousand}, \$229.96 \text{ thousand})$.
(4) a. dynamic model b. 1.6. c. 3.6.

IV. CRITICAL THINKING (same as Version A)

[end of answer key]