

M.A. DEGREE EXAMINATION NOVEMBER 2008
BRANCH III – ECONOMICS
THIRD SEMESTER

COURSE : ELECTIVES
PAPER : ECONOMETRICS
TIME : 3 HOURS

MAX.MARKS : 100

SECTION – A

ANSWER ANY FIVE QUESTIONS. EACH ANSWER NOT TO EXCEED 300 WORDS. (5 X 8 = 40)

1. From a sample of 209 firms, the following regression results were obtained
$$\text{Log (salary)} = 4.32 + 0.280 \text{ log (sales)} + 0.0174 \text{ roe} + 0.00024 \text{ ros}$$
$$\text{Std errors} = (0.32) \quad (0.035) \quad (0.0041) \quad (0.00054)$$
$$R^2 = 0.283$$
 where salary = salary of CEO; sales = annual firm sales;
roe = return on equity in percent, ros = return on firm's stock
How will you Interpret this results?
2. For the model $Y = X\beta + U$ where Y is a nx1 vector, X is a n x k matrix, U is a n x 1 vector and the β is a k x 1 vector. Derive the OLS estimator
$$\beta = (X^1 X)^{-1} X^1 Y$$
3. What is the necessity to introduce error term in an econometric model?
4. My regression program refuses to estimate four seasonal coefficients when I enter the quarterly data including a zero – one dummy for each quarter. Why?
5. Explain the various Sum of Squares and Determine the Co-efficient of determination R^2 . How does it differ from Adjusted R^2 and F statistic?
6. Ordinary least squares regression based on 24 observations produces the following results
$$Y_t = 0.3 + 1.21 X_t + u_t; \quad R^2 = 0.98 \quad DW = 1.01$$
$$\text{Std errors} (0.1) \quad (0.2)$$
 Test the hypothesis that the disturbances are not Auto correlated. (use Durbin Watson 'd' – test)
7. Explain simultaneous equation bias with an example.

SECTION – B

ANSWER ANY THREE QUESTIONS. EACH ANSWER NOT TO EXCEED 1200 WORDS. (3 X 20 = 60)

8. a) Explain the method of **Generalised Least Squares** in the context of Heteroscedasticity. (5 Marks)
- b) Can we say **Goldfeld-Quandt** test is more suitable than the Glejer's test to identify the presence of heteroscedasticity? Justify. (5 Marks)
- c) What are the remedial measures available to eliminate the problem of heteroscedasticity? (10 Marks)
9. Prove that the Ordinary Least Squares Estimators are the Best Linear Unbiased Estimators (BLUE).
10. Given the following data.

Grade-point average	Income of parents in Rs.000
4.0	21.0
3.0	15.0
3.5	15.0
2.0	9.0
3.0	12.0
3.5	18.0
2.5	6.0
2.5	12.0

Estimate the Model $GPA = \alpha + \beta (\text{Income}) + U_i$ and find out the standard errors of the estimators and the co-efficient of determination (R^2). Test the significance also with interpretation.

11. What are the causes for Multicollinearity? Bring out the consequences. How do you identify and solve the same.
12. Discuss the relevance and use of various functional forms of regression model. How do econometric models help in economic analysis?
