

THIRD SEMESTER M.A DEGREE EXAMINATION, NOVEMBER 2020
ECONOMICS
FECO3C11 - BASIC ECONOMETRICS

Time: Three Hours

Maximum Weightage: 30

Part A: (Multiple Choice Questions). Answer *all* questions. Each carries $\frac{1}{5}$ weightage.

1. When there is Perfect Multicollinearity the regression parameters are
(a) determinate (b) indeterminate (c) infinite values (d) small negative value
2. In the classical linear regression model, X_i and U_i are
(a) Positively correlated
(b) Negatively correlated
(c) Highly correlated
(d) Not correlated
3. ANCOVA models include
(a) only qualitative variables (b) quantitative variables
(c) only categorical variables (d) Both qualitative and quantitative variables
4. Heteroscedasticity may result due to the presence of
(a) outliers (b) omission of important predictors
(c) skewness in the distribution of regressors (d) all the above
5. Presence of autocorrelation leads to this test being NOT valid
(a) T test (b) F test (c) chi square (d) all the above
6. Degrees of freedom available for Explained Sum Squares
(a) $n-1$ (b) $k-1$ (c) $n-k$ (d) None of these
7. Which one among the following is quantitative variable?
(a) Gender (b) Daily income Rs. 500-800
(c) Economic Status (d) None of these
8. Coefficient of over fitted model would have
(a) Biased coefficient (b) Inconsistent coefficient
(c) Inefficient coefficient (d) All of the above
9. The statement that there can be more than one SRF representing a PRF is
(a) Always true (b) Always false
(c) Sometimes true, sometimes false (d) Nonsense statement
10. In double log regression model, the regression slope gives
(a) the relative change in Y for an absolute change in X
(b) The percentage change in Y for a given percentage change in X
(c) The absolute change in Y for a percent change in X
(d) How many units Y changes for a unit change in X
11. Dummy variables classify the data into
(a) Inclusive categories (b) Mutually exclusive categories
(c) Qualitative categories (d) Quantitative categories
12. The coefficient of under fitted model is
(a) Biased coefficient (b) Inconsistent coefficient
(c) Inefficient coefficient (d) All of the above

(P.T.O.)

13. In linear probability model, the dependent variable follows
- (a) Normal distribution (b) Chi-square distribution
(c) Bernoulli probability distribution (d) Logistic distribution
14. In logit model, the log of the odds ratio is
- (a) Linear in X and linear in parameters
(b) Linear in X and nonlinear in parameters
(c) Nonlinear in X and nonlinear in parameters
(d) Nonlinear in X and linear in parameters
15. Using OLS estimation technique in the presence of heteroscedasticity will lead to
- (a) Easy acceptance of statistically significant coefficient using t and F test
(b) Easy rejection of statistically significant coefficient using t and F test
(c) The t and F test still being accurate
(d) The t test gives accurate results while F test does not

(15 × 1/5 = 3 weightage)

Part B: (Very Short Answer Questions). Answer any five questions. Each carries one weightage.

16. Differentiate between the true model and the estimated model.
17. Explain the modern interpretation of regression.
18. Define the problem of Multicollinearity and explain the measure of variance inflation factor to detect the problem.
19. Spell out the difference between standard error of the estimator and estimate.
20. Draw the regression line with the following information; $\beta_0 = 5$ and $\beta_1 = 0$ (Zero).
21. Bring out the assumptions of Chow test.
22. Explain graphically the piecewise linear regression model.
23. Explain the semi log models with suitable examples.

(5 × 1 = 5 weightage)

Part C (Short Answer Questions). Answer any seven questions. Each carries two weightage.

24. Interpret the following regression result from the problem on the basis of each value. The explanatory variable is income measured in thousands.
Coefficient of the Explanatory Variable = 0.04846
t-Statistic = 19.5585; p-value = 0.000
Normal density value Z = 0.3066.
25. Discuss the problems of linear probability model.
26. Evaluate the importance of stochastic disturbance term.
27. Analyse the importance of Adjusted R Square in multiple regression analysis.
28. Explain the assumptions of multiple regression in matrix notation.
29. Appraise the regression model appropriate for measuring the growth rate.
30. Demonstrate the application of log linear model in economic theory.

31. Critically discuss the problem of autocorrelation and explain any two remedial measures to solve the problem.
32. Review the different types of specification errors in regression modelling.
33. Narrate critically the methodology of econometrics.

(7 × 2 = 14 weightage)

Part D: (Essay Questions). Answer any *two* questions. Each carries *four* weightage.

34. Fit a regression model with the following data and estimate the relationship between income and consumption and find whether the estimated relationship is valid for population. Also evaluate the goodness of the fit.

All figures are in hundreds in rupees										
Income	8	10	11.5	13.25	16	18	20	22	24	26
Consumption	7.1	7.7	8.9	10.1	11.3	14	11	14.9	12.11	17.3

35. Formulate the regression model to analyse the relationship between sector of employment, gender and years of education upon wages received by employees.
36. Discuss the problem and consequence of heteroscedasticity and explain how the method of WLS deals with the problem.
37. Argue the case for using normal cumulative density function in qualitative response models.

(2 × 4 =8 weightage)