

THIRD SEMESTER M.A. DEGREE EXAMINATION, NOVEMBER 2024
(Regular/Improvement/Supplementary)

ECONOMICS
FECO3C11 - BASIC ECONOMETRICS

Time: 3 Hours

Maximum Weightage: 30

Part A: Multiple choice questions. Answer *all* questions. Each carries $\frac{1}{5}$ weightage.

1. BLUE property is related to:
 - (a) Central Limit Theorem.
 - (b) Arithmetic Mean.
 - (c) Standard Deviation.
 - (d) Gauss Markov Theorem.
2. Under the spearman's rank correlation test for heteroscedasticity, the null hypothesis tested is that:
 - (a) There is no heteroscedasticity in the sample data.
 - (b) There is heteroscedasticity in the sample data.
 - (c) There is positive heteroscedasticity in the sample data.
 - (d) There is negative heteroscedasticity in the sample data.
3. When a linear function is fitted to non-linear data set, it will result in:
 - (a) Measurement error.
 - (b) Sampling error.
 - (c) Specification error.
 - (d) None of the above.
4. $\ln Y_i = \beta_1 + \beta_2 X_i + u_i$, u_i can take values that are:
 - (a) Only positive.
 - (b) Only negative.
 - (c) Only zero.
 - (d) Positive, negative or zero.
5. The mean value of u_i conditional upon the given X_i is
 - (a) Positive values.
 - (b) Negative values.
 - (c) Equal to zero.
 - (d) Any of the above.

(P.T.O.)

6. In the multiple regression model, the adjusted R^2 :
- (a) Cannot be negative.
 - (b) Will never be greater than the regression R^2 .
 - (c) Equals the square of the correlation coefficient r .
 - (d) Cannot decrease when an additional explanatory variable is added.
7. Dummy variables are variables of the type:
- (a) Ratio scale.
 - (b) Interval scale.
 - (c) Ordinal scale.
 - (d) Nominal scale.
8. In statistics standard error measures, the:
- (a) Correlation between Y and X.
 - (b) Precision of an estimate.
 - (c) Specification error of the model.
 - (d) Autocorrelation in the regression model.
9. To test for structural break in a time series data, we use:
- (a) t -test.
 - (b) Chi-square test.
 - (c) MWD test.
 - (d) Chow test.
10. A hypothesis such as $H_0: \beta_2 = \beta_3 = 0$, can be tested using:
- (a) t -test.
 - (b) Chi-square test.
 - (c) ANOVA test
 - (d) F -test
11. ANCOVA models include regressors that are:
- (a) Only quantitative variables.
 - (b) Only qualitative variables.
 - (c) Only categorical variables.
 - (d) Both qualitative and quantitative variables.
12. If there exists high multicollinearity, then the regression coefficients are:
- (a) Determinate.
 - (b) Indeterminate.
 - (c) Infinite values.
 - (d) Small negative value.

13. If in the regression model, one of the explanatory variables included is the lagged value of the dependent variable, then the model is referred to as:
- (a) Best fit model.
 - (b) Dynamic model.
 - (c) Autoregressive model.
 - (d) First-difference form.
14. In an LPM:
- (a) The errors are homoscedastic.
 - (b) The errors are heteroscedastic.
 - (c) The errors are normally distributed.
 - (d) The errors are all equal to zero.
15. The utility index I_i in a probit model is also known as:
- (a) Critical index.
 - (b) Latent variable.
 - (c) Threshold level.
 - (d) Cumulative distribution function.

(15 × 1/5 = 3 weightage)

Part B: Very short answer questions. Answer any five questions. Each carries one weightage.

- 16. What do you mean by the level of significance?
- 17. Explain LPM?
- 18. Define degrees of freedom.
- 19. What is the significance of R^2 ?
- 20. Explain the significance of RESET test.
- 21. Briefly explain ANOVA model.
- 22. Define a Log-Linear model.
- 23. What do you mean by first-order coefficient of autocorrelation?

(5 × 1 = 5 weightage)

Part C: Short answer questions. Answer any seven questions. Each carries two weightage.

- 24. Discuss the methodology of econometrics.
- 25. Elucidate the significance of semi log regression models.
- 26. Derive the properties of Least Square Estimators using matrix approach.
- 27. Differentiate between logit and probit models.
- 28. Elucidate the method of maximum likelihood estimation.

(P.T.O.)

29. What are the types and consequences of specification errors?
30. Briefly explain the method and detection rules of Durbin-Watson d test?
31. Explain the testing procedures applied in the case of Restricted Least Squares.
32. Write a note on piece-wise linear regression.
33. Define multicollinearity? What are the methods to detect multicollinearity?

(7 × 2 = 14 weightage)

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

34. How will you estimate a dummy variable model? What are the interpretations of the estimates?
35. What is heteroscedasticity. Discuss the detection, consequences and remedial measures of heteroscedasticity.
36. For the following data on household consumption (Y_t) and income (X_t), fit a regression and interpret the result.

Consumption (Y_t)	38	60	55	70	60	48	30
Income (X_t)	40	50	38	60	65	50	35

37. Examine various types of specification errors.

(2 × 4 =8 weightage)