D 150029 **(Pages : 6)** **Name.....**

Reg. No.....

THIRD SEMESTER M.A. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, NOVEMBER 2026

(CBCSS)

Economics

ECO 3C 11—BASIC ECONOMETRICS

(2019 Admission onwards)

Time : Three Hours Maximum : 30 Weightage

Part A

Answer **all** *questions.*

Each bunch of **five** *questions carries a weightage of* 1.

Multiple Choice Questions :

1. A regression diagnostic tool is used to study the possible presence of multicollinearity is ————————.

   a) Slope.
   b) Durbin Watson statistic.
   c) Residual plot.
   d) Correlation matrix.

2. In regression analysis, the variable that is being predicted is the ————————.

   a) Response, or dependent, variable.
   b) Independent variable.
   c) Intervening variable.
   d) Is usually x.

3. In least squares regression, which of the following is not a required assumption about the error term ε ?

   a) The expected value of the error term is one.
   b) The variance of the error term is the same for all values of x.
   c) The values of the error term are independent.
   d) The error term is normally distributed.

Turn over

4. In the case of an algebraic model for a straight line, if a value for the x variable is specified, then :

   a) The exact value of the response variable can be computed.

   b) The computed response to the independent value will always give a minimal residual

   c) The computed value of y will always be the best estimate of the mean response

   d) None of these alternatives is correct.

5. A regression analysis between sales (in \$1000) and price (in dollars) resulted in the following equation : $\hat{Y} = 50{,}000 - 8X$. This equation implies that an ——————————.

   a) Increase of \$1 in price is associated with a decrease of \$8 in sales

   b) Increase of \$8 in price is associated with an increase of \$8,000 in sales

   c) Increase of \$1 in price is associated with a decrease of \$42,000 in sales

   d) Increase of \$1 in price is associated with a decrease of \$8000 in sales

6. Suppose that we wished to evaluate the factors that affected the probability that an investor would choose an equity fund rather than a bond fund or a cash investment. Which class of model would be most appropriate ?

   a) Logit model.

   b) Multinomial logit.

   c) Tobit model.

   d) An ordered logit model.

7. Which of the following is correct concerning logit and probit models ?

   a) They use a different method of transforming the model so that the probabilities lie between zero and one.

   b) The logit model can result in too many observations falling at exactly zero or exactly one.

   c) For the logit model, the marginal effect of a change in one of the explanatory variables is simply the estimate of the parameter attached to that variable, whereas this is not the case for the probit model.

   d) The probit model is based on a cumulative logistic function.

8. Suppose that we estimate a logit model based on an intercept and two explanatory variables and the parameter estimates are respectively $\hat{\beta}_1 = 0.1, \hat{\beta}_2 = 0.3, \hat{\beta}_3 = -0.2$ and the average values of the explanatory variables are $\bar{x}_2 = 0.5, \bar{x}_3 = 0.8$. A 1-unit increase in x_3 will cause an increase in the probability that the outcome corresponding to $y = 1$ to :

   a) Increase by 0.8.
   b) Fall by 0.2.
   c) Fall by 0.1.
   d) Increase by 0.3.

9. If the t ratio for the slope of a simple linear regression equation is – 2.48 and the critical values of the t distribution at the 1 % and 5 % levels, respectively, are 3.499 and 2.365, then the slope is _____.

   a) Not significantly different from zero.
   b) Significantly different from zero at both the 1 % and the 5 % levels.
   c) Significantly different from zero at the 1 % level but not at the 5 % level.
   d) Significantly different from zero at the 5 % level but not at the 1 % level.

10. Ordinary least squares is used to estimate a linear relationship between a firm's total revenue per week (in $ 1,000s) and the average percentage discount from list price allowed to customers by salespersons. A 95 % confidence interval on the slope is calculated from the regression output The interval ranges from 1.05 to 2.38. Based on this result, the researcher :

   a) Can conclude that the slope is significantly different from zero at the 5 % level of significance.
   b) Can be 95 % confident that the effect of a 1 % increase in the average price discount will increase weekly total revenue by between $1,050 and $2,380.
   c) Has one chance in twenty of incorrectly concluding that the slope is within the estimated confidence interval.
   d) All of the above are correct.

11. Multiple regression analysis is used when _____.

   a) There is not enough data to carry out simple linear regression analysis.
   b) The dependent variable depends on more than one independent variable.
   c) One or more of the assumptions of simple linear regression are not correct.
   d) The relationship between the dependent variable and the independent variables cannot be described by a linear function.

Turn over

12. The adjusted value of the coefficient of determination ————————.

a) Will always increase if additional independent variables are added to the regression model.

b) Is equal to the proportion of the sum of the squared deviations of the dependent variable from its mean that is explained by the regression model.

c) Is always greater than the proportion of the sum of the squared deviations of the dependent variable from its mean that is explained by the regression model.

d) Is always less than the proportion of the sum of the squared deviations of the dependent variable from its mean that is explained by the regression model.

13. Multicollinearity refers to a situation in which :

a) Successive error terms derived from the application of regression analysis to time series data are correlated.

b) There is a high degree of correlation between the independent variables included in a multiple regression model.

c) The dependent variable is highly correlated with the independent variable(s) in a regression analysis.

d) The application of a multiple regression model yields estimates that are non-linear in form.

14. Autocorrelation refers to ————————.

a) Successive error terms derived from the application of regression analysis to time series data are correlated.

b) There is a high degree of correlation between two or more of the independent variables included in a multiple regression model.

c) The dependent variable is highly correlated with the independent variable(s) in a regression analysis.

d) The application of a multiple regression model yields estimates that are nonlinear in form.

15. One advantage of estimating a function in which all variables have been transformed into their natural logarithms is that ————————.

a) Problems with mulicollinesrity will be eliminated.

b) Problems with heteroskedasticity will be eliminated.

c) The estimated slope co-efficients are all elasticities.

d) None of the above is correct.

(15 × 1/5 = 3 weightage)

Part B (Very Short Answer Questions)

Answer any **five** *questions.*
Each question carries a weightage of 1.

16. Define coefficient of determination.
17. Explain dummy variable trap.
18. State Gauss Markov theorem.
19. What do you mean by log-lin model.
20. What do you mean by chow test ?
21. What is Instrumental Variables Regression ? Discuss various uses of Instrumental Variable.
22. Discuss Partial Correlation Co-efficient
23. Discuss Errors in Variables Consequence.

(5 × 1 = 5 weightage)

Part C (Short Answer Questions)

Answer any **seven** *questions.*
Each question carries a weightage of 2.

24. Briefly explain tests for auto-correlation.
25. What is Dummy Dependent Variable ? Discuss in details about Dummy Dependent Variables.
26. Differentiate independent and dependent variables.
27. Explain log linear model.
28. Elaborate 2 major applications of reciprocal model in economics.
29. Explain about General Linear model with K- Explanatory variable.
30. Briefly explain Restricted least squares.
31. What is Co-efficient of Multiple Correlation ? Explain about the Co-efficient of Multiple Correlations.

Turn over

32. What is Linear Regression ? Discuss Classical Linear Regression with one explanatory variable.

33. Discuss the assumptions underlying OLS.

(7 × 2 = 14 weightage)

Part D (Essay Questions)

Answer any **two** *questions.*
Each question carries a weightage of 4.

34. Briefly elucidate the nature, consequences, detection, and remedial measures of Multi-collinearity.

35. Explain the matrix approach to estimation and derivation of the properties of OLS estimators.

36. Elaborate the concept of dummy variable.

37. Discuss about the violations of the assumptions of the classical model.

(2 × 4 = 8 weightage)