END TERM EXAMINATION

FIFTH SEMESTER [BCOM(HONS)] DECEMBER 2024

Paper Code: BCOM313   **Subject: Basics of Econometrics**
Time: 03:00 Hours   **Maximum Marks:75**
Note: Attempt any five questions. All questions as carry equal marks.

Q1. Answer **any five** of the following: **(5x5=25)**
  (a) What is conditional probability? Explain with the help of an example.
  (b) What are the properties of a random variable?
  (c) What is type-1 error in hypothesis testing? How is it measured?
  (d) What are the reasons for misspecification of a model?
  (e) What is serial correlation?
  (f) What are the properties of the error term in the regression model?
  (g) What is the importance of diagnostic checking for an econometric model?
  (h) What is goodness of fit?

Q2. Define econometrics. Discuss its nature and how is it related with economics and statistics. Discuss the role of econometrics in testing economic theories.   **(12.5)**

OR

Q3. What is the Poisson distribution? Explain the key characteristics of a Poisson distribution and give an example where it can be applied.How is it different from binomial distribution?   **(12.5)**

Q4. What is the Gauss-Markov Theorem? Explain the key assumptions of the theorem and describe its significance in the context of Ordinary Least Squares (OLS) regression.   **(12.5)**

OR

Q5. What is interval estimation? Define confidence intervals and explain how they are constructed. How do confidence intervals provide a range of plausible values for population parameters?   **(12.5)**

Q6. How multiple regressions is an extension of simple linear regression? What is the meaning of the coefficient of determination (R^2) in multiple regressions? How does R^2 help in understanding the goodness of fit of a regression model, and how is adjusted R^2 different from R^2?   **(12.5)**

OR

Q7. Explain the role of dummy variables in multiple regression. How are they used to represent categorical variables, and what challenges may arise when including dummy variables in a regression model?   **(12.5)**

Q8. What is heteroskedasticity, and how does it impact the validity of OLS estimates in multiple regression? Discuss methods to detect and correct for heteroskedasticity.   **(12.5)**

OR

Q9. What is multicollinearity in multiple regression analysis? What are its causes? How is it detected? What are the potential problems it can create for interpreting regression results?   **(12.5)**

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