PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BCom DEGREE EXAMINATION DECEMBER 2023
(Third Semester)
Branch – COMMERCE (BUSINESS ANALYTICS)
ECONOMETRICS

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)
Answer ALL questions
ALL questions carry EQUAL marks

(5 x 1 = 5)

1. In simple linear regression, how many independent variables are used to predict the dependent variable?
   (i) One
   (ii) Two
   (iii) more than two
   (iv) It varies depending on the situation

2. If there exist high multicollinearity, then the regression coefficients are
   (i) Determinate
   (ii) Indeterminate
   (iii) Infinite values
   (iv) Small negative values

3. What is the meaning of heteroscedasticity?
   (i) The variance of the errors is not constant
   (ii) The variance of the dependent variable is not constant
   (iii) The errors are not linearly independent of one another
   (iv) The errors have non-zero mean

4. Which economist is widely credited with developing input-output analysis as a formal methodology?
   (i) John Maynard Keynes
   (ii) Adam Smith
   (iii) Wassily Leontief
   (iv) Milton Friedman

5. Which component of the ARIMA model accounts for eliminating trends and seasonality from a time series?
   (i) Autoregressive (AR)
   (ii) Integrated (I)
   (iii) Moving Average (MA)
   (iv) Both Autoregressive (AR) and Integrated (I)

SECTION - B (15 Marks)
Answer ALL Questions
ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

6. (a) Describe the objectives of econometrics.

   (OR)

   (b) What is least square estimation?

7. (a) Narrate the details about bivariate econometric modeling.

   (OR)

   (b) What are the various test for detecting multicollinearity?

8. (a) Sketch the uses of heteroscedasticity.

   (OR)

   (b) Explain in details about univariate time series model.

9. (a) Write the meaning of input and output analysis.

   (OR)

   (b) Given is the input co-efficient matrix (A) obtained from an input-output table of three industries A, B and C.

$$C = \begin{bmatrix} 0.3 & 0.2 & 0.4 \\ 0 & 0.2 & 0.1 \\ 0.1 & 0.2 & 0.2 \end{bmatrix}$$

Suppose there is a demand for the products to use for final consumption and it is given as 300, 400 and 500 for industry A, B and C respectively. Formulate a mathematical expression for the total output from the given information.

10. (a)   Summarize the assumptions of auto correlation.
                                (OR)
     (b)   State the applications of ARCH and GARCH models.

SECTION -C (30 Marks)
Answer ALL questions
ALL questions carry EQUAL Marks   (5 x 6 = 30)

11. (a)   Explain in details about two variable regression model.
                                (OR)
     (b)   Elucidate the concept of economic forecasting and its types.

12. (a)   Write short notes on multivariate econometric modeling.
                                (OR)
     (b)   Illustrate is multicollinearity and its causes.

13. (a)   Summarize the details of heteroscedasticity and explain how to detect it.

                                (OR)

     (b)   Explain the following:
            (i) Dummy variables   (ii) Basic of time series.

14. (a)   Write short notes on Leonitef's input – output analysis and its assumptions.

                                (OR)

     (b)   In an economy there are two industries P_1 & P_2 and the following table gives the supply and the demand position in crores of rupees.

Production Sector	Consumption Sector		Final Demand	Gross output
	P_1	P_2		
P_1	10	25	15	50
P_2	20	30	10	60

Determine the outputs when the final demand changes to 35 for P_1 and 42 for P_2.

15. (a)   Describe the following:
            (i) Characteristics of auto correlation   (ii) Auto regression.
                                (OR)

     (b)   Discuss the about Box – Jenkins model and the steps involved in model selection and fitting.

Z-Z-Z   END