LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.A. DEGREE EXAMINATION – **ECONOMICS**

THIRD SEMESTER – **NOVEMBER 2022**

PEC 3503 – ADVANCED ECONOMETRICS

Date: 25-11-2022   Dept. No.   Max. : 100 Marks
Time: 09:00 AM - 12:00 NOON

Part - A

Answer any FIVE questions in about 75 words each   **5 X 4 = 20 Marks**

1. Infer the t-test for the equation: $\hat{Y}_i = \hat{\beta}_1 + \hat{\beta}_2 X_i$.

2. If ESS = 27 and RSS = 3, Summarize the findings.

3. Distinguish between unidirectional and bidirectional causality.

4. Graphically describe the CUSUM square test.

5. Write a short note on Count R^2.

6. Express the shortcomings of Pooled OLS regression.

7. State two examples of spurious regression.

Part - B

Answer any FOUR questions in about 300 words each   **4 X 10 = 40 Marks**

8. Using the Restricted Least Squares method, test linear equality restrictions on the Cobb-Douglas production function.

9. Elaborate the procedure to test the overall significance of multiple regression:

   $Y_i = \beta_1 + \beta_2 X_{2i} + \beta_3 X_{3i}$.

10. Summarize the importance of the CUSUM test for testing model stability.

11. The following table provides regression output regarding the Labour Force Participation in India. Dependent Variable: in or out of the labour force during 2021.

Expl. Variable	Coefficient	t ratio	Expl. Variable	Coefficient	t ratio	Expl. Variable	Coefficient	t ratio
Constant	0.510	15.4						
Marital Status			**Age**			**Years of Schooling**		
Unmarried	-	-	22 – 35	-	-	0 – 4	-	-
Married	0.24	13.8	36 – 50	0.12	5.7	5 – 8	0.125	5.8
Divorced	0.36	22.0	51 – 60	-0.15	-9.0	9 – 11	0.170	7.9
			> 60	-0.23	-8.6	12 – 15	0.223	10.6

Compute the conditional probabilities of the labour–force participation of individuals for

    a) 22-35 Years of Age   (2 Mark)

    b) Unmarried and 22-35 Years of Age   (2 Mark)

    c) 51-60 Years of Age and Divorced   (3 Marks)

    d) Years of Schooling with 9-11 years and aged 36-50 years.   (3 Marks)

12. Elucidate the steps in the construction of the Probit model.

13. Briefly explain the Fixed effect - Least Square Dummy Variable (LSDV) model.

14. Differentiate stationary stochastic process and non-stationary stochastic process.

Part - C
Answer any TWO questions in about 1200 words each   **2 X 20 = 40 Marks**

15. Recommend a suitable method to evaluate the incremental contribution of an explanatory variable.

16. Elucidate the steps involved in the estimation of group logit model.

17. Compare and contrast the Fixed effect - Within Group (WG) estimator and Random Effects Model.

18. Summarize the significance of ARCH and GARCH model.

&&&&&&&&&&