

M. COM DEGREE END SEMESTER EXAMINATION : NOVEMBER 2023**SEMESTER 3 : COMMERCE****COURSE : 21P3COMT15 : ECONOMETRICS FOR FINANCE***(For Regular - 2022 Admission and Supplementary - 2021 Admission)*

Duration : Three Hours

Max. Weights: 30

PART A**Answer any 8 questions****Weight: 1**

1. What is econometrics? (U, CO 1)
 2. What is distributed lag model? (U, CO 3)
 3. Define conditional probability density function. Give the condition for independence of two discrete random variables. (An, CO 1)
 4. What is analysis of variance? (An, CO 1)
 5. What is error in functional form? (An, CO 1)
 6. Define sampling distribution. Give an example. (U, CO 1)
 7. Define null hypothesis and alternate hypothesis. (U, CO 1)
 8. Define joint probability density of two discrete random variable. (U, CO 1)
 9. What is panel data? (U, CO 1)
 10. What are the properties of expectation of a random variable? (An, CO 1)
- (1 x 8 = 8)**

PART B**Answer any 6 questions****Weights: 2**

11. What is confidence interval and how is it calculated? (An, CO 2)
 12. What are the uses of econometrics? (An, CO 1)
 13. Expenditure of students follows a normal distribution with mean of Rs. 8000 per month and standard deviation of Rs. 2500 per month. Find the following:
 - (a) Probability that the monthly expenditure of a randomly selected student is less than Rs. 6000 (A, CO 2)
 - (b) Percentage of students whose expenditure is more than Rs. 1000 per month
 14. What is spurious correlation? What are its consequences? (An, CO 3)
 15. How is econometrics different from statistics? (An, CO 1)
 16. What are the properties of normal distribution? (An, CO 2)
 17. What are the consequences of heteroskedasticity? (An, CO 4)
 18. Briefly explain the technique of dummy variable modelling? (An, CO 6)
- (2 x 6 = 12)**

PART C**Answer any 2 questions****Weights: 5**

19. The following table gives the gross national product (X) and demand for food (Y). Estimate the parameters of the model $Y_i = b_0 + b_1 X_i + U_i$ (A)
- | | | | | | | | | | | |
|-----|----|----|----|----|----|----|----|----|----|----|
| X : | 6 | 7 | 8 | 10 | 8 | 9 | 10 | 9 | 11 | 10 |
| Y : | 50 | 52 | 55 | 59 | 57 | 58 | 62 | 65 | 68 | 70 |

20. (a) Explain the concept of R^2 and adjusted R^2 . (E, CO 6)
 (b) Explain the technique of dummy variable modelling.
21. State the Gauss Markoff theorem and explain the BLUE property of the OLS estimates of the parameters of the model $Y_i = b_0 + b_1 X_i + U_i$ (E)
22. The joint probability density function of two random variables X and Y is
- | | | | |
|-----|-----|-----|-----|
| X/Y | 0 | 1 | 2 |
| 0 | 0.2 | 0.1 | 0.3 |
| 1 | 0.1 | 0.2 | 0.1 |
- (A, CO 2)
- (a) Find $E(X)$ and $E(Y)$
 (b) Find $V(X)$ and $V(Y)$
 (c) Find conditional distribution of X given $Y = 1$
 (d) Find conditional distribution of Y given $X = 0$
 (e) Check whether X and Y are independent
- (5 x 2 = 10)**

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.
CO 1	Enable students to understand the basics of econometrics	U	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15	13
CO 2	Create an understanding of how econometric methods are applied in finance	An	11, 13, 16, 22	11
CO 3	Impart working knowledge of financial time series	A	2, 14	3
CO 4	Familiarise the software with which analysis is performed	An	17	2
CO 6	Understand the basic regression models	E	18, 20	7

Cognitive Level (CL): Cr - CREATE; E - EVALUATE; An - ANALYZE; A - APPLY; U - UNDERSTAND; R - REMEMBER;