

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
(For Candidates admitted during the academic year 2023-2024 and thereafter)

M.A. DEGREE EXAMINATION NOVEMBER 2024
BRANCH III – ECONOMICS
THIRD SEMESTER

COURSE : CORE
PAPER : ECONOMETRIC METHODS
SUBJECT CODE: 23EC/PC/EM34
TIME : 3 HOURS

MAX.MARKS: 100

Q. No.	SECTION A PART A (2x5=10) Answer any TWO out of THREE Questions in 150 words each.	CO	KL
1	Define Econometrics and list the stages in empirical econometric research according to classical methodology.	1	1
2	State the assumptions of the linear regression model.	1	1
3	Identify the components of a three-variable linear regression model.	1	1
Q. No.	SECTION A PART B (2x5=10) Answer any TWO out of THREE Questions in 150 words each.	CO	KL
4	Describe the principle of least square in the context of linear regression analysis.	2	2
5	Explain the concept of the coefficient of determination in regression analysis	2	2
6	Explain Heteroscedasticity. Describe how it affects regression analysis	2	2
Q. No.	SECTION B PART A (2x8=16) Answer any TWO out of THREE questions in 400 words.	CO	KL
7	Illustrate the process of deriving the Gauss-Markov theorem for the two variable linear regression model.	3	3
8	Compare and contrast the different functional forms of regression models: double-log, semi-log and reciprocal models.	3	3
9	Demonstrate how dummy variables are used in analyzing time series and cross-sectional data.	3	3
Q. No.	SECTION B PART B (2x8=16) Answer any TWO out of THREE questions in 400 words	CO	KL

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10	Analyze the properties of OLS estimators in the context of the two-variable linear regression model.	4	4
11	Examine the process of hypothesis testing in the three-variable linear regression model using ANOVA	4	4
12	Investigate the consequences and detection methods for heteroscedasticity in regression analysis.	4	4
Q. No.	SECTION C PART A (2x12=24) Answer any TWO out of FOUR questions in 700 words.	CO	KL
13	Evaluate the estimation process of a two-variable model, including the interpretation of results and diagnostic checks.	5	5
14	Assess the importance of hypothesis testing using ANOVA in multiple regression models	5	5
15	Critique the OLS estimation method in the context of the general linear model (matrix approach).	5	5
16	Appraise the various tests for detecting autocorrelation in regression models and discuss their relative strengths and weaknesses.	5	5
Q. No.	SECTION C PART B (2x12=24) Answer any TWO out of FOUR questions in 700 words.	CO	KL
17	Develop a solution to address multicollinearity in regression models, detailing the steps you would follow.	6	6
18	Create a regression model using dummy variables to test for structural stability. Discuss how seasonal effect can be accounted for	6	6
19	Develop a comprehensive approach to estimate and interpret a polynomial regression model, including justification for the chosen degree of polynomial.	6	6
20	Construct a matrix approach to solve a 'k-variable' linear regression model, including the formulation of hypotheses and testing the significance of the model using ANOVA.	6	6
