PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
MA DEGREE EXAMINATION MAY 2024
(Second Semester)

Branch- **ECONOMICS**

ECONOMETRIC METHODS AND APPLICATIONS

Time: Three Hours   Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks   (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	The name 'Econometrics' was coined by_____. a) Irving Fisher b) J.M. Keynes c) Ragnar Frisch d) Alfred Marshall	K1	CO1
	2	The parameter E which we use for a least square method is called _____. a) Sum of residues b) Residues c) Error d) Sum of errors	K2	CO1
2	3	If any regression coefficient's value is zero, the two variables are: a) Qualitative b) Independent c) Dependent d) Constant	K1	CO2
	4	ANOVA assumes that the dependent variable is measured on a(n): a) Nominal scale b) Continuous scale b) Ordinal scale d) Dichotomous scale	K2	CO2
3	5	In multicollinearity, due to high variance and standard error, the t-test will become statistically. a) Significant b) Very high c) Insignificant d) Very low	K1	CO3
	6	Negative residual autocorrelation is indicated by which one of the following? a) A cyclical pattern in the residuals b) An alternating pattern in the residuals c) A complete randomness in the residuals d) Residuals that are all close to zero	K2	CO3
4	7	The systematic components of time series that follow a regular pattern of variations are called: a) Signal b) Noise c) Additive model d) Multiplicative model	K1	CO4
	8	The panel data model with an entity and time-fixed effects. a) handles any kind of omitted variable bias b) reduces bias caused by measurement error c) deals with simultaneous causality bias d) requires that the variable of interest varies over entities and time	K2	CO4
5	9	_____ regression method is also known as the ordinary least squares estimation. a) Simple b) Direct c) Indirect d) Mutual	K1	CO5
	10	Exogenous variables are: a) Fixed at the moment they enter the model b) Determined within the model c) The outputs of the model d) Explained by the model	K2	CO5

SECTION - B (35 Marks)
Answer ALL questions
ALL questions carry EQUAL Marks   (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Explain the scope and importance of econometrics.	K2	CO1
		(OR)		
	11.b.	Illustrate the properties of a linear regression model.		
2	12.a.	The two regression lines are $3X+2Y=26$ and $6X+3Y=31$. Find the correlation coefficient.	K3	CO2
		(OR)		
	12.b.	Difference between R-square and Adjusted R-square.		
3	13.a.	Identify the remedial measures of multicollinearity.	K4	CO3
		(OR)		
	13.b.	Explain the methods of estimating autocorrelation.		
4	14.a.	Identify the properties of stationary time series.	K5	CO4
		(OR)		
	14.b.	Construct the uses and advantages of panel data.		
5	15.a.	Solve the following simultaneous equations: $2a - b = 4$ and $2b - 3a = 2$	K6	CO5
		(OR)		
	15.b.	Simplify the steps involved in the three-stage least squares (3SLS) estimation procedure.		

SECTION -C (30 Marks)
Answer ANY THREE questions
ALL questions carry EQUAL Marks   (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Elucidate the assumptions and properties of the OLS estimator.	K4	CO1
2	17	Suppose we have a regression model that predicts the height of a child based on their age. The following table shows the data for a sample of children: Child / Age (years) / Height (m): 1 / 6 / 115 2 / 7 / 120 3 / 8 / 125 4 / 9 / 130	K4	CO2
3	18	Examine the source and remedial measures of heteroscedasticity.	K5	CO3
4	19	Elucidate the stages of diagnostic checking of the ARIMA model.	K6	CO4
5	20	The Least Squares Model for a set of data (x_1, y_1), (x_2, y_2), (x_3, y_3), ..., (x_n, y_n) passes through the point (x_a, y_a) where x_a is the average of the x_i's and y_a is the average of the y_i's. The below data explains how to find the equation of a least square method. Consider the time series data given below: x_i: 8, 3, 2, 10, 11, 3, 6, 5, 6, 8 y_i: 4, 12, 1, 12, 9, 4, 9, 6, 1, 14 Use the least square method to determine the equation.	K6	CO5

Z-Z-Z   END