

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BCom DEGREE EXAMINATION DECEMBER 2024
(Third Semester)

Branch – **COMMERCE (BUSINESS ANALYTICS)**

ECONOMETRICS

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	In a regression analysis, what is another name for the variable that helps predict the outcome? (a) Explained Variable (b) Response Variable (c) Dependent Variable (d) Explanatory Variable	K1	CO1
	2	Which of the following is a limitation of econometric analysis? (a) The assumption of linearity (b) The availability of data (c) The use of statistical methods (d) The focus on economic phenomena	K2	CO1
2	3	Which of the following is a common test for detecting multicollinearity? (a) Durbin-Watson test (b) Variance Inflation Factor (VIF) (c) Breusch-Pagan test (d) Chow test	K1	CO2
	4	A bivariate econometric model involves (a) One dependent variable and one independent variable (b) One dependent variable and multiple independent variables (c) Multiple dependent variables and one independent variable (d) Multiple dependent variables independent variables	K2	CO2
3	5	Which term describes when the spread of data points around a regression line is inconsistent? (a) Evenly scattered (b) Unevenly scattered (c) Heteroscedastic (d) Homoscedastic	K1	CO2
	6	A dummy variable is: (a) A continuous variable that takes on values between 0 and 1 (b) A categorical variable that takes on only two values, 0 and 1 (c) A dependent variable in a regression model (d) An independent variable in a regression model	K2	CO2
4	7	Input-output analysis is primarily used to: (a) Analyze the demand for goods and services (b) Analyze the supply of goods and services (c) Analyze the interdependencies between industries (d) Analyze the impact of government policies	K1	CO3
	8	A closed input-output model differs from an open model by: (a) Including foreign trade (b) Excluding intermediate goods (c) Assuming a fixed level of technology (d) Government Policies	K2	CO3
5	9	Which of the following best describes autocorrelation in time series data? (a) The correlation between a variable and its own past values (b) The correlation between two different variables over time (c) The variance of a variable over time (d) The mean of a variable over time	K1	CO3
	10	How can the concept of autocorrelation be tested in time series data? (a) Using the Durbin-Watson test (b) Using the Breusch-Pagan test (c) Using the F-test (d) Using the t-test	K2	CO3

Cont...

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 Limitation of Econometric approach.	K2	CO1	
	(OR)				
	11.b.	Interpret the coefficients in a two-variable linear regression model.	K2		
2	12.a.	Differentiate bivariate modeling from multivariate modeling.	K3	CO2	
	(OR)				
	12.b.	Identify statistical tests for detecting multicollinearity.	K3		
3	13.a.	Construct the Log Modelling in Econometrics.	K3	CO2	
	(OR)				
	13.b.	Identify the use of Dummy Variables in Seasonal Analysis.	K3		
4	14.a.	Examine the assumptions of input-output analysis.	K4	CO3	
	(OR)				
	14.b.	We assume that in a village there is a farmer, carpenter, and a tailor, who provide the three essential goods: food, shelter, and clothing. Suppose the farmer himself consumes 40% of the food he produces, and gives 40% to the carpenter, and 20% to the tailor. Thirty percent of the carpenter's production is consumed by himself, 40% by the farmer, and 30% by the carpenter. Fifty percent of the tailor's production is used by himself, 30% by the farmer, and 20% by the tailor. Analyze the matrix that describes this closed model.			
5	15.a.	Analyze the steps involved in the Box-Jenkins approach.	K4	CO3	
	(OR)				
	15.b.	List out the Assumptions of Auto Correlation.	K4		

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	Illustrate the Errors of Measurement and its testing Method.	K4	CO1																
2	17	Examine the Causes of Multicollinearity.	K4	CO2																
3	18	Analyze the Tests for detecting Heteroskedasticity.	K4	CO2																
4	19	Let us assume that whatever the farmer produces, 20% is used by him, 15% by the carpenter, 10% by the tailor, and the consumer uses the other 40 billion dollars' worth of the food. Ten percent of the carpenter's production is used by him, 25% by the farmer, 5% by the tailor, and 50 billion dollars' worth by the consumer. Fifteen percent of the clothing is used by the tailor, 10% by the farmer, 5% by the carpenter, and the remaining 60 billion dollars' worth by the consumer. Evaluate the internal consumption in the following table, and express the demand as the matrix D. <table><tr><td></td><td>F produces</td><td>C produces</td><td>T produces</td></tr><tr><td>F uses</td><td>.20</td><td>.25</td><td>.10</td></tr><tr><td>C uses</td><td>.15</td><td>.10</td><td>.05</td></tr><tr><td>T uses</td><td>.10</td><td>.05</td><td>.15</td></tr></table> The consumer demand for each industry in billions of dollars is given below. 40 D=50 60		F produces	C produces	T produces	F uses	.20	.25	.10	C uses	.15	.10	.05	T uses	.10	.05	.15	K4	CO3
	F produces	C produces	T produces																	
F uses	.20	.25	.10																	
C uses	.15	.10	.05																	
T uses	.10	.05	.15																	
5	20	Categorize the various Tests for Auto Correlation.	K4	CO3																

Z-Z-Z

END