

**PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)**

**MA DEGREE EXAMINATION MAY 2025  
(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            | Which is the key ingredient of econometrics?<br>a) Economic Theory                      b) Economic data<br>c) Statistical Method                      d) All the above   | K1      | CO1 |
|            | 2            | The number of Explanatory variables in a simple regression is -----<br>a) One              b) Zero              c) Two              d) More than Two  | K2      | CO1 |
| 2          | 3            | R <sup>2</sup> refers to -----<br>a) Coefficient of determination<br>b) Coefficient of Correlation<br>c) Square of correlation coefficient<br>d) Both a and C   | K1      | CO2 |
|            | 4            | Which statistical tool is used to evaluate the significance of individual regression coefficients in multiple regression analysis -----<br>a) F-test              b) T-test              c) Chi-square test              d) Z-test  | K2      | CO2 |
| 3          | 5            | Autocorrelation is generally occurred in ----- data.<br>a) Polled    b) Cross Section<br>c) Time Series    d) All of these  | K1      | CO3 |
|            | 6            | If Multi-collinearity is perfect in a regression model the standard errors of the regression coefficient are -----<br>a) Infinite values    b) Small negative value<br>c) Determinate    d) Indeterminate | K2      | CO3 |
| 4          | 7            | Which statistical test is commonly used to determine whether a time series variable possesses a unit root, indicating non-stationarity?<br>a) T-test<br>b) F-test<br>c) Augmented Dickey-Fuller (ADF) test<br>d) Chi-square test  | K1      | CO4 |
|            | 8            | The NSSO data sets are-----<br>a) Cross section data    b) Time series data<br>c) Panel data    d) Pooled data  | K2      | CO4 |
| 5          | 9            | Reliability of a point estimation is measured by its -----<br>a) Standard deviation    b) Standard normal curve<br>c) Standard error    d) Coefficient of determination                                   | K1      | CO5 |
|            | 10           | AMOS is used to analyze -----<br>a) Time series forecasting<br>b) Structural equation models<br>c) Cluster analysis<br>d) Multinomial logistic regression   | K2      | CO5 |

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.        | Interpret the scope of econometrics with suitable example.   | K2      | CO1 |
|            |              | (OR)   |         |     |
|            | 11.b.        | Explain the assumptions of Ordinary Least Squares.   |         |     |
| 2          | 12.a.        | Analyse the assumptions of multiple regression.  | K4      | CO2 |
|            |              | (OR)   |         |     |
|            | 12.b.        | List out the test of significance of the parameter estimates.  |         |     |
| 3          | 13.a.        | Interpret the consequences of Multi-collinearity.  | K2      | CO3 |
|            |              | (OR)   |         |     |
|            | 13.b.        | Infer the auto-correlation coefficient for the series :<br>Y=22, 25, 25, 24, 26, 25, 26, 27, 27, 27. |         |     |
| 4          | 14.a.        | Compare the Stationary and non-stationary test.  | K4      | CO4 |
|            |              | (OR)   |         |     |
|            | 14.b.        | Distinguish between conditional forecast and unconditional forecast.                                 |         |     |
| 5          | 15.a.        | Categorize the types of variables in simultaneous Equation model.                                    | K4      | CO5 |
|            |              | (OR)   |         |     |
|            | 15.b.        | Examine the order and rank condition of identification.  |         |     |

**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           | Analyse the Methodology involved in Econometric Research with appropriate illustration.   | K4      | CO1 |
| 2          | 17           | The following data were collected from 5 different units in a certain industry:<br>Total (Y) : 80 44 51 70 61<br>Production(X) : 12 4 6 11 8<br>Answer the following question:<br>(a) Estimate a linear total cost function $Y = \alpha + \beta X$ for the industry.<br>(b) What is the economic significance of the estimate of $\alpha$ and $\beta$ ?<br>(c) Estimate the total cost for a level of production of 10. | K4      | CO2 |
| 3          | 18           | Evaluate the remedial measures of heteroscedasticity.   | K5      | CO3 |
| 4          | 19           | Examine the Unit root test.   | K4      | CO4 |
| 5          | 20           | Interpret the steps involved the three Stage Least Square (3SLS) Estimation.  | K5      | CO5 |