MA ECONOMICS
FOURTH SEMESTER
ECONOMETRICS-II
MEC-404 A

(Use separate answer scripts for Objective & Descriptive)

Duration : 3 hrs. **Full Marks : 70**

(PART-A : Objective)

Time : 20 min. **Marks : 20**

Choose the correct answer from the following: ***1X20=20***

1. By applying OLS method to simultaneous equations results in the parameters being:
   a. Biased
   b. Inefficient
   c. Inconsistent
   d. Biased and inconsistent

2. The data when same cross-sectional units are collected over time is called as:
   a. Time series data
   b. Cross- section data
   c. Panel data
   d. Primary data

3. A regression model that includes both the current and past values of explanatory variables is called:
   a. Distributed-lag model
   b. Autoregressive model
   c. Fixed effect model
   d. OLS model

4. In koyck model, the closer the λ is to 1, the rate of decline in β_k is:
   a. Slower
   b. Faster
   c. Depend on k
   d. depend on β_k

5. Partial Adjustment model is rationalization of which of the following model?
   a. Adaptive Expectation
   b. Koyck Model
   c. AR model
   d. None of these

6. The Causality which runs from $y \rightarrow x$ but not from $x \rightarrow y$ is:
   a. Bi-directional
   b. Unidirectional
   c. Non directional
   d. None of these

7. In simultaneous equations, Endogenous variables are determined in:
   a. Within the model
   b. Outside the model
   c. Predetermined
   d. Non-stochastic variable

8. Data collected at a point of time is called as:
   a. Time Series data
   b. Cross-Section data
   c. Panel data
   c. None of these

9. In SEM, the OLS is applied to estimate the coefficients of the:
   a. Structural equation
   b. Linear equation
   c. Reduced form equation
   d. Simultaneous equation

10. White Noise process is a stochastic process with:
    a. Zero Mean
    b. Constant Variance
    c. Serially uncorrelated error term
    d. All of these

11. The model where the values of Y depends only on its value in the previous time period and on error term is:
    a. Single Equation
    b. AR (1) Model
    c. MR (1) model
    d. ARMA (1,1) Model

12. Hauseman test statistics follows:
    a. Normal distribution
    b. t- distribution
    c. X^2 distibution
    d. F-distribution

13. In contrast to single equation models, in simultaneous equations there must be more than one:
    a. Exogenous variable
    b. Endogenous variable
    c. Error terms
    d. Parameters

14. A simultaneous model is said to be Exactly Identified if:
    a. Unique numerical values of the structural parameters can be obtained.
    b. Structural coefficients cannot be estimated.
    c. Unique solution of all the structural coefficients is not possible.
    d. None of these.

15. ARIMA(p,0,0) means the process is:
    a. AR (p) stationary process.
    b. MR (q) stationary pr.
    c. Time series needs to be differenced p times.
    d. Non stationary series with p lags.

16. The collection of a variable ordered in a time through a realization process is known as:
    a. Stationary series
    b. Stochastic Process
    c. Spurious process
    d. Non Stationary

17. A stochastic process whose mean and variance and covariance are constant over time is called as:
    a. Stationary
    b. Non Stationary
    c. Random Walk
    d. None of these

18. A Non Stationary series that becomes stationary on differencing the series Twice is:
    a. Integrated of order 0
    b. Integrated of order 1
    c. Integrated of order 2
    d. Integrated of order 3

19. Using Box-Jenkin's Method, which of the following tool is used at identification stage?
    a. Auto correlation Function
    b. Partial Autocorrelation Function
    c. Correlogram
    d. All of these

20. Violation of assumption Variance$(\mu_i)=\delta^2$ leads to:
    a. Autocorrelation
    b. Multicollinearity
    c. Heterokedascticity
    d. None of the these

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(PART-B : Descriptive)

Time : 2 hrs. 40 min. **Marks: 50**

[Answer question no.1 & any four (4) from the rest]

1. Explain and derive the Error correction Mechanism. 10

2. a. Explain the Koyak approach to Distributed-lag models. 5+5=10
   b. What do you mean by the term Co-Integration?

3. a. Explain briefly the Engle Granger Test. 4+6=10
   b. Discuss the nature and meaning of Econometric modeling.

4. a. What are instrumental variables (IV)? Explain with Example. 6+4=10
   b. Explain the nature and meaning of Causality.

5. a. What is Identification Problem? 5+5=10
   Given the Simultaneous Equation:
   $$Y_{1t} = A_{10} + A_{12}Y_{2t} + \beta_{11}X_{1t} + \mu_{1t}$$
   $$Y_{2t} = A_{20} + A_{21}Y_{1t} + \beta_{11}X_{2t} + \mu_{2t}$$
   b. Obtain reduced-form equation for Y_{1t} and Y_{2t}.

6. a. Explain recursive method of estimating simultaneous equation system. 6+4=10
   b. Discuss briefly the Panel data Technique and its various models.

7. a. What is Box-Jenkin's Methodology? 5+5=10
   b. Outline the major steps involved in the application of the Box-Jenkin's approach to forecasting.

8. a. Explain the following concepts: 3+3+4=10
   (i) Autoregressive Models.
   (ii) Distributed-leg Models.
   b. Explain briefly the specification of errors and its types.

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