

**MA ECONOMICS
SECOND SEMESTER
BASIC ECONOMETRICS
MEC-204**

Duration : 3 hrs.

Full Marks: 70

Time : 20 min.

[PART-A: Objective]

Marks : 20

Choose the correct answer from the following:

1X20=20

- Which of the following assumptions are required to show the BLUE of the OLS estimates?
 - $E(V_i)=0$
 - $Var(V_i)=\sigma^2$
 - $Cov(V_i, V_{i-1})=0$
 - All of the above
- The sources of autocorrelation among the following
 - Omitted explanatory variables
 - Interpolation in the statistical observation
 - Mis-specification of the true random term
 - All of the above
- Coefficient of determination R^2 shows
 - Goodness of fit
 - Absolute data
 - Variance
 - Coefficient
- The analysis of variance is carried out by using
 - t-test
 - Z-test
 - Chi square
 - F-test
- Durbin-Watson test is used to detect
 - Regression
 - Autocorrelation
 - Heteroscedasticity
 - Multicollinearity
- Unit root test is used to test
 - Non-stationarity
 - Stationarity
 - Multicollinearity
 -) None of the above
- The neglect of the presence of heteroscedasticity in a regression model makes the estimators
 - Biased
 - Inconsistent
 - Inefficient
 - None of the above
- The least square estimators are indeterminate when there is problem of
 - Autocorrelation
 - Multicollinearity
 - Heteroscedasticity
 - None

9. The lagged values of the endogenous variables creates difficulty to test the presence of
- | | |
|------------------------|----------------------|
| a. Spurious regression | b. Autocorrelation |
| c. Heteroscedasticity | d. Multicollinearity |
10. Probability of not rejecting null hypothesis when it was not true
- | | |
|---------------------------|----------------------|
| a. Type I error | b. Type II error |
| c. Alternative hypothesis | d. None of the above |
11. $R^2 > d$ signifies the presence of
- | | |
|------------------------|----------------------|
| a. Autocorrelation | b. Multicollinearity |
| c. Spurious regression | d. All |
12. Which conditions should be examined for the identification of a model?
- | | |
|----------|---------|
| a. Order | b. Rank |
| c. Both | d. None |
13. The trend of a time series is completely predictable if it is
- | | |
|------------------|---------------|
| a. Deterministic | b. Stochastic |
| c. Unit root | d. Stationary |
14. The relationship between the independent variable and error variable leads to
- | | |
|---------------------|------------------------|
| a. Estimation error | b. Specification error |
| c. Regression error | d. Simultaneity bias |
15. The condition for the uniqueness of the structural parameters is that the structural model should be
- | | |
|-----------------------|--------------------|
| a. Exactly identified | b. Over identified |
| c. Under identified | d. Indeterminate |
16. The total number of equations in the order condition is represented by
- | | |
|------|---------|
| a. K | b. M |
| c. G | d. None |
17. The first time difference of the series $Y_t = Y_{t-1} + U$ is
- | | |
|---------------|-------------------|
| a. Stationary | b. Non stationary |
| c. Unit root | d. Deterministic |
18. A random variable Y is denoted as Y_t if it is
- | | |
|---------------|-------------|
| a. Continuous | b. Discrete |
| c. Grouped | d. All |
19. The simultaneity bias is more likely to be eliminated when the sample size is
- | | |
|----------|-----------------|
| a. Small | b. Sufficient |
| c. Large | d. Inconclusive |

20. Which of the following cannot be a predetermined variable
- a. Exogenous
 - b. Endogenous
 - c. Lagged exogenous
 - d. Lagged endogenous

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(PART-B : Descriptive)

Time: 2 HRS 40 MINS

Marks : 50

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

1. Estimate the OLS estimators. Explain the standard assumptions of OLS. 6+4=10

2. a. Define hypothesis. 2+3+5=10
b. Describe the types of hypothesis and BLUE.

3. a. Estimate the estimators of multivariable regression model. 8+2=10
b. What is the common problem in these kind of models?

4. a. Define multicollinearity. Also explain its effects and remedies. 2+4+4=10
b. Describe dummy variable trap.

5. a. Discuss how the presence of unit root in a series makes it non-stationary. 6+4=10
b. Give an example of spurious regression.

6. a. Examine the identification state of the following model: 7+3=10
$$C_t = a_0 + a_1 Y_t + U_1$$
$$I_t = b_0 + b_1 Y_{t-1} + b_2 r_t + U_2$$
$$Y_t = C_t + I_t + G_t$$

b. How can a random walk model without drift be converted into a stationary one?

7. Consider the following demand and supply model for money: 3+7=10
$$M_d = a_1 + a_2 Y_t + a_3 R_t + a_4 P_t + U_{1t}$$
$$M_s = b_1 + b_2 Y_t + U_{2t}$$

Where M = money, Y = income, R = interest rate, P = price
a. Explain the different variables of the model.
b. Discuss the state of identification of the given model.

8. a. Discuss the order condition for the identification of a model with a suitable example. 8+2=10
b. When do we go for the rank condition in a model?

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