K23P 0413

Reg. No. : .....

Name : .....

II Semester M.A. Degree (CBSS – Reg./Supple./Imp.) Examination, April 2023
(2019 Admission Onwards)
ECONOMICS/APPLIED ECONOMICS/DEVELOPMENT ECONOMICS
ECO2C09 : Basic Econometrics

Time : 3 Hours Max. Marks : 60

PART – A

Answer **all** questions. **(8×½=4)**

1. Who among the following scholar provided the probabilistic foundation to econometrics ?
   a) Ranger Frisch
   b) Trygve Haavelmo
   c) Jan Tinbergen
   d) Lawrence Klien

2. In regression (OLS), the principle is to
   a) Minimize the error term
   b) Minimize the standard error
   c) Minimize the squared error term
   d) Maximize the adjusted R^2

3. Heteroscedasticity arise owing to the following reason except
   a) Presence of outliers in the data
   b) Model misspecification
   c) Incorrect data transformation
   d) Use of lagged values

4. If we are interested to verify the Phillips curve, then which functional form is appropriate
   a) Constant Linear model
   b) Reciprocal model
   c) Lin-log model
   d) Log Reciprocal model

P.T.O.

5. Which of the following is true in the context of hypothesis testing with respect to simple linear regression model ?
   a) $t^2 > F$
   b) $t^2 < F$
   c) $t^2 = F$
   d) $t = F$

6. If OLS is applied separately to each equation that is part of a simultaneous system, the resulting estimates will be
   a) Unbiased and consistent
   b) Biased but consistent
   c) Biased and inconsistent
   d) It is impossible to apply OLS to equations that are part of a simultaneous system

7. In reduced form equation
   a) Only endogenous variable will appear in the right-hand side
   b) Only exogenous variable will appear in the right-hand side
   c) Both endogenous and exogenous variable will appear in the right-hand side
   d) None of these

8. ARIMA model is used for
   a) Estimating bivariate regression model
   b) Estimating long-run relationship
   c) Predicting bivariate time series
   d) Predicting univariate time series

PART – B

Answer **any 8** questions. **(8×2=16)**

9. Stochastic disturbance term.

10. Least square criterion.

11. If R^2 in a 3 variable and 50 observation regression model is 0.72, then using this information calculate the value of adjusted R^2.

12. Loglinear model.

13. Symptoms of a multicollinearity.

14. Graphical method of detecting heteroscedasticity.

15. First order autocorrelation.

16. What is a simultaneous equation model ?

17. Order condition of identification.

18. When to use indirect least square method ?

19. What are the criteria of a good forecasting ?

PART – C

Answer **any 4** questions. **(4×5=20)**

20. How the subject matter of econometrics is differed from mathematical economics and statistics ?

21. Discuss the major assumption of Ordinary Least Square with respect to the statistical properties of the random error term.

22. Discuss Durbin-Watson test for detecting autocorrelation.

23. Consider the following system of equation, derive the reduced form equation for C_t and Y_t

$$C_t = \beta_0 + \beta_1 Y_t + U_t$$

$$Y_t = C_t + I_t + G_t$$

24. What is meant by identification and discuss the necessary and sufficient conditions for identification ?

25. Discuss the various econometric methods of forecasting.

PART – D

Answer **any two** questions. **(2×10=20)**

26. Consumption is a linear and non-proportional function of disposable income. Discuss the detailed classical methodology that you will be followed in empirically testing this hypothesis.

27. A sample of 10 observations corresponding to a simple linear model $Y = \alpha + \beta X + u$ provided the following results

$\sum X = 1700$, $\sum (X - \bar{X})^2 = 33000$

$\sum Y = 1150$, $\sum (Y - \bar{Y})^2 = 11894$

$\sum (X - \bar{X})(Y - \bar{Y}) = 18920$

Given this information
   a) Estimate α and β.
   b) Find out the goodness of fit of the model.
   c) Find out SE of the regression model.

28. Discuss heteroscedasticity, its reasons, consequences, various detection methods and remedial measures.

29. The following table gives the data on sales and advertising for a firm from January to November. Using a linear regression model, forecast the firm's sale for the month of December, knowing that the advertisement cost in December is $ 100.

Month	Advertisement ($)	Sales ($)
Jan.	20	150
Feb.	16	162
Mar.	36	184
Apr.	41	198
May	45	200
June	50	220
July	40	230
Aug.	42	185
Sep.	50	250
Oct.	60	309
Nov.	84	398
Dec.	100	?