M 18906

Reg. No. : .....

Name : .....

IV Semester M.A./M.Sc./M.Com. Degree (Reg./Supple./Imp.) Examination, March 2011

STATISTICS

Paper – 4.2 : Elective – II : Econometrics

Time: 3 Hours Max. Marks : 70

Instruction : *Answer **any 5** questions choosing either **A** or **B** from **each** Unit. **All** questions carry **equal** marks.*

UNIT – 1

1. A) a) What is a C.E.S production function ? Derive the elasticity of substitution for it.

b) Give the conditions for the equilibrium of a market.

c) Define a Cobb-Douglas production function. Give the economic significance of the parameters. **(7+3+4)**

OR

B) a) Explain a method of estimating the parameters of the production function $Q = AX_1^{\beta_1} X_2^{\beta_2} X_3^{\beta_3}$. How can we test constant returns to scale.

b) Examine whether the production function $x = ka^{\alpha}(1-a)^{1-\alpha}, 0 < \alpha < 1$ is linear homogenous. **(9+5)**

UNIT – 2

2. A) a) Describe the need for an econometric model.

b) For the general linear regression model obtain the OLS estimates of the parameters. Show that OLS estimates are the best linear unbiased estimates.

c) Define coefficient of determination and indicate its significance. **(4+7+3)**

OR

P.T.O.

2. B) a) For the regression model $Y = X\beta + u$ show that the OLS estimate of β is identical with the M.L.E of β if U is normally distributed.

b) Obtain an unbiased estimate of the variance of the disturbance term namely σ^2 in the regression model.

c) For the model $y = \alpha + \beta x + u$ how can we test the hypothesis $\alpha = 0$. **(6+5+3)**

UNIT– 3

3. A) a) Describe the phenomenon of multi-collinearity in regression models. What are its consequences ? What are the remedial measures ?

b) Explain Ridge regression stating the properties of estimates. **(8+6)**

OR

B) a) Give the main features of the Koyck model. How can the parameters be estimated ?

b) Explain non-linear regression models giving some examples. Describe a method of estimating the parameters. **(7+7)**

UNIT – 4

4. A) a) What are the consequences of the violation of the assumption of homoscedasticity in regression models ? How can we estimate the parameters in such cases ?

b) Discuss the Von-Neumann Ratio test. **(8+6)**

OR

B) a) Describe the Durbin-Watson test for testing the presence of auto correlation.

b) Discuss the Cochrane-Orcutt procedure of estimating the parameters when auto correlation is present. **(8+6)**

UNIT – 5

5. A) a) Distinguish between exact and over identification.

b) State the order condition for identification. Examine whether the model defined by

$$y_1 = \alpha_3 y_3 + \alpha_4 z_1 + \alpha_5 z_2 + u_1$$

$$y_2 = \beta_1 y_1 + u_2$$

$$y_3 = \gamma_2 y_2 + u_3$$

is identifiable or not.

c) Show that a recursive model is always identifiable. **(4+5+5)**

OR

B) a) Explain the 2SLS method of estimation. State the properties of its estimates.

b) Describe the limited information maximum likelihood method. **(7+7)**
