



Reg. No. : ...A8P88T1003

Name : ...Jayanti G

IV Semester M.Sc. Degree Examination, March 2010

STATISTICS

Paper – 4.2 : 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) Define elasticity of substitution between two factors of production.
b) Find the elasticity of substitution for the production function $x = AK^\alpha L^\beta$.
c) Explain the concept of constant returns to scale. In the case of Cobb-Douglas production how can this be tested. (4+5+5)

OR

1. B) a) Define equilibrium of a market.
b) Define C.E.S. production function and obtain the value of elasticity of substitution.
c) For the production function
 $x = Ka^\alpha b^{1-\alpha}$, $0 < \alpha < 1$.
Show that the average and marginal products are homogeneous functions of degree zero. (3+6+5)

UNIT – 2

2. A) a) Differentiate between economic and econometric models with suitable examples.
b) For the regression model $y = \alpha + \beta x + u$. Obtain the OLS estimates of α and β and obtain their standard errors.
c) How can the significance of α and β be tested in the above case? (4+6+4)

OR

P.T.O.



2. B) a) Stating the assumptions obtain the OLS estimates of a general linear regression model. Show that the estimates are unbiased.
- b) How are the statistics R^2 and adjusted R^2 defined. Explain how the significance of regression model is tested using R^2 .
- c) Obtain an unbiased estimate of the variance of the disturbance term σ^2 . (5+5+4)

UNIT – 3

3. A) a) What is a distributed – lag model ? Explain the Almon lag model and its estimation.
- b) Describe non-linear regression model giving two examples. How can the parameters be estimated in such cases. (7+7)

OR

3. B) a) Describe a test for detecting multicollinearity. What are the consequences of multicollinearity on the OLS estimates ?
- b) Explain Ridge regression. State its properties. (8+6)

UNIT – 4

4. A) a) Explain two tests for detecting heteroscedasticity in regression models.
- b) What are the estimation procedures ? When auto correlation exists among the disturbance terms. (7+7)

OR

4. B) a) Describe Durbin-Watson test and Von Neumann Ratio test. How are they related ?
- b) What are the consequences of errors in explanatory variables in regression models? Indicate the use of instrumental variables in such cases. (7+7)

UNIT – 5

5. A) a) Explain the problem of identification in simultaneous equation models.
- b) Derive the rank condition for identification.
- c) Describe a recursive model. (4+7+3)

OR

5. B) a) Discuss the indirect least squares method of estimation. State the properties of estimates in this case.
- b) Illustrate the limited information maximum likelihood method. (7+7)