2014

M.A./M.Sc.

2nd Semester Examination

ECONOMICS

PAPER— (ECO-204)

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Group—A

1. Answer any *five* of questions : 2×5

(a) Present a flowchart describing the steps involved in an econometric analysis of economic model.

(b) What is meant by power of a test? How is it measured?

(c) State the central limit theorem. What should be the minimum size of the sample for the theorem to hold?

(d) What is ANOVA? State the assumptions underlying the use of it.

2. Answer any *one* question : 6×1

(a) Distinguish between stochastic and non-stochastic variables. How should you test the presence or absence of parameters in the classical two variable regression model ?

(b) How will you make a comparison between means of two normal populations whose variances are unknown ?

3. Answer any *one* question : 10×1

(a) Find the sampling mean and sampling variance of the sample mean for a SRSWR drawn from a population with mean μ and variance σ^2.

(b) (i) Violence and lack of discipline have become major problems in India. A random sample of 300 adults was selected, and they were asked if they favour giving more freedom to school teachers to punish students for violence and lack of discipline. The two way classification of the responses of these adults is presented in the following table

	Issues		
Gender	*In favour (F)*	*Against (A)*	*No. opinion (N)*
Men (M)	93	70	12
Women (W)	87	32	6

Does the sample provide sufficient information to conclude that the two attributes, gender and opinions of adults, are dependent? Use a 1% significance level. Given that

$$x_1^2, \cdot 01 = 6 \cdot 623$$
$$x_2^2, \cdot 01 = 9 \cdot 210$$
$$x_3^2, \cdot 01 = 11 \cdot 345$$

(ii) Explain the concept of maximum likelihood estimator. 8+2

Group—B

4. Answer any *two* of the following : 2×2

(a) Show that multi-collinearity is not a methodological problem, but a problem with data matrix 'X'. What do you mean by perfect multi-collinearity?

(b) If each of the variables in a regression model is auto-correlated, will it be meaningful to run the regression? Give reasons in support of your answer.

(c) State the consequences of the problem of multi-collinearity.

(d) How would you overcome the problem of helero-scedasticity?

5. Answer any *one* question : 6×1

(a) State and derive the rank condition of identification of an equation in the simultaneous equation system. 6

(b) Presenting a real life example of heteroscedasticity, describe the Gold-feld Quandt test for its detection in the residual. 2+4

6. Answer any *one* question : 10×1

(a) Stating the assumption underlying a standard linear regression model involving 'k' regressors and an intercept term, prove that the OLS estimators of the parameters are BLUEs. 2+8

(b) An regression equation is given below :

(i) Draw the influences on the relationship between Y, the dependent variable and the Xs and on the model using the results given (the coefficients, t values, R^2, F & DW).

$$Y = \underset{}{350} + \underset{(1\cdot57)}{2\cdot5X_2} + \underset{(1\cdot61)}{0\cdot85X_3} + \underset{(0\cdot79)}{0\cdot15X_4} + \underset{(0\cdot34)}{E_t}$$

$R^2 = \cdot84$, F = 9·38, N = 30, DW = 2·345

(Figures in the parentheses are t values)

(ii) If the relationship is log-linear, would the interpretations be different ?

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