2019

MA/MSc

2nd Semester Examination

ECONOMICS

PAPER – ECO-201(New Syllabus)

Full Marks : 50

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 *TWO* questions   2x2

    a) Give distinguishing implications in statistical inference of a simple random sample with replacement (SRSWR) and a simple random sample without replacement (SRSWOR).

    b) State the central limit theorem and explain its implications.

    c) Distinguish between type-I error and type- II error. Of these two which needs more care and why?

    d) What is the probability of getting a total of 8 points in two throws of a balanced dice?

2. Answer any *TWO* questions   2x4

    a) A box contains 10 balls of two colours white and black. 3 balls are drawn from the box with replacement and 2 of them are found white. What is the MLE of the proportion of white balls in the box?

    b) What are the properties of a good estimator?

    c) Explain clearly what you mean by the statement that Xs are non-stochastic in linear regression.

    d) How are marginal distributions and conditional distributions of the constituent variables connected with the joint distribution of two variables?

3. Answer any *ONE* question   1x8

    a) How would you use frequency X^2 to test the homogeneity of a number of distributions?

    b) How is the equality of means of two populations tested with and without the assumption of equality of population variances?

Group- B

4. Answer any **TWO** questions: 2x2=4

   a) Multicollinearity is not a methodological problem, it is the problem of the data matrix - Explain.

   b) Explain the concept of dummy variable trap.

   c) Define Trace of a matrix 'A' and explain its properties.

   d) What are the basic reasons behind the inclusion of an 'error term' in an econometric model?

5. Answer any **TWO** questions:-   4x2=8

   a) Show that in a general linear econometric model, the OLS estimators are BLUE (Estimation is not required).

   b) What is autocorrelation? What are its major causes? What are its consequences on the OLS estimators of parameters? $(1+2+1)=4$

   c) The following estimated equation was obtained by OLS regression using quarterly data for 1960 to 1975 inclusive $(n=64)$

$$\hat{Y}_t = 2.20 + 0.104X_{1t} + 3.48X_{2t} + 0.34X_{3t}$$
$$\quad (3.4) \quad (0.005) \quad (2.2) \quad (0.15)$$

Standard errors are in the parentheses, the explained sum squares (ESS) was 112.5 and the residual sum squares (RSS) was 19.5.

i) Which of the slope coefficients are statistically significantly different

   from 0 at 5% level of significance?

ii) Calculate the value of R^2. It is given that $t_{0.025,60} = 2.000$.

                      $(1+1+1)+1=4$

6. Answer any **ONE** question: 8x1=8

a)   Briefly derive the rank and order conditions in a simultaneous equation frame work. Check whether the simple Keynesian model given by:

$C_t = \alpha + \beta Y_t + U_t$

$Y_t = C_t + I_t$, $(I_t = \bar{I}\,)$, is identified or not.   (5+3)=8

b)   What is meant by heteroscedasticity problem? Describe Goldfeld Quandt test for detecting heteroscedasticity. Write down one remedial measure for removing this problem in a linear stochastic model?   2+4+2=8

(Internal Assessment = 10 Marks)