2011

M.A/M.Sc.

2nd Semester Examination

ECONOMICS

PAPER—VIII (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) How is Econometrics different from Mathematical Economics and Statistics?

(b) What do you understand by Level of significance?

(c) What are the factors that lead to autocorrelation in an econometric model?

(d) What statistic is used in the multiple regression model to test the hypothesis that $P^2=0$ against the

alteration that $P^2 \neq 0$? (Here P^2 is the theoretical coefficient of determination)

(e) What is variance Inflating Factor (VIF) ?

(f) What is an intercept dummy ?

(g) What is dummy variable trap ?

(h) Distinguish between point and interval estimation.

(i) Distinguish between SRSWR and SRSWOR.

(j) What is type I errors ? Explain.

Group—B

2. Answer any *two* questions : 2×5

(a) Suppose that a random sample of size 10, is drawn from a normal population has mean 40 and s.d 12. Find 99% confidence limits for population mean. (given $t_{0.005} = 3.25$ for 9 d.f)

(b) Define multicollinearity ? How are the OLS estimates affected in the presence of multicollinearity ?

(c) Distinguish between the structural form and the reduced from of a simultaneous linear equation system. Give the relation between the parametere in the two terms and hence define the identification problem.

(d) The following results have been obtained from a sample of II observations on the value of sales (y) of a firm and the corresponding prices (x)

$\bar{x} = 519 \cdot 18, \quad \bar{y} = 217 \cdot 82$

$\Sigma x_i^2 = 3134543; \quad \Sigma y_i^2 = 539512; \quad \Sigma x_i y_i = 1296836$

Estimate the regression line of sales on price what is the part of the variation in sales which is not explained by the regression line?

Group—C

3. Answer any *two* questions : 10×2

(a) Show that the Ot Sestimators of the parameters of a standard linear, regression model involving 'k' regressors are BLUEs.

(b) (i) A coin is tossed 900 times and heads appear 490 times. Does this result support the hypothesis that the coin is unbiased?

(ii) Given that 'X' is normally distributed and that a sample of 20 yields a mean of 42 and a variance of 25. Test the hypothesis that the population standard deviation is $\sigma = 8$ at 5% level of significance. (Value of X^2 for d.f 19 is 30.14 at 5% level)

(c) Consider a time series y_t with t=1, 2,....., T. Consider also following two dummy structures.

$y_t = \alpha_1 + \alpha_2 D_2 + \beta_1 t + \nu_2 D_2 t$

and $y_t = \alpha_1 + \alpha_2 D_2 + \beta_1 D_1 t + \beta_2 D_2 t$

D_1=1 for t=1, 2, ... k and D_1=0 for t = k+1, k+2, ..., T

and

D_2=1 for t=1, 2, ... k and D_2=1 for t = k+1, k+2, ..., T

Compare the two dummy structures with their advantages and disadvantages.

(d) Explain the concept of heteroscadestility. What are its likely consequences? Discuss the Goldfield Quendt test for the existence of homoscadesticity.

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