DOON UNIVERSITY, DEHRADUN
Final Semester Examination, Third Semester 2012
School of Social Sciences

M.Sc. Integrated Economics
Course: SSEI- 242: Econometrics

Time Allowed: 3 hrs.   _Max. Marks: 50_
Note: Attempt All Questions from Sections A,B,C.

SECTION : A
All questions are compulsory and carry equal marks. Word limit: 50 words
(Marks: 2x5=10)
1. Define econometrics.
2. What is a null hypothesis?
3. Use suitable models to differentiate between a two variable and multiple variable linear regression models.
4. Differentiate between R^2 and adjusted R^2
5. What are dummy variables? Give examples.

SECTION : B
Answer any FOUR. Word limit: 250 words
(Marks: 5x4=20)
1. Differentiate between sample and population. Use examples to explain your answer.
2. Define Joint probability Distribution.
3. Explain any five assumptions of Ordinary Least Square.
4. Explain in short the stages of hypothesis testing concerning the value of population parameters.
5. Differentiate between a lin-log and log-lin regression model.
6. Discuss any two important purpose of an econometric research.

SECTION : C
Answer any TWO. Word limit: 750 words
(Marks: 2x10=20)
1. (a) Given the income of the inhabitants of a country denoted by X, a sample of 10 individuals is given below

Individual	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}
Incomes (in ₹)	95	120	80	150	50	130	70	90	110	105

Calculate the following from the above data
   i) Average income
   ii) Sample variance and standard deviation

   (b) Define sample covariance for any two sets of n sample observations on
        two variables.
2. Given the k-variable population linear regression model

$$Y_i = \beta_1 + \beta_2 X_{2i} + \beta_3 X_{3i} \ldots \ldots \ldots \beta_k X_{ki} + u_i$$

   (a) Write the k-variable estimated sample linear regression model.
   (b) Obtain the OLS estimate of the parameters of the sample regression
        model using matrix algebra.

3. i) Differentiate between a one tailed test and a two tailed test

   ii) A random sample of 27 pairs of observations from a normal population
   gave a correlation coefficient of 0.6. Test if this is significant of correlation in
   the population? (tabulated $t_{0.05}$ for 25 d.f. = 2.06)