SHIVAJI COLLEGE, UNIVERSITY OF DELHI

DEPARTMENT OF ECONOMICS

INTERNAL TEST (Academic Year 2023-24)

Name of the Course : B.A.(P) Semester: 4

Name of the Paper : Basic Econometrics Faculty Name : Nikita Gupta

Duration : Maximum Marks: 12

Date of Assignment Submission: 01.05.2024

Attempt all Questions.

Q1 a) Consider the following data on hourly wage rates (Y), labour productivity (X_1) and literacy rate (X_2) in a country ABV:

Y	90	72	54	42	30	12
X_1	3	5	6	8	12	14
X_2	16	10	7	4	3	2

i. Calculate the estimators of the regression $Y_i = \beta_1 + \beta_2 X_{2i} + \beta_3 X_{3i} + \mu_i$

ii. Test the hypothesis $\beta_2 = 0$ against the alternative $\beta_2 > 0$ at 5% level of significance.

iii. Calculate R^2 and $\bar{R}^2$ and comment on them.

iv. Construct an ANOVA table and check for the significance of the regression at 5% level of significance.

b) A random sample of 100 athletes show that their average running time follow a normal distribution with mean μ and known standard deviation equal to 80 minutes. Let the null hypothesis be $H_0: \mu = 56$ & $H_A: \mu > 56$. Let the rejection region be $\bar{x} > 60$. If μ = 62, find the probability of type II error. What is the relationship between Type I and Type II error? Explain (18.75)

Nikita

Faculty Signature: Nikita Gupta