



HUL315: ECONOMETRICS METHODS

Assignment 3

Indian Institute of Technology Delhi
Maximum Marks: 10 Marks

Instructions:

1. Deadline for submission is **February 14, 2024**.
 2. You need to upload your assignment on Moodle in the following format (Name_Entry Number).
 3. Assignments have to be submitted only in PDF generated using LaTeX.
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1.
 - a) What is meant by Type I and Type II errors in the context of statistical hypothesis testing?
 - b) The recommended daily dietary allowance for zinc among males older than 50 years is 15 mg/day. The article "Nutrient Intakes and Dietary Patterns of Older Americans: A National Study" reports the following summary data on intake for a sample of males aged 65-74 years: $n = 115$, $\bar{x} = 11.3$, and $s = 6.43$. Does this data indicate that average daily zinc intake in the population of all males aged 65-74 falls below the recommended allowance? [2+3=5 marks]
2. Have you ever been frustrated because you could not get a container of some sort to release the last bit of its contents? The article "Shake, Rattle and Squeeze: How Much Is Left In That Container?" (*Consumer Reports*, May 2009: 8) reported on an investigation of this issue for various consumer products. Suppose five 6 oz tubes of toothpaste of a particular brand are randomly selected and squeezed until no more toothpaste will come out. Then each tube is cut open and the amount remaining is weighted, resulting in the following data (consistent with what the cited article reported): 0.53, 0.65, 0.46, 0.50, 0.37. Does it appear that the true average amount left is less than 10% of the advertised net contents?
 - a) Check the validity of any assumptions necessary for testing the appropriate hypothesis.
 - b) Carry out a test of the appropriate hypothesis using a significance level of 0.05. Would your conclusion change if a significance level of 0.01 had been used? [2+3=5 marks]