Department of Mathematics
MTL390 (Statistical Methods)
Assignment No. 1

Max. Marks: 10

You may use Matlab/Python/R for the following questions.

1. Draw the frequency histogram for the data with the suitable intervals (minimum of 10 intervals required). (0.5 marks)
2. Draw the bar chart/bar graph for the data. (0.5 marks)
3. Draw the box plot for the data. (0.5 marks)
4. Calculate the following measures for the data
   (a) Mean. (0.25 marks)
   (b) Median. (0.25 marks)
   (c) Mode. (0.25 marks)
   (d) Coefficient of variation. (0.25 marks)
   (e) Coefficient of skewness. (0.25 marks)
   (f) Coefficient of kurtosis. (0.25 marks)
5. Find the distribution that best its the data. You may use any package available in Matlab/Python/R. (1.5 marks)
6. List at least two estimators of the parameter(s) involved in the underlying distribution. (1 marks)
7. a. Classify the estimators in (1) into the unbiased, consistent or efficient estimators. (0.75 marks)
   b. Find the estimates from the data. (0.5 marks)
8. Find two parameters of the distribution using Method of Moments. (1 marks)
9. Find the Uniformly Minimum Variance Unbiased Estimator (UMVUE) of the parameter's and find its estimate from the data. (1.5 marks)
10. Find the interval estimator of any one parameter of the population distribution with confidence $\alpha = 0.01$; 0.05; 0.1. (0.75 marks)