STAT3611 Lab4-Procedure S2015 02/16/2015 Maghsoodloo

1(3 Points). Use Minitab16 to work Exercise 16 on p. 284 of Devore(8e) by downloading the data from Canvas, and copying&pasting the data from the Excel-file onto Minitab's C1 (Column 1), and naming this column KVOLTS. Now, use Minitab's Graphical summary (under Stat →Basic Statistics) to ascertain the approximate normality of Devore's Exercise 16 data by examining the *P*-value of the AD (Anderson-Darling)-Statistic. You must for ever know that the smaller the *P*-value of any statistical test is, the more strongly one can reject the corresponding null hypothesis (in this case the null-hypothesis is that the Breakdown-Voltage is normally distributed). My assistants will show you how to Append your Minitab output onto Minitab's (Project Report = MPR), which is basically an MS word.docx and can easily be edited and also copied and pasted onto another word.docx. Please write your conclusions on your MPR, as to the KVOLT-data's normality assumption; further, compare the skewness and kurtosis of the data with those of a Normal Universe. Next, sort the KVOLT-data by going to Data → Sort → put the sorted data of C1 onto C2 of Minitab16. The dialogue-box should be self-explanatory. The following 3 parts also pertain to Exercise 16 on page 284 of J. L. Devore(8e).

2(a, 2 Points). Go to Minitab's Graph → Scroll-down to Boxplot; the dialogue-box for obtaining the Boxplot should again be self-explanatory. Does your Boxplot show that there are outliers amongst the n = 48 responses? If so, how many outliers and give its (or their) value(s) on your MPR.

2(b, 2 Points). From your MGS (Minitab Graphical Summary), again type the 95% parametric CI on the parameters μ and σ on your MPR (parametric means that the underlying distribution of KVOLTS is assumed Laplace-Gaussian); interpret the meanings of these last two 95% CIs. How much Prs are there that μ and σ lie within the corresponding outputted Minitab's 95% CIs?

2(c, 3 Points). Minitab does not have a direct-procedure to work part (c) of Exercise 16 on p. 284 of Devore, as far as I know. Assuming that X = KVOLTS ~ N(μ, 42.9261), by hand-calculations determine the minimum required sample size n, n_{Min}, such that the 95% CIL (Confidence Interval Length) on μ is reduced to 2 Kilo-Volts. Write the value of your n_{Min} on your MPR.