**MAT 271E Probability and Statistics HW1- Assoc.Prof.Dr. Canan SARIÇAM**

**Due date: 13.03.2020**

**1.** The percentage of cotton in material used to manufacture men’s shirts is given below. Construct a stem and leaf display for the data.

|  |  |  |  |
| --- | --- | --- | --- |
| 34.2 | 33.6 | 33.8 | 34.7 |
| 33.1 | 34.7 | 34.2 | 33.6 |
| 34.5 | 35.0 | 33.4 | 32.5 |
| 35.6 | 35.4 | 34.7 | 34.1 |
| 36.3 | 36.2 | 34.6 | 35.1 |
| 35.1 | 36.8 | 35.2 | 36.8 |
| 34.7 | 35.1 | 35.0 | 37.9 |
| 33.6 | 35.3 | 34.9 | 36.4 |
| 37.8 | 32.6 | 35.8 | 34.6 |
| 36.6 | 33.1 | 37.6 | 33.6 |
| 35.4 | 34.6 | 37.3 | 34.1 |
| 34.6 | 35.9 | 34.6 | 34.7 |
| 33.8 | 34.7 | 35.5 | 35.7 |
| 37.1 | 33.6 | 32.8 | 36.8 |
| 34.0 | 32.9 | 32.1 | 34.3 |
| 34.1 | 33.5 | 34.5 | 32.7 |

**2.** Construct a frequency distribution and histogram for the cotton content data in Question 1.

**3.** The following data are the temperatures of effluent at discharge from a sewage treatment facility on consecutive days:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 43 | 47 | 51 | 48 | 52 | 50 | 46 | 49 |
| 45 | 52 | 46 | 51 | 44 | 49 | 46 | 51 |
| 49 | 45 | 44 | 50 | 48 | 50 | 49 | 50 |

**a.** Calculate the sample mean and median.

**b.** Calculate the sample variance and sample standard deviation.

**c.** Find the 5th and 95th percentiles of temperature.

**4.** Calculate the descriptive statistics asked in Question 3 by using Excel spreadsheat, and attach printouts of your results to your answer sheets. (**Try to do it using excel formulas**)

**5.** The following table shows the frequency distribution of the diameters of 50 bottles. (Lengths have been measured to the nearest millimetre) Find the mean, median, 80th percentile, the variance and standard deviation of the data

|  |  |
| --- | --- |
| **Diameter (mm)** | **Frequency** |
| 35 – 39 | 6 |
| 40 – 44 | 12 |
| 45 – 49 | 15 |
| 50 – 54 | 10 |
| 55 - 60 | 7 |