

11.

stem	leaf
6L	4 3
6H	7 6 9 6 8 9
7L	4 2 0 1 4 2 0 2
7H	
8L	0 1 1 2 1 1 4 1 0 3 4 2
8H	9 5 9 5 9 5 7 8
9L	3 0
9H	5 8

stem : tens digit
L means leaves 0, 1, 2, 3, 4
H means leaves 5, 6, 7, 8, 9

leaf : ones digit

This display providing a more granular view of the data.

14.

stem	leaf
2	3 2
3	4 1 3 9 5 4 6 7 2 8
4	6 0 8 3 8 1 5 9
5	1 1 6 8 0 4 0 4 5 6 6 1 6 5 9 7 0
6	7 9 4 2 6 4 5 3 2 0 9 6 0 1 0 7 2 4 6 9 8 7 2 0 3 0
7	1 0 5 5 6 3 5 5 6 2 2 4 3 0 5 8 0
8	0 8 3 2 4 4 3 2
9	2 6 8 3 2 0 5 3 7 6 3 6 3 8 1
10	5 4 8 3 4 2 5 8 4 6
11	5 2 9 3 9 9 3
12	3 7
13	8
14	3 6
15	0 3 5 0
16	
17	
18	9

stem : tens digit, ones digit
leaf : one decimal place

b) Mean = 5.917 Median = 6.85 ~~Mode = 6.85~~

c) It shows flow rate are highly concentrated in 5-7, and spread out on the other parts.

d) No, compare mean with median ~~and~~ the flow rate appears more with higher value.

e) $Q3 - Q1 = 7.5 - 3.85 = 3.65$ $3.65 \times 1.5 = 5.475$
 ~~$7.5 - 3.85 = 3.65$~~
 $7.5 + 5.475 = 12.975$
 $3.85 - 5.475 = -1.625$

Outliers are the values above 12.975. (13.5, 14.3, 14.6, 15.0, 15.3, 15.5, 15.0, 18.9)

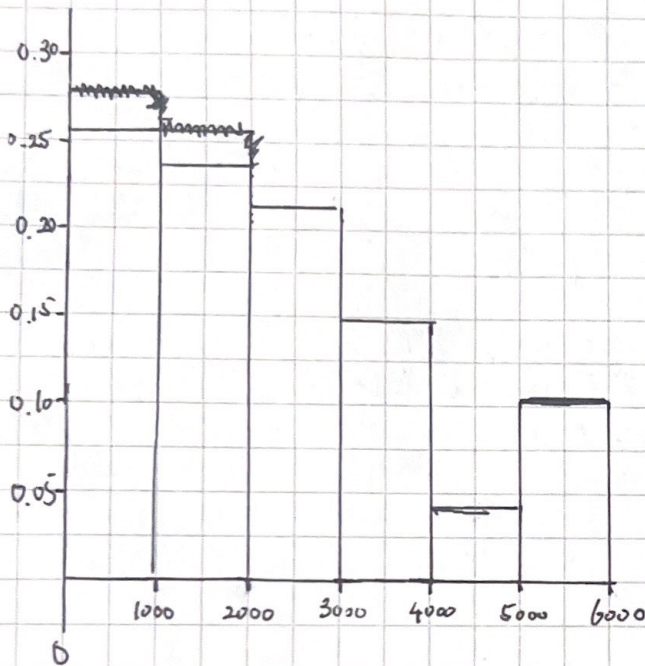
20. a)

stem	leaf
0	360 340 960 530 540 960 450 500 100 510 410 396
1	280 240 050 000 320 250 120 850 670 890 419
2	100 400 120 250 320 400 460 700 730 109
3	060 330 380 350 870 150 150
4	390 710
5	320 700 220 850 710

stem : thousands digits
leaf : hundreds digits



b)



34. a) $\bar{X}_u = 237 / 11 = 21.545 \dots$

$\bar{X}_f = 128.4 / 15 = 8.56$ ✓

mean endotoxin concentration in urban is higher than in farm.

b) $U_{\text{median}} = 17.0$

$F_{\text{median}} = 8.9$ ✓

the median endotoxin concentration in urban is higher than in farm.

c) 9% $\bar{X}_u = 153 / 9 = 17$

6.6% $\bar{X}_f = 101.1 / 13 = 8.238 \dots$ ✓

the trimmed mean in urban and the mean in urban have a obvious change which means there must be a outliers. In farm the trimmed mean compare to median and mean is very similar which means the data is more accurate.

40. median = 92

$\bar{x} = 5963 / 50 = 119.26$

10% $\bar{x} = 4089 / 40 = 102.225$

25% $\bar{x} = 2438 / 25 = 97.52$ ✗

The mean value is the highest it means it is influenced by outliers and extreme value.
The median value is the lowest which means there are many small values in the data.

The 10% trimmed mean is higher than 25% trimmed mean, shows the presence of moderately extreme values in the data set.

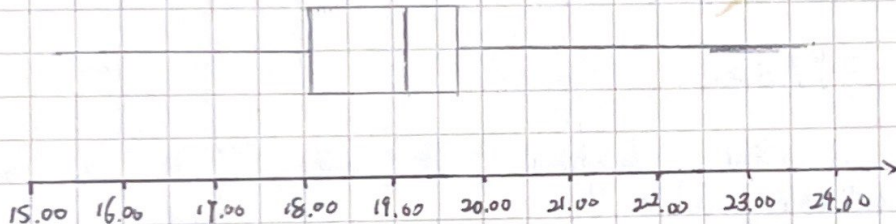
44 a) range = $49.3 - 23.5 = 25.8$

b) $s^2 = \frac{\sum (x_i - \bar{x})^2}{n-1} = \frac{\sum (x_i - 31.03)^2}{9} = \frac{2.3409 + 333.1929 + 0.1849 + 8.0089 + 9.1809 + 22.3729 + 8.2369 + 2.6569 + 56.7209 + 0.3249}{9} = \frac{443.801}{9} = 49.31122$

c) $s = \sqrt{49.31122} = 7.022195 \dots$

d) $s^2 = \frac{\sum x_i^2 - \frac{(\sum x_i)^2}{n}}{n-1} = \frac{870.25 + 2430.49 + 936.36 + 195.24 + 189 + 691.69 + 1149.21 + 864.36 + 552.25 + 998.56 - \frac{16564.07}{10}}{9} = \frac{10072.41 - 9628.609}{9} = 49.31122$

56. smallest : 15.30
largest : 23.78
median : 19.20
lower forth : 18.10
higher forth : 19.76



There are outliers both in lower and higher part, and there are some extreme outlier in higher part.