a. Stem-and-leaf plot:

5	2
6	2 8
7	1 5 9
8	1 6 6 6 8 9
9	2 3 3 5 6 8
10	0 0

b. Data:

86, 92, 100, 93, 89, 95, 79, 98, 68, 62, 71, 75, 88, 86, 93, 81, 100, 86, 96, 52

n = 20

Mean:

$$\bar{x} = \frac{1}{n}\sum_{i=1}^{n} x_i \approx 84.5$$

Ordered data:

52, 62, 68, 71, 75, 79, 81, 86, 86, 86, 88, 89, 92, 93, 93, 95, 96, 98, 100, 100

Range:

100 – 52 = 48

Variance:

$$\sigma^2 = \frac{1}{n}\sum_{i=1}^{n} x_i^2 - \bar{x}^2 = 164.75$$

Standard deviation:

$$\sigma = \sqrt{\sigma^2} = 12.835$$

Ordered data:

52, 62, 68, 71, 75, 79, 81, 86, 86, 86, 88, 89, 92, 93, 93, 95, 96, 98, 100, 100

n = 20 so the median (= Q_2) is the mean between the 10^{th} and the 11^{th} element:

$$Q_2 = \frac{86 + 88}{2} = 87$$

There are 10 elements before Q_2 and 5 after.

Q_1 is the mean between the 5^{th} and the 6^{th}:

$$Q_1 = \frac{75 + 79}{2} = 77$$

Q_3 is the mean between the 7^{th} and the 8^{th}:

$$Q_3 = \frac{93 + 95}{2} = 94$$

Interquartile range:

$$IQR = Q_3 - Q_1 = 94 - 77 = 17$$

c. A value is usually considered a potential outlier if it is smaller than $Q_1 - 1.5(IQR)$ or greater than $Q_3 + 1.5(IQR)$.

$$Q_1 - 1.5(IQR) = 77 - 1.5*17 = 51.5$$
$$Q_3 + 1.5(IQR) = 94 + 1.5*17 = 119.5$$

Therefore, there is no outlier, which means that all the votes of the class are in a reasonable range and no student significantly underperformed with respect to the 50% of the class between the first and the third quartile.