CHAPTER 8 SOME NONPARAMETRIC STATISTICS CASE STUDY

A local emergency room doctor said, during the COVID pandemic, that the ER was as safe to its patients as if the patients had shopped in grocery stores. To test this opinion, the temperatures of a randomly sample group of 15 patients was taken when they were admitted into the ER, and then several days later when, if they had contracted COVID, their temperatures should have increased significantly. Based on the below data, is there any statistically-based reason to doubt the opinion of the doctor.

Patient #	Temperature When Admitted	Temperature Taken Later
1	98.3	96.7
2	98.5	99.5
3	99.1	97.4
4	97.2	98.2
5	97.3	99.4
6	98.0	98.7
7	96.9	97.5
8	96.8	98.9
9	98.4	99.0
10	99.2	96.8
11	98.7	98.5
12	98.1	99.2
13	97.8	98.6
14	99.3	97.9
15	99.0	98.8

a. State the null hypothesis. 1 pt.

b. State the alternative hypothesis. 1 pt.

c. State the significance level. 1 pt.

d. Perform the calculations. You may use Excel. 3 pts.

e. What is your conclusion. Discuss why or why not you would statistically accept the null hypothesis, with the understanding that you could be wrong 5% of the time. Also discuss if this is a total fair test of if other circumstances need to be considered before drawing any final conclusions – as the numbers do not always tell the entire story. 3 pts.