

# Stat 131 (Mathematical Statistics III)

## Problem Set No. 5

*INSTRUCTION:* Answer the following as indicated. Follow the steps in testing hypothesis.

1. Medical researchers collected data on body temperatures ( $^{\circ}F$ ) from a large number of men and women, and random samples from that data are presented in the accompanying table.
  - a. Is the data sufficient to conclude that the mean body temperature of men is above  $95^{\circ}F$ ?
  - b. Is the data sufficient to conclude that the variance of the body temperature of men is above 0.25?
  - c. Is there sufficient evidence to indicate that mean body temperatures differ for men and women?

Men	Women
96.9	97.8
97.4	98.0
97.5	98.2
97.8	98.2
97.9	98.6
98.0	98.8
98.6	99.2
98.8	99.4

2. An instructor wants to use two exams in her classes next year. This year, she gives both exams to the students. She wants to know if the exams are equally difficult and wants to check this by looking at the differences between scores. Formulate and test the appropriate hypotheses.

Student	Exam 1	Exam 2
1	63	69
2	65	65
3	56	62
4	100	91
5	88	78
6	83	87
7	77	79
8	92	88
9	90	85
10	84	92
11	68	69
12	74	81
13	87	84
14	64	75