**Statistics for Psychology - PSYCH-UH 1004Q**

**Homework #7**

14 points

(The homework assignments will never require you to use R unless the problem explicitly says “use this R code”. For other problems, can use R if you find it useful, they should be completed easily by hand.)

1. a. How many degrees of freedom would there be for a paired *t*-test with a sample size of 25? (1 point)

b. What is the critical *t* for a one tailed test for α=.05 (for the above test: paired, 25 participants)? (1 point)

c. How many degrees of freedom would there be for an independent samples *t*-test with a sample size of 13 in each group? (1 point)

d. What is the critical *t* for a one tailed test for α=.05 (for the above test: independent, 13 participants in each group)? (1 point)

2. The stress levels of 30 people were measured by a questionnaire before and after a real job interview. The stress level rose from a mean of 63 points to a mean of 71 points. The (unbiased) standard deviation of the difference scores was 18.

1. State the null hypothesis for this example in prose. (1 point)
2. State the null hypothesis for this example as a mathematical formula. (1 point)
3. What type of *t*-test would be most appropriate for this design (independent samples or paired)? (1 point)
4. What is the critical value of *t* for α=.05, for a one-tailed *t*-test? (1 point)
5. Use the information from the problem above and your knowledge of the *t*-test formula to calculate the following: (3 points)

$\overbar{D}$:

$s\_{\overline{D}}$:

*t*:

1. Calculate the *p*-value associated with the *t*-value above. (1 point)
2. What is your statistical decision with respect to the null hypothesis? (1 point)
3. Given your conclusion in part d, could you be making a Type I or Type II error? (1 point)