ID# _____ Exam 2 PS217, Fall 1995

Good luck on this exam! All the usual rules apply, so keep your eyes on your own exam. Think of each point as equal to one minute, so don't spend too much time on one answer. Read each question carefully and answer completely. Be sure to show all your work!

1. Suppose that you are interested in whether the type of mood reflected by a word (happy, neutral, or sad) affects how well the word is remembered. You construct a list of 6 happy words (e.g., joyful, bright), 6 neutral words (e.g., derive, convey), and 6 sad words (e.g., gloomy, lonely). You present the list repeatedly to 8 participants until they can recite the entire list correctly twice in a row. One week later, each subject attempts to recall the entire list. You repeat this procedure for each word list, for a total of 24 participants. The number of items correctly recalled as a function of the type of word is seen below. Analyze the results of this experiment as completely as possible, including whatever interpretation seems appropriate. [20 pts]

| | Happy | Neutral | Sad | |
|---|---|---|---|---|
| | 5 | 4 | 3 | |
| | 6 | 3 | 4 | |
| | 4 | 5 | 2 | |
| | 5 | 3 | 1 | |
| | 3 | 1 | 2 | |
| | 6 | 3 | 4 | |
| | 2 | 2 | 3 | |
| | 5 | 3 | 1 | |
| T ($\Sigma X$) | 36 | 24 | 20 | G = 80 |
| Mean | 4.5 | 3.0 | 2.5 | $\Sigma X^2 = 318$ |
| SS | 14 | 10 | 10 | |

SOURCE SS df MS F

Total

2. How likely is it that the Happy group in the preceding experiment was randomly selected from a population with $\mu = 5$ words correctly recalled? [5 pts]

3. How does an independent groups design differ from a repeated measures design? Why would a repeated measures design be preferred to an independent groups design? When would the independent groups design be preferred to the repeated measures design? [10 pts]

4. Dr. Justin Case was interested in determining if temperature had an impact on performance on a quiz. He took a class of 100 statistics students and randomly assigned a quarter of the class to a room where the temperature was 50°, another quarter was assigned to a room where the temperature was 70°, another quarter was assigned to a room where the temperature was 80°, and the final quarter was assigned to a room where the temperature was 100°. The students all took the same quiz (max.score = 10). Using the summary data below, conduct as complete an analysis of this experiment as you can, then provide a detailed interpretation of the results of the experiment. [20 pts]

| | 50° | 70° | 80° | 100° | |
|---|---|---|---|---|---|
| T (ΣX) | 130 | 195 | 182 | 190 | G = 697 |
| Mean | 5.2 | 7.8 | 7.3 | 7.6 | $\Sigma X^2 = 5355$ |
| SS | 188 | 46 | 77 | 78 | |

| SOURCE | SS | df | MS | F |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| Total | | | | |