STAT 350 PRACTICE FINAL EXAM PROBLEMS

1. Suppose you were asked to analyze each of the following situations described below.

(Note: DO **NOT** SOLVE THESE PROBLEMS!)

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|  | Variable(s) | Variable(s) Type –  Quantitative or Categorical | Type of Inference |
| A. | Attention Span (minutes) | Quantitative | 3 |
| B. | Ethnicity and Education Level |  Categorical | 6 |
| C. | Behavior Rating | Quantitative | 5 |
| D. | Retention Rate | Categorical | 2 |
| E. | Pre/Post Weight | Quantitative | 4 |
| F. | Education (yrs) and Mortality Rate | Quantitative | 7 |
| G. | Reponse Rate | Quantitative | 1 |
| H. | Pass Rate per group | Categorical | 8 |

**Types of Inference**:

1. One sample proportion 2. Difference in proportions, two samples

3. One sample mean 4. Mean of Differences, matched pairs

5. Differences in means, two independent sample 6. Chi-Square Test of Independence

7. Regression 8. Chi-Square Goodness of Fit Test

A. A study on academic performance and attention span showed that a sample of 50 teenage Australian boys had a mean attention span of 4 minutes and a standard deviation of 1.4 minutes. The researchers wanted to determine if Australian boys had attention spans of less than 5 minutes.

B. The U.S. Census Bureau collected data on ethnicity (Black, White, Hispanic, and Other) and educational level (not HS Grad, HS diploma, College Grad, Adv Degree) to determine if there were any significant differences in education level obtained by these groups.

C. “Do faculty and students have similar perceptions of what types of behavior are appropriate for the classroom?” A random sample of 173 students in general education classes and 98 faculty members were asked to rate various behaviors, such as “wearing hats in the classroom” , on a scale of 1(totally inappropriate) to 5(totally appropriate) and the mean ratings were recorded and compared.

D. In 2004 the ACT Inc., conducted a survey of 1139 students in private colleges and 505 students in public colleges. The survey revealed 74.9% retention rate for students in private colleges and a 71.9% retention rate for the students in the public colleges.

E. A researcher wishes to investigate the “Freshman 15” – the belief that college students gain weight as freshman. She selects a random sample of 27 students and weighs them at the beginning and end of their freshman year in college.

F. Is there a relationship between the median number of years of education and mortality rate (deaths per 100,000 people)?

G. A researcher wishes to investigate the impact of the personal appearance of a survey distributor on the response rate of a survey. The researcher believes that if the person delivering the survey is stigmatized in some way that potential respondents would will sorry for the distributor and thus respond at a higher rate.

H. A school principal wishes to determine if their students are scoring “below basic,” “basic,” “proficient,” and “advanced” on a state exam at the same rates as the state rates of 25%, 30%, 30% and 15% for these categories.