**NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**YOUR CURRENT *OVERALL COURSE* GRADE \_\_\_\_\_\_\_\_\_\_\_ (from *MyLab Stat’s*)**

**\*\*\* Portfolio Grade:** (Portfolios worth 20% of final grade)

INSTRUCTOR USE ONLY. (The following grading rubric is for reference only.)

\_\_\_\_\_\_\_\_\_ Information Blanks Above Completed (5 pts)

\_\_\_\_\_\_\_\_\_ Mini-project write-up (45 pts)

**Portfolio Score: \_\_\_\_\_\_\_\_\_ Maximum = 50 pts**

**\*\*\* Mini-project questions: (Answer each question in the space provided. Text references in [].)**

1. Suppose that a big study conducted similarly to our cell phone survey determined that the time to send our 25 word message was normally distributed with a mean of 31.6 seconds and a standard deviation of 11.4 seconds.
   1. (5 pts.) Using the “big study” as the population, what is the probability that a randomly selected person would take more than 35 seconds to send the 25 word message? [5.2]
   2. (5 pts.) At least how many seconds would you need to observe to conclude the time to send was unusually slow? [5.3]
2. (5 pts.) I looked at our cell phone survey Time to Send data, combined male and female information, eliminated outliers and determined that there were 72 observations with a mean time to send of 28.4 seconds. Use the mean and standard deviation from the “big study” (population) in the prior problem and the Central Limit Theorem to determine if our sample mean time was unusually fast. Justify your answer! [5.4]

I’ve summarized some information from our cell phone survey in the table below. Use the data in the table for questions 3-5.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Female | Male | Total |
| iPnone | 40 | 21 |  |
| Not iPhone | 7 | 13 |  |
| Total |  |  |  |

1. (5 pts.) Find a 95% confidence interval for the population proportion of Females who use an iPhone. [6.3]
2. (5 pts.) Find a 95% confidence interval for the population proportion of Males who use an iPhone. [6.3]
3. (5 pts.) Is there an overlap in the confidence intervals for Females and Males? Would you be surprised if the actual population proportion of iPhone use for both Females and Males was 76%? Why or why not? [6.3]
4. A colleague said she thinks it would take the typical student at least 30 seconds to send the 25-word text message in our study. In our random sample of 72 respondents we observed they had a mean time of 28.4 seconds with a standard deviation of 9.5 seconds. Assume the underlying population is normally distributed. [7.3]
   1. (5 pts.) At the α = 0.10 level of significance, is there evidence to support my colleague’s claim?
   2. (5 pts.) At the α = 0.05 level of significance, is there evidence to support my colleague’s claim?
   3. (5 pts.) Compare the two conclusions above. Does this suggest any further study? Why or why not?