Stat 145: Exam 4 Review Questions

Note: *This is not intended to be a preview of the actual exam. Rather, it is meant to give you an idea of the types of questions that will be asked. There are concepts in these review problems that will not appear on the actual exam, just as there will be concepts on the actual exam that are not covered in these review problems.*

1. People who were born between 1978 and 1983 are sometimes classified by demographers as belonging to Generation Y. According to a recent survey, 459 of 850 randomly sampled Generation Y web users reported using the Internet to download music.

   (a) What is the sample proportion $\hat{p}$ of Generation Y web users who use the Internet to download music?

   (b) Give a 95% confidence interval for p, the proportion of Generation Y web users who use the Internet to download music.

   (c) How many Generation Y web users should be sampled in order to estimate p within ± 0.03 with 95% confidence? (Note: Use the value of $\hat{p}$ from the recent survey for the guessed value p^*.)

2. The average retail price for bananas in 1998 was 51 cents per pound, as reported by the U.S. Department of Agriculture. Recently, a random sample of 4 markets gave the following prices for bananas in cents per pound:

   58 47 57 55

   (a) Calculate $\bar{x}$ and s.

   (b) Is there evidence that the current mean retail price for bananas is greater than the 1998 mean of 51 cents per pound? Perform the appropriate test of significance.

3. A doctor randomly selected 15 of her patients and recorded their serum high density lipoprotein (HDL) cholesterol. The following data were obtained:

   48 61 46 35 48
   34 64 42 29 71
   64 47 56 27 53

   (a) Make a stemplot of this data.

   (b) Would you feel comfortable using the one-sample t-procedures to analyze this data? Why or why not?

4. The U.S. Department of Agriculture compiles information on acreage, production, and value of potatoes. Potato yield is measured in hundreds of pounds (cwt) per acre. Independent random samples of 32 one-acre plots of potatoes from Nevada and 40 one-acre plots of potatoes from Idaho gave the following summary statistics:

State	n	$\bar{x}$	s
Nevada	32	383.4	37.2
Idaho	40	349.6	34.6

(a) Give a 90% confidence interval for the mean difference in the potato yields of Nevada and Idaho.

(b) Is there evidence that the mean potato yields for the two states differ? Perform the appropriate test of significance.

5. Is there a relationship between gender and party identification? Subjects indicated whether they identified more strongly with the Democratic or Republican Party or as Independents. The table below presents the data:

	Party Identification		
Gender	Democrat	Independent	Republican
Male	279	73	225
Female	165	47	191

Source: 1991 General Social Survey

Compute the chi-square statistic, approximate the P-value, and state your conclusion in terms of the problem.