

## Econ 311: Problem Set #6

Due: Monday, December 14, 2009

**Q.1** A random sample of 10 economists produced the following forecasts for percentage growth in real growth domestic product in the next year:

2.2 2.8 3.0 2.5 2.4 2.6 2.5 2.4 2.7 2.6

Use unbiased estimation procedures to find point estimates for:

- a The population mean
- b The population variance
- c The variance of the sample mean
- d The population proportion of economists predicting growth of at least 2.5% in real domestic product
- e The variance of the sample proportion of economists predicting growth of at least 2.5% in real gross domestic product

**Q.2** A college admissions officer for an MBA program has determined that historically applicants have undergraduate grade point averages that are normally distributed with standard deviation with 0.45. From a random sample of 25 applications from the current year, the sample mean grade point average is 2.90.

- a Find a 95% confidence interval for the population mean.

**Q.3** Times(in minutes) that a random sample of five people spend driving to work are 30 42 35 40 45

- a Calculate the standard error.
- b Find  $t_{v,\alpha/2}$  for a 95% interval for the true population mean.
- c Calculate width for a 95% confidence interval for the population mean time spent driving to work.

**Q.4** A business school placement director wants to estimated the mean annual salaries five years after students graduate. A random sample of 25 such graduates found a sample mean of \$42,740 and a sample standard deviation of \$4,780. Find a 90% confidence interval for the population mean, assuming that the population distribution is normal.

**Q.5** From a random sample of 400 registered voters in one city, 320 indicated that they would vote in favors of a proposed policy in an upcoming election.

- a** Calculate the LCL (Low confidence limit) for a 98% confidence interval estimates for the population proportion of this policy.
- b** Calculate the width of a 90% confidence interval estimates for the population proportion in favor of this policy.