

**STAT 1 – Sections 11 & 12 Extra Credit Assignment for Test III**

(10 POINTS in Test III)

Due: 10:15 a.m. on Tuesday 11/17/09  
at BRH-141 (Math & Statistics Dept. Office)

Print these three pages. Your work should be done neatly in the space provided.

Your Name:

Last four digits of Student ID#:

1. (5 Points) State whether the following are **TRUE** or **FALSE**.
  - Judgment Sampling is a type of random sampling method.
  - The standard error of a sample proportion is  $\sqrt{\frac{pq}{n}}$ .
  - ..... The standard error of the sample mean  $\bar{x} = \sigma$ .
  - ..... A large sample confidence interval for  $\mu$  can be obtained if you know the confidence coefficient, sample size and the sample mean.
  - ..... A butterfly collector is called a lepidopterist.
  - If the population distribution is normal then the sampling distribution of  $\bar{x}$  will be exactly normally distributed for  $n = 24$ .

2. As reported by the US National Center for Health Statistics males who are six feet tall and between ages 18 and 24 have a mean weight  $\mu$  of 175 lb. If the weights are normally distributed with a standard deviation  $\sigma = 14$  lb. find the percentage of such males that weigh
- (a) between 170 and 180 lb.

(b) If a random sample of size 49 males from this population is taken then find the probability that their sample mean weight is between 170 and 180 lb.

(c) Find a 90% CI for the population mean weight of such males based on a sample of size 49 and interpret the CI.

3. A recent poll showed that of 2207 people surveyed 1192 thought that the U.S. income tax system was too complicated.
- (a) Construct a 95% confidence interval for the true proportion  $p$  of people who think that the U.S. income tax system was too complicated.
- (b) Interpret the interval.
- (c) Based on your findings can we conclude that the majority of the Americans think that the income tax system is too complicated? Justify your answer.