**MTH 1210 Lab 4 Answer Sheet**

## Part A

**Question 1.** Give the value of the **estimate** of the true (unknown) **population** **mean** phosphate level μ.

**Question 2.** Explain why it would be unreasonable to conclude that  is exactly equal to μ.

**Question 3.** Give the value of the **estimate** of the true **standard error** of the sample mean .

**Question 4.** Typically, how far away from the true value μ would we expect the estimate  to be? **Hint**: Use the answer to Question 3.

[**Copy and paste the histogram here**]

**Question 5.** Does the shape of the histogram seem consistent with the assumption that the sample came from a **normal** population? Explain.

**Question 6.** Give the numerical values of the endpoints of the **95% one-mean *t* confidence interval** for μ.

**Question 7.** Based on the confidence interval, is it plausible that the individual’s true mean phosphate level μ is as high as **6.5** mg/dl? Explain your answer.

## Part B

**Question 1.** Give the value of the **estimate** of the true (unknown) **mean** number of can openers sold, μ, in the entire **population** of Midwest stores.

**Question 2.** Explain why it would be unreasonable to conclude that  is exactly equal to μ.

**Question 3.** Give the value of the **estimate** of the true **standard error** of the sample mean .

**Question 4.** Typically, how far away from the true value μ would we expect the estimate  to be? **Hint**: Use the answer to Question 3.

[**Copy and paste the histogram here**]

**Question 5.** The shape of the histogram indicates that the sample came from a right skewed (i.e. ***non****-***normal**) population. But **t**he one-mean *t* confidence interval procedure can be used even when the sample is from a non-normal population **as long as the sample size *n* is large (*n* ≥ 30)**. Is the one-mean *t* procedure justified here? Explain.

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**Question 6.** Give the numerical values of the endpoints of the **95% one-mean *t* confidence interval** for μ.

**Question 7.** Based on the confidence interval, is it plausible that μ is as small as **21.0**? Explain your answer.

## Part C

[**Copy and paste the bar plot here**]

**Question 1.** Give the value of the **estimate** of the true (unknown) **population proportion** *p* that thinks organ sales should be legal.

**Question 2.** Explain why it would be unreasonable to conclude that  is exactly equal to *p*.

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**Question 3.** Give the numerical values of the endpoints of the **95% one-proportion *z* confidence interval** for *p*.

**Question 4.** Based on the confidence interval, is it plausible that *p* is as small as **0.49**? Explain your answer.