**MTH 1210 Lab 5 Answer Sheet**

## Part A

**Question 1.** Give the numerical value of the **estimate**  of the true (unknown)

population mean blood pressure change μ. Does this estimate provide evidence

that blood pressure decreases, on average (i.e. evidence that μ is less than 0)?

Explain your answer.

**Question 2.** We want to carry out the **one-mean *t* test** to decide if the evidence that μ is less than 0 is statistically significant. State the appropriate **null** and **alternative** **hypotheses** *H*0 and *H*a in terms of μ.

**Question 3.** Give the numerical value of the **test** **statistic** ***t***.

**Question 4.** Give the **p-value** of the test.

**Question 5.** Recall that for a given **level of significance** **α**, the **decision rule** is:

 Reject *H*0 if the p-value < α

 Fail to reject *H*0 if the p-value ≥ α

Using the level of significance **α = 0.05**, based on the p-value, state the conclusion in

terms of whether or not you reject *H*0.

**Question 6.** Based on the conclusion you made in Question 5, is there statistically

significant evidence that calcium reduces blood pressure?

**Question 7.** Suppose instead that the level of significance was chosen to be **α =**

**0.10**. Using α = 0.10 does the conclusion of the hypothesis test change?

## Part B

**Question 1.** Give the numerical value of the **estimate**  of the true (unknown)

population mean tip percentage μ for patrons that receive a bad weather warning message. Does this estimate provide evidence that the true mean is less than 20?

Explain your answer.

**Question 2.** We want to carry out the **one-mean *t* test** to decide if the evidence that μ is less than 20 is statistically significant. State the appropriate **null** and **alternative** **hypotheses** *H*0 and *H*a in terms of μ.

**Question 3.** Give the numerical value of the **test** **statistic** ***t***.

**Question 4.** Give the **p-value** of the test.

**Question 5.** Recall that for a given **level of significance** **α**, the **decision rule** is:

 Reject *H*0 if the p-value < α

 Fail to reject *H*0 if the p-value ≥ α

Using the level of significance **α = 0.05**, based on the p-value, state the conclusion in

terms of whether or not you reject *H*0.

**Question 6.** Based on the conclusion you made in Question 5, is there statistically

significant evidence that the true (unknown) mean tip percentage μ for patrons receiving a bad weather warning message is less than 20?

**Question 7.** Suppose instead that the level of significance was chosen to be **α =**

**0.10**. Using α = 0.10 does the conclusion of the hypothesis test change?