CA9 - Hypothesis Testing

Add Instructions...

1 Multiple Choice 4 points

The p-value in hypothesis testing represents which of the following:
Please select the best answer of those provided below.

- ○ The probability of failing to reject the null hypothesis, given the observed results
- ○ The probability that the null hypothesis is true, given the observed results
- ○ The probability that the observed results are statistically significant, given that the null hypothesis is true
- ◉ The probability of observing results as extreme or more extreme than currently observed, given that the null hypothesis is true

2 Multiple Choice 4 points

In the past, the mean running time for a certain type of radio battery has been 9.6 hours. The manufacturer has introduced a change in the production method and wants to perform a hypothesis test to determine **whether the mean running time has changed** as a result. The null (H_0) and the alternative (H_a) hypotheses are:

- ○ $H_0 : \mu \geq 9.6$ hours; $H_a : \mu = 9.6$ hours
- ○ $H_0 : \mu > 9.6$ hours; $H_a : \mu > 9.6$ hours
- ○ $H_0 : \mu \neq 9.6$ hours; $H_a : \mu = 9.6$ hours
- ○ $H_0 : \mu = 9.6$ hours; $H_a : \mu > 9.6$ hours
- ◉ None of these above

3 Multiple Choice 4 points

Please select the correct statement in the following.

In a hypothesis test,

- ○ the null hypothesis is what we are trying to prove.
- ○ the alternate hypothesis is always assumed to be true.
- ○ the alternate hypothesis is accepted unless there is sufficient evidence to say otherwise.
- ◉ the null hypothesis is not rejected unless there is sufficient evidence to reject it.

4 Multiple Choice 4 points

The owner of a local nightclub has recently surveyed a random sample of $n = 300$ customers of the club. She would now like to determine whether or not the mean age of her customers is **over 35**. If so, she plans to alter the entertainment to appeal to an older crowd. If not, no entertainment changes will be made. Suppose she found that the sample mean was 35.5 year and population standard deviation was 5 years. What is the *p-value* associated with the test statistic?

- ◉ 0.0416
- ○ 0.9572
- ○ 0.0421
- ○ 0.0836

5 Multiple Choice 4 points

Which of the following statements is correct:

If we fail to reject a hypothesis at the **0.10** level of significance, it:

- ○ must be rejected at the 0.05 level
- ○ may be rejected at the 0.05 level
- ◉ will not be rejected at the 0.05 level
- ○ must be rejected at the 0.025 level