Q1
1 Point

When is the t-distribution particularly important in statistical inference?

- (●) When working with the unknown population mean or unknown population variance
- ( ) When comparing the means of two large samples
- ( ) When the population variance is known
- ( ) When the data is non-normally distributed

Q2
1 Point

Which of the following best describes the shape of the t-distribution compared to the normal distribution?

- ( ) The shape of the t-distribution does not depend on sample size
- (●) The t-distribution is less peaked and has fatter tails
- ( ) The t-distribution is more peaked and has thinner tails
- ( ) The t-distribution and normal distribution are always identical in shape

Q3
1 Point

A t-confidence interval is used to estimate:

- ( ) The standard deviation of a population
- ( ) The variance of a population
- (●) The mean of a population
- ( ) The median of a population

Q4
1 Point

Which factor does NOT directly affect the width of a t-confidence interval?

- (●) Sample mean
- ( ) Level of confidence
- ( ) Sample size
- ( ) Estimated variance

Q5
1 Point

A one-sample t-test is used to test if:

- (●) The sample mean is equal to a specific value
- ( ) The sample median is equal to a specific value
- ( ) The sample variance equals the population variance
- ( ) Two sample means are equal

Q6
1 Point

In testing the difference of means, the null hypothesis typically asserts that:

- ( ) The means of two populations are different
- (●) The means of two populations are equal
- ( ) The sample mean is equal to the population mean
- ( ) The variance of two populations is equal

Q7
1 Point

The confidence interval for the difference of means is used to estimate:

- ○ The exact difference between the two population means
- ◉ The range within which the difference between two population means likely falls
- ○ The variance between the two populations
- ○ The probability that two means are equal

Q8
1 Point

A wider confidence interval for the difference of means suggests:

- ○ Greater certainty in the estimate
- ◉ More variability in the data
- ○ Less variability in the data
- ○ Smaller sample sizes

Q9
1 Point

Statistical power in the context of difference of means is:

- ○ The chance of the test
- ◉ The probability of correctly rejecting the null hypothesis when a specific alternative hypothesis is true
- ○ The likelihood of the sample means being equal
- ○ The probability of correctly accepting the null hypothesis