

**Q1****1 Point**

Which of the following statements is true about the population proportion ( $p$ )?

- ☐ It is the same as the sample proportion
- ☐ It varies from sample to sample
- ☐ It can be calculated directly from a sample
- ☒ It is a parameter that describes the entire population

**Q2****1 Point**

If you take a different sample, the sample proportion ( $\hat{p}$ ):

- ☒ Could be different
- ☐ Will always be the same
- ☐ Cannot be calculated
- ☐ Will always be equal to the population proportion ( $p$ )

**Q3****1 Point**

Which of the following is true about the standard error?

- ☐ It increases as the sample size increases
- ☐ It is the same as the standard deviation of the population
- ☒ It decreases as the sample size increases
- ☐ It is not related to the sample size

**Q4****1 Point**

The Central Limit Theorem is important in statistics because:

- ☐ It is only applicable when the population is normally distributed
- ☐ It tells us that the sample proportion is always normally distributed
- ☒ It allows us to make inferences about population parameters
- ☐ It tells us that larger samples lead to less variability

**Q5****1 Point**

Which of the following is a key assumption of the Central Limit Theorem (CLT)?

- ☐ aThe sample size must be at least 30 for the CLT to be applicable
- ☐ The population from which the samples are drawn must be normally distributed
- ☐ All of the above
- ☒ The samples must be drawn independently

**Q6****1 Point**

What does a confidence interval in statistics provide?

- ☐ The population mean
- ☐ The sample mean
- ☐ The exact value of the population parameter
- ☒ A range of values that may contain the population parameter

**Q7**

**1 Point**

Which of the following statements is true about a 95% confidence interval?

- ☐ It is calculated using 2 standard deviations from the mean
- ☐ It will always contain the true population parameter
- ☐ It is less accurate than a 90% confidence interval
- ☒ If we were to take 100 different samples and create a confidence interval from each sample, we expect about 95 of them to contain the true population parameter.

**Q8**

**1 Point**

Which of the following is the correct formula for constructing a 95% confidence interval for a population proportion?

- ☐  $I = (\hat{p} - 1.96 \cdot SD_{\hat{p}}, \hat{p} + 1.96 \cdot SD_{\hat{p}})$
- ☒  $I = (\hat{p} - 1.96 \cdot SE_{\hat{p}}, \hat{p} + 1.96 \cdot SE_{\hat{p}})$
- ☐  $I = (\hat{p} - 2 \cdot SE_{\hat{p}}, \hat{p} + 2 \cdot SE_{\hat{p}})$
- ☐  $I = (\hat{p} - 1.64 \cdot SE_{\hat{p}}, \hat{p} + 1.64 \cdot SE_{\hat{p}})$

**Q9**

**1 Point**

What is the z-score corresponding to a 99% confidence interval?

- ☐ 2.33
- ☐ 1.64
- ☒ 2.58
- ☐ 1.96