

Chapter 16
Multiple Choice Questions
(The answers are provided after the last question.)

1. Which of the following symbols represents a population parameter?
 - a. SD
 - b. σ
 - c. r
 - d. 0

2. If you drew all possible samples from some population, calculated the mean for each of the samples, and constructed a line graph (showing the shape of the distribution) based on all of those means, what would you have?
 - a. A population distribution
 - b. A sample distribution
 - c. A sampling distribution
 - d. A parameter distribution

3. What does it mean when you calculate a 95% confidence interval?
 - a. The process you used will capture the true parameter 95% of the time in the long run
 - b. You can be “95% confident” that your interval will include the population parameter
 - c. You can be “5% confident” that your interval will not include the population parameter
 - d. All of the above statements are true

4. What would happen (other things equal) to a confidence interval if you calculated a 99 percent confidence interval rather than a 95 percent confidence interval?
 - a. It will be narrower
 - b. It will not change
 - c. The sample size will increase
 - d. It will become wider

5. Which of the following statements sounds like a null hypothesis?
 - a. The coin is not fair
 - b. There is a correlation in the population
 - c. There is no difference between male and female incomes in the population
 - d. The defendant is guilty

6. The analysis of variance is a statistical test that is used to compare how many group means?
 - a. Three or more
 - b. Two or more

7. What is the standard deviation of a sampling distribution called?
 - a. Sampling error
 - b. Sample error
 - c. Standard error
 - d. Simple error

8. Hypothesis testing and estimation are the two key branches of the field of inferential statistics?

- a. True
- b. False

9. A _____ is a subset of a _____.

- a. Sample, population
- b. Population, sample
- c. Statistic, parameter
- d. Parameter, statistic

10. A _____ is a numerical characteristic of a sample and a _____ is a numerical characteristic of a population.

- a. Sample, population
- b. Population, sample
- c. Statistic, parameter
- d. Parameter, statistic

11. A sampling distribution might be based on which of the following?

- a. Sample means
- b. Sample correlations
- c. Sample proportions
- d. All of the above

12. As a general rule, researchers tend to use _____ percent confidence intervals.

- a. 99%
- b. 95%
- c. 50%
- d. none of the above

13. Which of the following is the researcher usually interested in supporting when he or she is engaging in hypothesis testing?

- a. The alternative hypothesis
- b. The null hypothesis
- c. Both the alternative and null hypothesis
- d. Neither the alternative or null hypothesis

14. When $p < .05$ is reported in a journal article that you read for an observed relationship, it means that the author has rejected the null hypothesis (assuming that the author is using a significance or alpha level of .05).

- a. True
- b. False

15. When $p > .05$ is reported in a journal article that you read for an observed relationship, it means that the author has rejected the null hypothesis (assuming that the author is using a significance or alpha level of .05).

- a. True
- b. False

16. _____ are the values that mark the boundaries of the confidence interval.

- a. Confidence intervals
- b. Confidence limits
- c. Levels of confidence
- d. Margin of error

17. _____ results if you fail to reject the null hypothesis when the null hypothesis is actually false.

- a. Type I error
- b. Type II error
- c. Type III error
- d. Type IV error

18. A good way to get a small standard error is to use a _____.

- a. Repeated sampling
- b. Small sample
- c. Large sample
- d. Large population

19. The car will probably cost about 16,000 dollars; this number sounds more like a(n):

- a. Point estimate
- b. Interval estimate

20. Identify which of the following steps would not be included in hypothesis testing.

- a. State the null and alternative hypotheses
- b. Set the significance level before the research study
- c. Eliminate all outliers
- d. Obtain the probability value using a computer program such as SPSS
- e. Compare the probability value to the significance level and make the statistical decision

21. A _____ is a range of numbers inferred from the sample that has a certain probability of including the population parameter over the long run.

- a. Hypothesis
- b. Lower limit
- c. Confidence interval
- d. Probability limit

22. _____ is the standard deviation of a sampling distribution.

- a. Standard error
- b. Sample standard deviation
- c. Replication error
- d. Meta error

23. An effect size indicator is a statistical measure of the strength of a relationship.
- True
 - False
24. Which of the following can be viewed as an effect size indicator?
- r-squared
 - r
 - Eta-squared
 - Omega-squared
 - All of the above
25. When the researcher rejects a true null hypothesis, a ____ error occurs.
- Type I
 - Type A
 - Type II
 - Type B
26. A post hoc test is ____.
- A test to compare two or more means in one overall test
 - A test to determine regression to the mean
 - A follow-up test to the analysis of variance when there are three or more groups
 - A follow-up test to the independent t-test
27. The use of the laws of probability to make inferences and draw statistical conclusions about populations based on sample data is referred to as _____.
- Descriptive statistics
 - Inferential statistics
 - Sample statistics
 - Population statistics
28. A statistical test used to compare 2 or more group means is known as _____.
- One-way analysis of variance
 - Post hoc test
 - t-test for correlation coefficients
 - Simple regression
29. A statistical test used to determine whether a correlation coefficient is statistically significant is called the _____.
- One-way analysis of variance
 - t-test for independent samples
 - Chi-square test for contingency tables
 - t-test for correlation coefficients
30. The cutoff the researcher uses to decide whether to reject the null hypothesis is called the:
- Significance level
 - Alpha level

- c. Probability value
- d. Both a and b are correct

31. Which ____ percent confidence interval will be the widest (i.e., the least precise) for a particular data set that includes exactly 500 cases?

- a. 99%
- b. 95%
- c. 90%
- d. None of the above

32. As sample size goes up, what tends to happen to 95% confidence intervals?

- a. They become more precise
- b. They become more narrow
- c. They become wider
- d. Both a and b

33. _____ is the failure to reject a false null hypothesis.

- a. Type I error
- b. Type II error
- c. Type A error
- d. Type B error

34. Which of the following statements is/are true according to the logic of hypothesis testing?

- a. When the null hypothesis is true, it should be rejected
- b. When the null hypothesis is true, it should not be rejected
- c. When the null hypothesis is false, it should be rejected
- d. When the null hypothesis is false, it should not be rejected
- e. Both b and c are true

35. What is the key question in the field of statistical estimation?

- a. Based on my random sample, what is my estimate of the population parameter?
- b. Based on my random sample, what is my estimate of normal distribution?
- c. Is the value of my sample statistic unlikely enough for me to reject the null hypothesis?
- d. There is no key question in statistical estimation

36. Assuming innocence until “proven” guilty, a Type I error occurs when an innocent person is found guilty.

- a. True
- b. False

37. This is the difference between a sample statistic and the corresponding population parameter.

- a. Standard error
- b. Sampling error
- c. Difference error
- d. None of the above

38. The “equals” sign (=) is included in which hypothesis when conducting hypothesis testing?

- a. Null
- b. Alternative
- c. It can appear in both the null and the alternative hypothesis

39. A Type I error is also known as a _____.

- a. False positive
- b. False negative
- c. Double negative
- d. Positive negative

40. A Type II error is also known as a _____.

- a. False positive
- b. False negative
- c. Double negative
- d. Positive negative

41. If a finding is statistically significant one must also interpret the data, calculate an effect size indicator, and make an assessment of practical significance.

- a. True
- b. False

42. The p-value used in statistical significance testing should be used to assess how strong a relationship is. For example, if relationship A has a $p=.04$ and relationship B has a $p=.03$ then you can conclude that relationship B is stronger than relationship A.

- a. True
- b. False

Answers:

- 1. b
- 2. c
- 3. d
- 4. d
- 5. c
- 6. b
- 7. c
- 8. a
- 9. a
- 10. c
- 11. d
- 12. b
- 13. a
- 14. a
- 15. b
- 16. b
- 17. b

- 18. c
- 19. a
- 20. c
- 21. c
- 22. a
- 23. a
- 24. e
- 25. a
- 26. c
- 27. b
- 28. a
- 29. d
- 30. d
- 31. a
- 32. d
- 33. b
- 34. e
- 35. a
- 36. a
- 37. b
- 38. a
- 39. a
- 40. b
- 41. a
- 42. b