

Multiple Choice

1. What is the SPINE of statistics?
 - a. The backbone of any statistical model
 - b. An acronym for the five core concepts needed to understand statistical models
 - c. An acronym for the five core statistical tests
 - d. A test for statistical strength

Ans. B

2. What does it mean to label a statistical model a good fit?
 - a. Any predictions about the real world based on this model will be accurate
 - b. Any predictions about the real world based on this model will be inaccurate
 - c. Any predictions about the real world based on this model will be inadequate
 - d. Any predictions about the real world based on this model will be spurious

Ans. A

3. A financial analyst needed to calculate the mean income generated by the six most successful salespeople in her business over one month. The income figures were £1950, £3500, £4232, £4376, £2999 and £2165. What was the mean income generated?
 - a. £2303.76
 - b. £4304
 - c. £3203.67
 - d. £19222

Ans. C

4. Why are large samples desirable in statistical models?
 - a. More likely to reflect the sample under study
 - b. Less likely to reflect the population under study
 - c. Less likely to reflect the sample under study
 - d. More likely to reflect the population under study

Ans. D

5. What is the standard error?
 - a. The standard deviation of sample means
 - b. The square root of the sample means
 - c. The square root of the error in a sample
 - d. The standard deviation of the error in a sample

Ans. A

6. A soft drinks company developed a new fizzy drink ('Delicious Fizz'). A researcher conducted a series of 'blind tasting' trials to measure consumer response to the new drink; this involved consumers drinking 'Delicious Fizz' and a rival fizzy drink ('Rival Fizz') and then rating the products on a ten-point taste scale. The results for consumption of 'Rival Fizz' and taste was $p = 0.02$, while the results for consumption of 'Delicious Fizz' and taste was $p = 0.015$. How should the researcher interpret her findings?
- a. Neither drink had significance
 - b. 'Delicious Fizz' had greater significance
 - c. 'Rival Fizz' had greater significance
 - d. Both drinks had equal significance

Ans. B

7. What is the power of a statistical test?
- a. The probability that it will find an error when one exists
 - b. The probability that it will not find an effect when one exists
 - c. The probability that it will find an effect when one exists
 - d. The probability that it will not find an error when one exists

Ans. C

8. What do we call the situation where we believe there is a genuine effect in our population when in fact there is not?
- a. Type II error
 - b. Type I error
 - c. Standard error
 - d. Type III error

Ans. B

9. A member of your market research team conducted tests of a new television advert with twenty different groups of consumers, in which they rated their satisfaction (on a ten point scale) with the advert and likelihood of purchasing the advertised product (on a five point scale). He is worried about the familywise error rate across the tests, what advice would you give him.
- a. Use a Cramer's V test
 - b. Use a Olive Dunn test
 - c. Use a Bonferroni Correction
 - d. Use a Field Correction

Ans. C

10. You work in a data analyst unit for a large fast food restaurant chain, planning a customer survey and a colleague informs you that a 95% confidence interval has a 95% probability of containing a population parameter. Because of this, she insists that a survey distributed at one restaurant will provide significant results. Do you agree with her?
- a. No, because 95% probability is a long-run probability requiring that multiple tests to be done
 - b. Yes, because 95% probability is the standard level for significance testing
 - c. No, because 95% confidence interval requires that multiple tests to be done
 - d. Yes, because 95% probability is a short-run probability requiring that only one test be done

Ans. A

11. You are the newly appointed business analyst for a large national bank (250000 customers). At a team meeting, your boss presents the results of a survey of customers regarding their opinion (measured on a ten point scale) of a new financial product. The survey sample (of 500 customers) showed a significant ($p = 0.23$) level of satisfaction with the new financial product. How should you interpret this result for your boss?
- a. The result is significant and customers are satisfied
 - b. The result is not-significant but the small sample size is not important as sample size has no effect on statistical power
 - c. The result is not-significant but the small sample size may be missing large differences in customer satisfaction
 - d. The result is significant but the small sample size may be missing large differences in customer satisfaction

Ans. C

12. Your business studies lecturer has set you the following hypothesis to test, 'there will be no association between consumer socioeconomic status and level of private health insurance'. What type of hypothesis is this?
- a. One tailed
 - b. Alternative
 - c. Directional
 - d. Two tailed

Ans. D

13. What does NHST stand for?
- a. Null Hypothesis significance testing
 - b. Non Hypothesis significance testing
 - c. Null Hypothesis statistical testing
 - d. Null Hypothesis statistical trialling

Ans. A

14. In hypothesis testing, which hypothesis do we test?

- a. Experimental
- b. Research
- c. Alternative
- d. Null

Ans. D

15. A HR manager conducted a review of overtime worked by employees. Her sample size was 60 employees and there was a mean of 90 hours worked overtime per month. Her confidence interval was 95%. What would be the upper boundary confidence interval for this study?

- a. 91.86 hours
- b. 88.14 hours
- c. 90 hours
- d. 9.5 hours

Ans. A

16. A business analyst in a software design company reviewed a series of national surveys of user satisfaction (rated on a ten-point satisfaction scale) with a new gaming interface the company had recently launched. She found that the survey mean was 8. However, her standard error was high (89.5), how should she interpret her results?

- a. The sample mean is representative of the population mean
- b. The sample mean might not be representative of the population mean
- c. The sample mean has a low standard deviation
- d. The sample has a high standard deviation

Ans. B