Field Education Chapter Two – Everything you never wanted to know about statistics

Multiple Choice

1. The standard deviation is the square root of?

a. The coefficient of determination

b. The sum of squares

c. The variance

d. The range

Ans: C

2. A frequency distribution in which low scores are most frequent (i.e., bars on the graph are highest on the left-hand side) is said to be?

a. Positively skewed

b. Leptokurtic

c. Platykurtic

b. Negatively skewed

Ans: A

3. If the scores on a test have a mean of 26 and a standard deviation of 4, what is the *z*-score for a score of 18?

a. –2

b. 11

c. 2

d. –1.41

Ans: A

4. Five classes of undergraduate students are assessed for their understanding of the word ‘gratitude’. These results are, by class, given a grade of 1–10, 0 being no understanding and 10 being full understanding. The results are given for each class as 2, 4, 8, 8, 9. The average is 6.2. This average is the?

a. Median

b. Mean

c. Middle

d. Mode

Ans: B

5. One hundred students are given six definitions of the concept of gratitude and are surveyed for their understanding of the concept after reading each definition. The data collated can be described as an example of?

a. A linear model

b. A curved model

c. A population

d. A scattered model

Ans: A

6. The results of the above study could best be displayed in?

a. A pie chart

b. A bar chart

c. A histogram

d. A bell curve

Ans: C

7. Which of the following is a measure of accuracy?

a. Largest deviance from mean

b. Smallest deviance from mean

c. Total error

d. Sum of squared errors

Ans: D

8. Total error is equal to?

a. Sum of deviances

b. Largest deviance – smallest deviance

c. Standard deviation

d. Total number sampled

Ans: A

9. Large standard deviations will have what sort of distribution, relative to a distribution with a low standard deviation?

a. Raised

b. Flatter

c. The same

d. Zero

Ans: B

10. You have sampled the population of undergraduate students in the education department at your institution to gauge understanding of the autistic spectrum in adults on a 5-point Likert scale. Your sample is plotted against a mean given as 2.6. What is a definition of the standard error?

a. Standard error = standard deviation

b. Standard error = mean

c. Standard error = number of possible sample populations

d. Standard error = standard deviation of sample means

Ans: D

11. Confidence intervals are?

a. A range within which the researcher believes the true mean value will fall

b. Boundaries to prevent the true mean value being calculated

c. Calculating all of the mean values of the various sample populations

d. Limiting the number of sample populations studied

Ans: A

12. What is the sampling procedure called when initial respondents are selected using probability methods, then additional participants are added using information provided by the initial respondents?

a. Survey

b. Randomized

c. Additional sampling

d. Snowball

Ans: D

13. A researcher divides his participant group of computer tablet users into three groups based on degree of use of the tablet. If the researcher then draws a random sample from each user group independently, they have created a \_\_\_\_\_ sample.

a. Randomized

b. Stratified

c. Snowball

d. Systematic

Ans: B

14. You ask a participant in a study to select a sample of cards from sequentially numbered cards, beginning at a random number, and then drawing every 11th card. What type of sampling method is this?

a. Randomized

b. Sequential

c. Stratified

d. Systematic

Ans: D

15. What happens when there is a systematic pattern in the listing of sampling units, rather than a random pattern?

a. There is a problem with periodicity.

b. The study must draw a systematic sample.

c. Error rates are increased.

d. Nothing, this is normal for this type of sample.

Ans: A

16. You are asked to review a nominal scale that identifies users versus non-users of an online journal for primary school pupils. What is the most appropriate measure of central tendency?

a. Range

b. Mean

c. Mode

d. Median

Ans: C

17. Which of the following best describes ‘variance’?

a. Variance is always twice the standard deviation.

b. Variance reflects a unit of measurement that has been squared.

c. Variance is the standard deviation minus the error rate.

d. Variance is the average deviation multiplied by 2.

Ans: B

18. µ =  ± a sampling error is the formula used to represent what?

a. ANCOVA

b. Confidence interval

c. Central limit theorem

d. MANOVA

Ans: B

19. Which of the following best defines random sampling error?

a. The difference between respondents to a survey and non-respondents to a survey.

b. It only occurs when there has been inappropriate administration of sampling.

c. It only applies to complex random sampling methods.

d. It is a function of sample size.

Ans: D

20. You are asked to calculate the confidence interval of a population mean. Which of the following are required?

a. A confidence level

b. An estimate of the variance of the population

c. A point estimate of the population mean

d. All of the above are needed.

Ans: D

21. Sample size determination can be defined as choosing the number of observations to include in a statistical sample.

a. True

b. False

Ans: A

22. Which of the following could be described as a null hypothesis for testing the link between academic attainment of secondary school pupils studying for GCSEs and hours of independent study completed by each student?

a. The number of hours of independent study has no effect upon academic attainment.

b. The more hours of independent study completed, the greater the academic attainment.

c. The more hours of independent study completed, the lower the academic attainment.

d. Independent study improves academic attainment.

Ans: A

23. A frequency distribution can be used to form a percentage distribution.

a. True

b. False

Ans: A

24. When estimating the mean of a particular population, doubling the range of acceptable error will reduce the sample size *n* to what?

a. *n*/8

b. *n*/16

c. *n*/4

d. 3*n*/7

Ans: C

25. CI is an appropriate abbreviation for what?

a. Causality integer

b. Confidence coefficient

c. Confidence interval

d. Confidence integer

Ans: C