Test Bank for Statistics for the Social Sciences A General Linear Model Approach 1st Warne

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Chapter 2

1. According to Stevens (1946, p. 677) *measurement* is:
    a. The application of scientific methods to obtain data
    b. The use of scientific instruments to measure objects
    c. The scientific assessment of objects
    d. The assignment of numbers to objects

2. Data at the highest level of measurement:
    a. Has all qualities shared by the lower levels of measurement.
    b. Possesses an absolute zero point.
    c. Can be doubled without causing problems.
    d. All of the above.

3. The process of defining a variable in a way that allows a researcher to collect numerical data about is called
    a. Operationalization
    b. Objectivism
    c. Reductionism
    d. Quantitative defining

4. Data at Stevens's highest level of measurement:
    a. Has all qualities shared by the lower levels of measurement.
    b. Possesses an absolute zero point.
    c. Can be doubled without causing problems.
    d. All of the above.

5. Which option lists the four levels of data in ascending order (i.e., from lowest to highest)?
    a. Nominal, ordinal, ratio, interval
    b. Ratio, interval, ordinal, nominal
    c. Nominal, ordinal, interval, ratio
    d. Ratio, ordinal, interval, nominal

6. According to Stevens (1946, p. 677) *measurement* is:
    a. The application of scientific methods to obtain data
    b. The use of carefully designed scientific instruments to measure objects
    c. The scientific assessment of objects using formal methods
    d. The assignment of numbers to objects or events according to rules

7. Nominal data must be
    a. Able to preserve the ranking of subjects
    b. Mutually exclusive and exhaustive
    c. Different for different group members within the same group
    d. All of the above

8. In nominal data, the numbers assigned to the categories

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a. Must be assigned in order so that larger groups receive larger numbers
b. Are arbitrary
c. Can never be negative
d. Must reflect the rank order of the subjects

9. Which of the following is not an acceptable mathematical function for nominal data?
a. Counting
b. Classification
c. Calculating proportions
d. Calculating averages

10. In addition to the characteristics of nominal data, ordinal data must also have
a. Rank order in the numbers
b. Proportional representation of group members in the population
c. Absolute zero
d. Proportions calculated from scores

11. Why is it always better to collect data at the highest level possible?
a. Higher levels of data are easier to collect than lower levels of data.
b. Lower levels of data require more preparation of the data before the statistical analysis can begin.
c. Higher levels of data can always be converted down to lower levels.
d. All of the above.

12. Which mathematical procedures are acceptable for interval-level data, but not ordinal or ratio data?
a. Calculating proportions
b. Dividing to form averages
c. Ranking subjects
d. Dividing to form ratios

13. What is the property that interval data have that ordinal data do not?
a. Equal spacing between scale points
b. Absolute zero
c. Consistent data application rules
d. Arbitrary numbers assigned to categories

14. An absolute zero
a. Is not present unless it is possible for a person in the sample to obtain a score of zero.
b. Is required to calculate averages.
c. Indicates the total absence of the quality being measured.
d. All of the above.

15. The number of movies that a person has seen in the past month is what type of data?
a. Interval

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b. Nominal
c. Ratio
d. Ordinal

16. Why is it that the Celsius temperature scale *not* a ratio-level scale?
    a. Negative numbers are possible (and meaningful) in the Celsius scale
    b. Because it lacks an absolute zero point
    c. The ratios that are formed with its numbers do not represent true ratios between temperatures of the amount of heat
    d. All of the above

17. The level of data of _____ is ambiguous.
    a. Rating scales
    b. Mental health variables
    c. Reaction time
    d. Group-level variables (e.g., a nation's average education level)

18. A(n) _____ variable permits a wide range of scores that form a constant scale with no gaps at any point along the scale.
    a. Ratio
    b. Interval
    c. Dependent
    d. Continuous

19. A(n) _____ variable has a limited number of possible values and do not form a constant, uninterrupted scale of scores.
    a. Operationalized
    b. Discrete
    c. Ordinal
    d. Limited

20. A sociologist asks her subjects their religious affiliation. What type of variable would this be?
    a. Continuous
    b. Interval
    c. Nominal
    d. Ordinal

21. A researcher collects data on the length of individuals' commute to their job. What type of variable is this?
    a. Ordinal
    b. Ratio
    c. Discrete
    d. Nominal

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22. Individuals learning a second language were labeled as "not proficient" (group 1), "basic proficiency" (group 2) "high proficiency" (group 3), and "fully proficient" (group 4). What type of data is this?
    a. Ordinal
    b. Nominal
    c. Continuous
    d. Ratio

23. The Fahrenheit temperature scale is an example of a(n) _____ variable.
    a. Ordinal
    b. Independent
    c. Interval
    d. Discrete

24. What is the *minimum* level of data required to calculate proportions?
    a. Ratio
    b. Ordinal
    c. Nominal
    d. Interval

25. What level of data can be used to rank order scores?
    a. Ratio
    b. Ordinal
    c. Interval
    d. All of the above

26. Give an example of an operationalization.
    Answers will vary, but the response should be a method of defining a construct in a way that allows numerical data to be collected about it.

27. What does it mean that categories in the data must be "mutually exclusive and exhaustive"?
    The categories are non-overlapping (mutually exclusive) and every sample member belongs to a category (exhaustive)

28. Explain why test scores can be ordinal-, interval-, or ratio-level data, depending on the interpretation.
    If the score is the number of questions correctly, then the variable is ratio-level data. If the score is interpreted as the amount of a trait that the subject possesses, then the variable is interval-level data. If it is possible that there are not equal spaces or intervals between scores on a test, then the variable would be ordinal-level data.

29. Explain what reductionism is and why it is a shortcoming of quantitative research.
    Reductionism is a philosophy that redefines variables so that they are a shallower version of the construct of interest. It is a problem of quantitative

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research because it means researchers don't really study their constructs, but rather the operationalizations of the constructs.

30. Why is it acceptable (and sometimes necessary) to create a "miscellaneous" or "other" category for data?

    Because categories must be exhaustive, which means that every sample member must belong to a category. Creating this "miscellaneous" category ensures that individuals who would otherwise not have a category can belong to one.

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