

**SCIENCE EDUCATION DEPARTMENT,
SCHOOL OF SCIENCE & TECHNOLOGY EDUCATION,
FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA, NIGERIA**

SECOND SEMESTER EXAMINATION

Full Title of Examination: B. Tech. Degree **Level:** 300
Course No: EDU322 **No. of Credit:** 3
Course Title: Research Methods & Data Processing **Lecturers:** Dr. Gambari, A. I. & Dr. Hassan, A.
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Instruction to Candidates: Answer All Questions

Name of Candidate:

Matriculation No. of Candidate:

SECTION A: Answer All Questions Sub-Section A1: Objectives: Circle the Correct Option

(e.g. a)

1. Which of the following research studies is most likely to be an experiment?
 - A. A study of the leadership characteristics of successful high school principals
 - B. A study that compares the cholesterol levels of vegetarians and meat eaters
 - C. A study to determine if parents give more sociable teachers higher ratings
 - D. A study to find out if using concept maps can increase achievement
2. The difference between correlational and causal-comparative research is that.....
 - A. one type is a descriptive study and the other is an associational study.
 - B. one type is a study with one group and the other type compares two or more groups.
 - C. one type can be generalized, while the other type cannot.
 - D. one type involves an intervention, while the other type is purely an observational study.
3. In order for a question to qualify as a research question, the researcher must be able to
 - A. make observations and then analyze these to find an answer.
 - B. propose several answers to the question that are equally acceptable.
 - C. identify value statements in the question that reflect current societal norms.
 - D. develop metaphysical answers based on concise statements of belief.
4. Which of the following best describes the development process for a research question?
 - A. A broad question is made more specific as terms are more clearly defined.
 - B. A broad question is made more specific in order to be more significant.
 - C. A specific question is broadened as terms are more clearly defined.
 - D. A specific question is broadened in order to be more significant.
5. The essential characteristic of a researchable question includes the following EXCEPT:
 - A. that the question is fun and interesting to answer.
 - B. that there is some sort of data that can be collected in an attempt to answer a question.
 - C. that by answering the question researchers will make money.
 - D. that by answering the question a significant positive consequence will affect society
6. The variable manipulated by the researcher in an experiment is called the.....
 - A. response variable.
 - B. independent variable.
 - C. dependent variable.
 - D. extraneous variable.
7. Which of the following is a disadvantage of stating hypotheses?
 - A. A hypothesis involves a philosophy of science, thus enabling one to make specific predictions on the basis of prior evidence or theoretical argument.
 - B. It may prevent researchers from noticing phenomena that do not conform to hypothesis.

- C. It increases sample size.
D. It results in unethical procedures.
8. Which of the following is an example of a directional hypothesis?
A. There will be a difference between the students' reading levels.
B. There will be a difference between lecture and group instruction.
C. Group instruction is more effective than lecture in the elementary classroom.
D. There will be an increase in learning.
9. Which of the following is least likely to be a primary source?
A. an article in a professional journal
B. a dissertation
C. a textbook
D. a paper presented at a professional conference
10. The primary advantage that the World Wide Web has brought to literature reviews is
A. more time efficiency when conducting a literature search
B. a strong classification system that is globally accepted
C. increased certainty that information is reliable and credible
D. immediate access to a wide variety of current materials
11. Which of the following best describes how research should usually be presented in the body of a literature review report?
A. The major findings of the study should be briefly reported
B. Most of the details of how the study was conducted should be carefully described
C. The abstract of the research should be paraphrased
D. Only the reference to the study should be provided
12. When every member of the accessible population has an equal chance of being selected to participate in the study, the researcher is using
A. simple random sampling
B. stratified random sampling
C. convenience sampling
D. purposive sampling
13. If a researcher selected five schools at random and then interviewed each of the teachers in those five schools, the researcher used
A. simple random sampling
B. stratified random sampling
C. cluster random sampling
D. two-stage random sampling
14. Which of the following is an example of a random sampling method?
A. systematic sampling
B. convenience sampling
C. purposive sampling
D. cluster random
15. The best sample is one that is
A. a systematic sample
B. convenient sample
C. representative of the population
D. purposefully selected
16. Which of the following is not an example of a random sampling method?
A. systematic sampling
B. stratified random sampling
C. simple random sampling
D. cluster random sampling
17. The purpose of stratified random sampling is to make certain that
A. every member of the population has an equal chance of being selected for the sample.
B. the sample proportionately represents individuals from different categories of the population.
C. the participants chosen for the study are the ones most likely to react to the treatment.
D. the sample is more representative of the target population than the accessible population.
18. The degree to which results of a study can be extended to other settings or conditions

- describes....
- A. population generalizability.
 - B. conclusions researchers make about a random sample.
 - C. conclusions researchers make about information uncovered in research study.
 - D. ecological generalizability.
19. An instrument that could be used to grade pottery that students created in a visual arts class is a(n)
- A. product rating scale.
 - B. flowchart.
 - C. performance checklist.
 - D. achievement test.
20. An instrument that identifies how individuals relate to peers is called a(n)
- A. interpretive exercise.
 - B. personality inventory.
 - C. graphic rating scale.
 - D. sociometric device.
21. One researcher classified the participants as "good," "average," or "poor" readers. This researcher used a(n)
- A. nominal scale.
 - B. ordinal scale.
 - C. interval scale.
 - D. ratio scale.
22. The five types of researcher-completed instruments used in educational research are:
- A. rating scales, tally sheets, flowcharts, performance checklists, interview schedules
 - B. questionnaires, tally sheets, flowcharts, performance checklists, interview schedules
 - C. rating scales, tally sheets, personality inventory, performance checklists, interview schedules
 - D. rating scales, tally sheets, flowcharts, performance checklists, personality inventory
23. This type of measurement scale involves the use of numbers to represent equal distances from a known zero point.
- A. Nominal
 - B. Interval
 - C. Ratio
 - D. Ordinal
24. Which of the following is content-related evidence of validity?
- A. Test items are at an appropriate reading level.
 - B. Observed participant characteristics are consistent with responses on a scale.
 - C. Scores obtained on two administrations of the instrument are consistent.
 - D. Scores are correlated with scores obtained on another instrument.
25. Which of the following statements accurately portrays the relationship of reliability to validity?
- A. Inferences must be valid before the scores can be reliable.
 - B. Scores must be reliable before inferences can be valid.
 - C. The more valid the inference is, the higher the reliability of the score must be.
 - D. Score reliability is not related to inference validity.
26. If a researcher wishes to obtain content-related evidence of validity, a common way to do this is to:
- A. have a friend look over the instrument and give feedback.
 - B. obtain a Kuder-Richardson analysis.
 - C. review the instrument very carefully.
 - D. have an individual who knows enough about what is to be measured review the content and format of the instrument and judge whether it is appropriate.
27. What is the mode in the following distribution? 25, 17, 23, 23, 24, 25, 23
- A. 25
 - B. 23
 - C. 17
 - D. 24
28. Which of the following is an example of a null hypothesis?
- A. Motivation is not related to achievement.

Highly motivated people are more likely to be successful than those with low motivation.
Highly motivated people are less likely to be successful than those with low motivation.
Motivation is related to achievement.

When researchers state that a finding is statistically significant, they are stating that
the results are important.
the outcomes of the study could be due to chance only 5 times in 100.
the sample statistics in the study are equal to the population parameters.
the researchers rejected the null hypothesis.

If a researcher rejects a null hypothesis, the researcher is either
incorrect, or made a Type I error. B. correct, or made a Type I error.
incorrect, or made a Type II error. D. correct, or made a Type II error.

An inferential technique for analyzing the relationship between two categorical variables is
analysis of variance. B. analysis of covariance.
the Mann-Whitney U test. D. the chi-square test.

Certain types of procedures that allow researchers to make inferences about a population based
on findings from a sample best describes
descriptive statistics. B. inferential statistics.
correlational statistics. D. cross-break.

What is the term that describes the difference between a sample and its population?
sampling error B. the chi-square test
descriptive statistics D. inferential statistics

When researchers make various assumptions about the nature of the population from which the
sample involved is drawn, this is a requirement of
nonparametric techniques. B. the null hypothesis.
sampling error. D. parametric techniques.

t -test for means is used when/with
comparing two sets of rankings. B. comparing several sets of scores.
comparing two sets of scores. D. categorical data.

Chi-Square is used when/with
comparing two sets of rankings. B. comparing several sets of scores.
comparing two sets of scores. D. categorical data.

Analysis of Variance is used when/with
comparing two sets of rankings. B. comparing several sets of scores.
comparing two sets of scores. D. categorical data.

The probabilities used for hypothesis testing are accurate for making generalizations to a
population when.....
the sample size is large. B. confidence intervals cannot be constructed.
the significance level is small. D. samples are random.

Experimental research differs from other types of research because in experimental research....
the dependent variable must be measured precisely.
the independent variable must be manipulated.
groups are compared.
there are no extraneous variables.

One major purpose of correlational research is

- A. to study the changes in behavior an individual exhibits after exposure to an intervention or treatment of some sort.
 - B. to clarify our understanding of important phenomena through the identification of relationships.
 - C. to make people aware of what has happened from past failures or accomplishments.
 - D. to assess attitudes and opinions.
41. A characteristic of causal-comparative research that distinguishes it from experimental research is that in causal-comparative research
 - A. the researcher manipulates the independent variable.
 - B. one variable can be isolated as the cause for changes in other variables.
 - C. extraneous variables are statistically controlled.
 - D. existing groups are studied.
 42. The most commonly used method of statistical inference in causal-comparative studies is.....
 - A. the t-test.
 - B. discriminant analysis.
 - C. multiple regression.
 - D. factor analysis.
 43. What is one weakness of causal-comparative research?
 - A. It cannot provide guidance for subsequent experimental studies.
 - B. It allows for the exploration of effects caused by membership in a given group.
 - C. It allows for exploration of causes of group membership.
 - D. Its inability to manipulate the independent variable.
 44. Which of the following surveys is a cross-sectional survey?
 - A. a survey given to elementary school faculty in five school districts
 - B. a survey of a 1980 high school graduating class given in 1985, 1990, and 1995
 - C. a survey of ACLU lawyers given before and one year after a publicized civil rights case
 - D. a monthly survey about shopping tendencies given to ten shoppers over a one-year span
 45. A researcher who uses follow-up surveys of a sample from a graduating class at 10 year intervals is conducting a
 - A. trend study.
 - B. cohort study.
 - C. panel study.
 - D. census.
 46. Which of the following survey questions is an example of a closed-ended question?
 - A. What resources do you most need in your foreign language laboratory?
 - B. Do you characterize the foreign language resources as inadequate, adequate, or excellent?
 - C. What is the primary funding source for major purchases in the foreign language laboratory?
 - D. Who are the two most knowledgeable people about foreign language curricula in the district?
 47. Which of the following is not a longitudinal survey design?.
 - A. trend study
 - B. census
 - C. cohort study
 - D. panel study
 48. When the researcher surveys the same sample of individuals at different times during the course of the survey, it is called a
 - A. trend study.
 - B. cross-sectional survey.
 - C. panel studies.
 - D. cohort study.
 49. Which of the following is not an advantage of closed-ended questions?
 - A. they enhance the consistency of response across respondents
 - B. they are easier and faster to tabulate
 - C. they are more popular with respondents
 - D. they allow more freedom in response
 50. Which of the following is a disadvantage of open-ended questions?

- A. they may limit breadth of responses
 - B. they take more time to construct
 - C. they are harder to tabulate and synthesize
 - D. they require more questions to cover the research topic
51. Suppose that a researcher studies one gifted student in order to better understand how this student's school day differs from that of more typical students. This type of study is certainly a(n)
- A. simulation.
 - B. case study.
 - C. ethnographic study.
 - D. naturalistic study.
52. The main problem with informal interviews is
- A. getting comparable information from different respondents.
 - B. the excessive amount of time required.
 - C. the variety of topics that must be covered.
 - D. getting respondents to cooperate.
53. When a researcher does not participate in the activity being observed but sits on the sidelines and watches, he/she is a(n)
- A. complete participant.
 - B. observer-as-participant.
 - C. nonparticipant observer.
 - D. participant-as-observer.
54. When a researcher's identity is not known to any of the individuals being observed and he/she interacts with members of the group as naturally as possible, he/she is a(n)
- A. complete participant.
 - B. nonparticipant observation.
 - C. observer-as-participant.
 - D. participant-as-observer.
55. Which is usually hardest for an interviewer?
- A. not interrupting
 - B. not asking leading questions
 - C. establishing rapport
 - D. sticking to the topic
56. A limitation of all observational methods is in ability to:
- A. get acceptable observer agreement.
 - B. observe everything.
 - C. get necessary permissions.
 - D. make sense out of the information.
57. Which of the following is not a type of interview used in research?
- A. structured
 - B. informal
 - C. retrospective
 - D. unstructured
58. Which of the following research study titles is most likely the title for an ethnographic study?
- A. Effects of Team Teaching on High School Student Performance
 - B. Relationships of Arts Integration to Student Attendance and Behavior
 - C. Social Structure and Familial Influences of Company-Sponsored Day Care
 - D. Attitudes and Perceptions of Inner-City School District Superintendents
59. Two major means of data collection in ethnographic research are
- A. participant observation and interviewing.
 - B. testing and observation.
 - C. survey and testing.
 - D. survey and observation.
60. Which of the following is most likely to be a secondary source?
- A. a book about educational theory in the early 1900s
 - B. a soldier's letter home during the Korean War
 - C. minutes from a university faculty meeting held in 1892
 - D. a frontier family photograph

Wishing You Best of Luck