UNAM
UNIVERSITY OF NAMIBIA

Name and Surname:		**Seat No.**	
Student No:		**Date:**	

FACULTY	**Health Sciences and Veterinary Medicine**		
DEPARTMENT	**Allied Health Sciences**		
SCHOOL	**Psychology and Social Work**		
SUBJECT	**Research Methodology and Statistics**		
SUBJECT CODE	**A3632PR /HPSG 3652**		
DATE	**November 2024**		
DURATION	**Time (3) hours**	**MARKS**	**100**

Second Opportunity Examination

Examiner:	
Internal Examiner:	**Prof. Poonam Dhaka**
External Moderator:	**Mrs Aysha Ebrahim**

This question paper consists of 13 pages including the cover page

Instructions

- Write your name, surname and student name, date and seat number in the spaces provided for on this question paper.
- This paper consists of two sections.
- **Answer all the questions on the question paper and use a BLACK or BLUE pen only.**
- This question paper must be handed back to the invigilator.
- Non-programmable calculators may be used.
- Rough work sheets are attached.

GOOD LUCK!

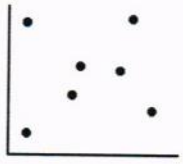
SECTION A: MULTIPLE CHOICE QUESTIONS [60 Marks]

I. Choose the correct answer to the questions that follow by encircling only the applicable letter (either a, b, c, or d). Each question is worth one (1) mark.

1.	The tentative explanations scientists use to explain events that must be testable are called (a) Hypotheses. (b) Postulates. (c) Heuristics. (d) Axioms
2.	A researcher tests whether students learn better with an active learning teaching method or with a traditional teaching method. In this example, the teaching method is a(n) (a) Dependent variable. (b) Control variable. (c) Independent variable. (d) Intervening variable.
3.	Which of the following scales of measurement is a researcher using when he or she measures whether or not an individual makes eye contact with another person? (a) Ratio scale (b) Interval scale (c) Ordinal scale (d) Nominal scale
4.	Which of the following is the first step in starting the research process? (a) Searching sources of information to locate problem. (b) Survey of related literature (c) Identification of problem (d) Searching for solutions to the problem
5.	The alternative hypothesis is also called (a) Null hypothesis (b) Statistical hypothesis (c) Research hypothesis (d) Simple hypothesis

6.	There are three children in a room, ages three, four, and five. If a four-year-old child enters the room the: (a) Mean age will stay the same but the standard deviation will decrease (b) Mean age will stay the same but the standard deviation will increase (c) Mean age and standard deviation will increase (d) Mean age and standard deviation will stay the same
7.	A reasoning where we start with certain particular statements and conclude with a universal statement is called (a) Deductive Reasoning (b) Inductive Reasoning (c) Abnormal Reasoning (d) Transcendental Reasoning
8.	"Controlled Group" is a term used in..... . (a) Survey research (b) Historical research (c) Experimental research (d) Descriptive research
9.	The standard deviation is: (a) The square root of the variance (b) A measure of variability (c) An approximate indicator of how numbers vary from the mean (d) All of the above
10.	Selection of sample that is replica of the population is known as (a) Quota sample (b) Judgemental Sample (c) Accidental sample (d) Non- probability sample
11.	Which of the following is not a "Graphic representation" ? (a) Pie Chart (b) Bar Chart (c) Table (d) Histogram

12.	When a given measurement is said to be accurately measuring the concept that the research claims is being measured, then the study is (a) Reliable. (b) Verifiable. (c) Valid. (d) True.
13.	A correlation describes the relationship between two: (a) equal-interval numeric variables (b) scatterplots (c) standard deviations (d) horizontal axes
14.	A researcher observes the level of aggression of six 5-year-old boys over the course of a school day. The number of incidents for the group of boys was 2, 4, 6, 12, 8, 10. What is the mean number of aggressive acts for this group of children? (a) 4 (b) 5 (c) 7 (d) 9
15.	When a distribution is skewed to the right: (a) The median is greater than the mean (b) The mean and the median are the same (c) The mean is greater than the median (d) The mean and the median are equal
16.	The variance of a group of scores is the same as the: (a) Average of the squared deviations from the mean (b) Sum of the squared deviations about the mean (c) Average of the absolute deviations from the mean (d) Sum of the absolute deviations from the median
17.	When an extraneous variable systematically varies with the independent variable and influences the dependent variable, it is called: (a) Another dependent variable (b) A confounding variable (c) A moderating variable (d) An unreliable variable
18.	Donald's score on the statistics test was +1.25. This means that he scored: (a) Slightly below the average (b) Just at the average (c) A little less than one standard deviation below the mean (d) More than one standard deviation above the mean

19.	A statistical test used to compare 2 or more group means is known as : (a) One-way analysis of variance (b) Post hoc test (c) t-test for correlation coefficients (d) Simple regression
20.	A graph that shows the pattern of the relation of two variables is a: (a) Histogram (b) Scatterplots (c) Standard deviations (d) Horizontal axes
21.	A z-score can be. (a) Either a positive or a negative number (b) A positive number (c) A negative number (d) None of the above
22.	Which of the alternatives best describes the pattern of scores on the scatter diagram below?  (a) No correlation (b) Curvilinear correlation (c) Positive linear correlation (d) Negative linear correlation
23.	Tina's score on her midterm exam was at the 50th percentile. The grades were normally distributed. The exam average was 78 and the standard deviation was 6. What was Tina's score on the exam? (a) 90 (b) 50 (c) 84 (d) 78

24.	What shape is a normal distribution? (a) Negatively skewed (b) Positively skewed (c) Bell shaped (d) Bi-modal
25.	Based on the results of his study, a researcher rejects the null hypothesis because the probability of obtaining his result if the null hypothesis were true is less than 5%. How would this be symbolized? (a) $p = 5\%$ (b) $p < .05$ (c) $.05 < p$ (d) $p > 5\%$
26.	The difference between scores of 3 and 4 is approximately the same as the difference between scores of 15 and 16, the type of variable known as: (a)Equal interval (b) Differential (c)No differential (d) Rank-order
27.	A Type I error is the result of: (a) Improper measurement techniques on the part of the researcher (b) Failing to reject the null hypothesis when, in fact, it is true (c) Incorrectly rejecting the null hypothesis (d) Incorrectly accepting the null hypothesis
28.	What is the main difference between Z score and t score? (a) t scores are used when the study requires a one-tailed test (b) t scores are used when the population variance is unknown (c) t scores are used whenever the sample size is greater than 30 (d) t scores are only used when inferences are made about other samples
29.	A set of scores consists the values: 5,8,2,7,5. The value of $\Sigma(X-2)$ is (a) 77 (b) 47 (c) 17 (d) 27

30.	The estimated population variance is: (a) The sum of squared deviation scores divided by N (b) The sum of squared deviation scores divided by N -1 (c) The sum of squared deviation scores divided by N - standard deviation (d) The sum of squared deviation scores minus 1
31.	In general, the shape of a distribution of means tends to be: (a) Unimodal, symmetrical (b) Bimodal, symmetrical (c) Unimodal, skewed (d) Rectangular, symmetrical
32.	What is the null hypothesis? (a) People will participate because it does not cost them any money. (b) The exercise will make no difference in the rate of heart attacks. (c) The exercise will reduce the rate of heart attacks. (d) The exercise will increase the rate of heart attacks.
33.	Which correlation is the strongest? (a) +.10 (b) -.95 (c) +.90 (d) -1.00
34.	Which of the following is not a type of reliability? (a) Test-retest (b) Split-half (c) Content (d) Internal consistency
35.	What are the generally accepted cutoff points (or conventional levels of significance) in hypothesis testing in psychology? (a) .001 and .10 (b) .01 and .05 (c) .10, .20, and .30 (d) .05, .25, and .95
36.	Research participants must give what before they can participate in a study? (a) Guidelines (b) A commitment (c) Informed consent (d) Private information

37.	Based on the scores 1, 9, 3, 6, 1, 2, 6, 2, 2, 8, a score of 4 is the: (a) Mode (b) Median (c) Mean (d) Standard deviation
38.	Which of the following is the correct order of Stevens' four levels of measurement? (a) Ordinal, nominal, ratio, interval (b) Nominal, ordinal, interval, ratio (c) Interval, nominal, ordinal, ratio (d) Ratio, interval, nominal, ordinal
39.	A researcher wants to know if a new type of exercise improves peoples' health. Would this be a one-tailed or two-tailed test and why? (a) One-tailed because the study is only interested in whether the exercise increases health (b) One-tailed because the study only looks at the effects of exercise and does not take other factors into account (c) Two-tailed because they will have to study healthy and unhealthy people (d) Two-tailed because there is no predicted direction of difference
40.	If a sample has 45 people in it, the degrees of freedom used in the formula to estimate the population variance would be: (a) 452 (b) 45/2 (c) 44 (d) .22
41.	In a class of students in which everyone is exactly 24 years old, the variance would be: (a) Approximately 1 (b) Exactly 0 (c) Between 0 and 1 (d) Impossible to determine without more information
42.	For a particular group of scores, M = 20 and SD = 5. What is the Z score for a raw score of 10? (a) 2 (b) 0 (c) -2 (d) -1

43.	What is the difference between a positive correlation and a negative correlation? (a) In a negative correlation high scores go with high scores and low with low; in a positive correlation high scores go with low scores and low with high. (b) In a negative correlation high scores go with low scores and low with high; in a positive correlation high scores go with high scores and low with low. (c) Negative correlations are curvilinear; positive correlations are straight lines. (d) Negative correlations represent a weak relationship; positive correlations represent a strong relationship.
44.	To change a proportion into a percent: (a) Divide by 10 (b) Multiply by 100 (c) Take the square root of the value (d) Multiply by 10
45.	What is the main difference between Z score and t score? (a) t scores are used when the study requires a one-tailed test (b) t scores are used when the population variance is unknown (c) t scores are used whenever the sample size is greater than 30 (d) t scores are only used when inferences are made about other samples
46.	In a chi-square test, the variables are: (a) Rank-order (ordinal) (b) Ratio-scale (c) Continuous (quantitative) (d) Categorical (nominal)
47.	All research process starts with (a) Hypothesis (b) Experiments to test hypothesis (c) Observation (d) All of these
48.	A variable that is presumed to cause a change in another variable is called a(n): (a) Categorical variable (b) Dependent variable (c) Independent variable (d) Intervening variable

49.	People who are available, volunteer, or can be easily recruited are used in the sampling method called _____. (a) Simple random sampling (b) Cluster sampling (c) Systematic sampling (d) Convenience sampling
50.	Which of the following is a discrete variable? (a) Height (b) Age (c) Miles per gallon (d) Number of children
51.	A researcher asks three groups of 6 depressed individuals from 3 different mental health units how they think they are stigmatized by society given their mental health. Each group discusses the topic. What type of method of data collection is this? (a) Structured interviews. (b) Experiment. (c) Participant observation. (d) Focus groups
52.	The mean of a distribution is 23, the median is 24, and the mode is 25.5. It is most likely that this distribution is: (a) Positively Skewed (b) Symmetrical (c) Asymptotic (d) Negatively Skewed
53.	Which one is the not measure of dispersion. (a) The Range (b) 50th Percentile (c) Inter-Quartile Range (d) Variance
54.	The capital Greek letter "sigma" is the symbol for: (a) "average of" (b) "sum of" (c) "variance of" (d) "median of"

55.	Social scientists use frequency tables, histograms, or frequency polygons to show: (a) The relation between two variables (b) The reasoning behind experiments (c) Specific hypotheses and test their validity (d) How the data they collect are distributed
56.	The inventor of the chi-square test was: (a) Karl Pearson (b) W. S. Gossett (c) Ronald Fisher (d) Sir Francis Galton
57.	One way to measure the spread is to calculate the difference between the third and first quartile. This measure is called (a) The inter quartile range (b) The mid quartile (c) The differential quartile (d) The Third quartile
58.	The main cause of extreme skewness is: (a) Outliers (b) Bimodal distributions (c) Rectangular distributions (d) Average scores
59.	If a sample has 27 people in it, the degrees of freedom used in the formula to estimate the population variance would be: (a) 26 (b) 27 (c) 272 (d) square root of 27
60.	Mark and Eve collect data on the same student using the same assessment and find their data is almost exactly the same. It could be said that Mark and Eve have (a) Interrater reliability (b) Split half-reliability (c) Test-retest reliability (d) Alternate forms reliability

SECTION B: Consists of 3 questions. All questions are compulsory. **[40 Marks]**

Q2.	Consider the following population test scores for a class: 99, 100, 62, 75, 81, 68, 74, 86, 79, 91, 77, 82, 96, 84, 71	
a.	Find the mean	2
b.	Find the standard deviation	10
c.	What is the z-score associated with X = 82?	3

Q3.	Following are the marks for maths test. Using the following scores 12, 5, 22, 30, 7, 36, 14, 42, 15, 53, 25, 65	
a.	Find the median?	2
b.	Find the range?	2
c.	Find the lower quartile, upper quartile and interquartile range?	6

Q4.	Calculate and analyze the correlation coefficient between the number of study hours and the number of sleeping hours of different students.				
Number of Study hours	2	4	6	8	10
Number of Sleeping hours	10	9	8	7	6

Correlation coefficient:		10
Interpretation:		5

Note: Marks are also allocated if formula is written.

ROUGH WORK