AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF MEDICAL SCIENCES
DEPARTMENT OF HEALTH PSYCHOLOGY
ADVANCED DIPLOMA IN MENTAL HEALTH PRACTICE
END OF SEMESTER EXAMINATIONS
AUGUST 2023

SPECIAL /SUPPLEMENTARY EXAM

COURSE CODE AND TITLE: ADAMH 106 BIOSTATISTICS

DATE:1ˢᵗ August 2023

TIME: 2 Hours   **Start:** 0900 Hours   **Finish:** 1100 Hours

INSTRUCTIONS
1. This exam will be marked out of 60 Marks
2. This Exam has TWO Sections. Section A: Multiple Answer Question, Section B: Short Answer Questions.
3. Answer ALL Questions in the Answer booklet provided

SECTION A: MULTIPLE CHOICE QUESTIONS   (20 MARKS)

1.   An example of inferential statistics is:
    a) Median
    b) Variance
    c) Hypothesis
    d) Mean

2.   A statement that is always opposite to the null hypothesis is:
    a) Alternate hypothesis
    b) Null hypothesis
    c) Inferential statistics
    d) Correlation

3. The *p value* is a number is: -
    a) Calculated from a statistical test, that describes how likely you are to have found a particular set of observations if the null hypothesis were true.
    b) Thought to describe how unlikely you are to have found a particular set of observations if the null hypothesis were true.
    c) Thought to describe how unlikely you are to have found a particular set of observations if the alternative hypothesis were true.
    d) Calculated from a statistical test, that describes how likely you are to have found a particular set of observations if the alternative hypothesis were true.

4.   Calculate the mean of the distribution:

    X =5, 7,8,9,10,12,15,16
    a) 12
    b) 10.25
    c) 13
    d) 16

5.   An example of a measure of central tendency is:
    a) Hypothesis
    b) Range
    c) Standard deviation
    d) Median

6   Calculate the median of the distribution is:
    X: 102,100.98,99,95,96
    a)   97
    b)   99
    c)   100
    d)   98

7. Calculate the standard deviation for the following data set. X: 5,7, 8,9,10,12
    a) 3
    b) 2.43
    c) 4
    d) 5.1

8. _____is not a method of presenting data.

    a)   Sample
    b)   Pie chart
    c)   Histogram
    d)   Bar graph

9. _____ is not a measure of dispersion

    a)   Interquartile range
    b)   Mode
    c)   Standard deviation
    d)   Range

10.   Calculate the range for the distribution: X: 6, 8, 9, 10, 12, 14

    a)   12
    b)   10
    c)   7
    d)   6

11.   Calculate the variance of the distribution. X: 6, 7 , 8,9,10,12,13,14

    a)   7.73
    b)   7.53
    c)   5.2
    d)   6.76

12.   The depicted sign for the left tail test is:
    a) $=$
    b) $>$
    c) $<$
    d) $\neq$

13.   _____is not a qualitative data analysis method.

    a)   Content
    b)   Phenomenon
    c)   Narrative
    d)   Sample

14.   Calculate the median of the following distribution: X: 5, 7, 9,10,12,14, 15.

   a)   10
   b)   11
   c)   12.1
   d)   10.28

15. The most frequent occurring number in the distribution is described as:

   a)   Mean
   b)   Mode
   c)   Median
   d)   Standard deviation

16. A strong negative relationship between two variables is depicted as:

   a)   2
   b) -1
   c)   1
   d) -2

17.   Statistics used to make predictions of a population is described as:

   a) Descriptive
   b) Inferential
   c) Qualitative
   d) Quantitative

18. Statistics used to describe data is referred to as:

   a)   Inferential
   b)   Current
   c) Qualitative
   d) Descriptive

19.   The purpose of a chi-square test is to:

   a) Determine if a difference between observed data and expected data is due to chance, or
        if it is due to a relationship between the variables being studied.
   b) Determine if a difference between observed data is true, or if it is due to a relationship
        between the variables you are studying.
   c) Determine if a difference between observed data and expected data is due to chance, or
        if it is not due to a relationship between the variables you are studying.
   d) Determine if a difference between observed data is unrelated to chance, or if it is due
        to a relationship between the variables being studied.

20. Calculate the range of the following data set. X: 2, 3,5,7,8,10,11

    a) 5
    b) 7
    c) 9
    d) 11

SECTION B: SHORT ANSWER QUESTION   (40 MARKS)

1.
    a) You have been provided with this distribution. X: 5, 6, 7, 9, 9, 10, 12,14,15,16.
        i) Calculate the mode   (1mark)
        ii) Compute the variance.   (7 marks)
        iii) Calculate the standard deviation.   (7marks)
    b) Outline five qualitative data analysis methods.   (5 Marks)

2.

X	2	3	5	9	12
Y	4	6	7	13	15

    i)   Define regression.   (5 marks)
    ii)   For the distribution above calculate the slope of regression. (5marks)
    iii) Line of regression function.   (5marks)
    iv)   Intercept of regression line.   (5 marks)