NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF HEALTH, NATURAL RESOURCES AND APPLIED SCIENCES

DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES SCIENCES

QUALIFICATION: BACHELOR OF NATURAL RESOURCES MANAGEMENT (NATURE CONSERVATION)	
QUALIFICATION CODE: 07BNTC	**LEVEL:** 7
COURSE CODE: BRM622S	**COURSE NAME:** BASIC RESEARCH METHODOLOGY
DATE: NOVEMBER 2022	
DURATION: 3 HOURS	**MARKS:** 100

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER(S)	Mr Brian J. Mhango
MODERATOR:	Prof Ben Strohbach

INSTRUCTIONS
1. Answer ALL the questions.
2. Write clearly and neatly.
3. Number the answers clearly.

PERMISSIBLE MATERIALS

1. Examination question paper
2. Answering book

THIS QUESTION PAPER CONSISTS OF 3 PAGES (Excluding this front page)

ANSWER ALL THE QUESTIONS IN THIS QUESTION PAPER

QUESTION 1

a) List five most important words in statistics that a researcher must know (5)

b) Review the following statements and decide whether a given statement refers to data on the Nominal, Ordinal, Interval or Ratio scale: (10)

    i.   Colours on the Namibian flag

    ii.   Numbers on the shirts of players of a football team

    iii.   Ages of students in the research methodology class

    iv.   Average temperatures of each day in a week

    v.   Milligrams of a substance in 28 samples of a product

    vi.   Number of pages in a textbook

    vii.   The rating of TV programmes on NBC ranging from "poor" to "good" to "excellent"

    viii.   The final grades (A, B, C, D, and F) for Matric students in a chemistry class

    ix.   The annual salaries for all lecturers at NUST

    x.   List of postcodes for Windhoek suburbs

Hint: Use the letter **N** for Nominal, **O** for ordinal, **I** for interval and **R** for ratio data.

[15]

QUESTION 2

A data set consists of nine (x,y) pairs of numbers: (8,16) (9,9) (10,4) (11,1) (12,0) (13,1) (14,4) (15,9) (16,16)

    a. Plot the data in a scatter diagram / plot. (8)

    b. Based on the scatter diagram, is the relationship between x and y linear or non-linear?

    (2)

[10]

QUESTION 3

A nature conservation consulting company based in Otjiwarongo undertook an animal count (survey) in three national parks over a three-year period (2000 -2002). The results of the surveys is presented in the table below:

Park Name	Year	Zebra	Elephant	Springbok	Kudu	Gemsbok
Etosha NP	2000	29	26	13	24	30
	2001	30	16	10	25	14
	2002	18	27	14	24	17
Namib-Naukluft NP	2000	22	12	24	16	17
	2001	17	28	12	27	21
	2002	19	21	16	24	14
Bwabwata NP	2000	29	18	21	25	10
	2001	15	20	18	19	22
	2002	11	14	21	18	23

a) Based on the animal count data in the table above, test the hypothesis that the population of Zebras, Elephants, Springbok and Kudu counted in the three national parks from 2000 to 2002 was significantly different ?

(40)

b) Of the four animals species in the three national parks, which animal had the highest probability of been seen (or observed) during these surveys? Provide the probability value as well. (5)

[45]

QUESTION 4

a) List at least five important questions that a researcher must bear in mind when conducting a literatre review. (10)

b) With reference to the research process, briefly explain how you would organize the literature review process.

(20)

[30]

STATISTICS FORMULAS

$$\bar{x} = \dfrac{\sum\limits_{i=1}^{n} x_i}{n}$$	$$s^2 = \dfrac{\sum\limits_{i=1}^{n} (x_i - \bar{x})^2}{n-1}$$
$$\chi^2 = \sum \dfrac{(O-E)^2}{E}$$	$$r = \dfrac{1}{n-1} \sum\limits_{i=1}^{n} \left(\dfrac{x_i - \bar{x}}{s_x}\right)\left(\dfrac{y_i - \bar{y}}{s_y}\right)$$

Chi-Square Critical Values Table

d.f.	.995	.99	.975	.95	.9	.1	.05	.025	.01
1	0.00	0.00	0.00	0.00	0.02	2.71	3.84	5.02	6.63
2	0.01	0.02	0.05	0.10	0.21	4.61	5.99	7.38	9.21
3	0.07	0.11	0.22	0.35	0.58	6.25	7.81	9.35	11.34
4	0.21	0.30	0.48	0.71	1.06	7.78	9.49	11.14	13.28
5	0.41	0.55	0.83	1.15	1.61	9.24	11.07	12.83	15.09
6	0.68	0.87	1.24	1.64	2.20	10.64	12.59	14.45	16.81
7	0.99	1.24	1.69	2.17	2.83	12.02	14.07	16.01	18.48
8	1.34	1.65	2.18	2.73	3.49	13.36	15.51	17.53	20.09
9	1.73	2.09	2.70	3.33	4.17	14.68	16.92	19.02	21.67
10	2.16	2.56	3.25	3.94	4.87	15.99	18.31	20.48	23.21