UNAM
UNIVERSITY OF NAMIBIA

FACULTY	AGRICULTURE, ENGINEERING AND NATURAL SCIENCES		
QUALIFICATION	**B.A. GEOGRAPHY AND ENVIRONMENTAL STUDIES (HONOURS)**		
DEPARTMENT	ENVIRONMENTAL SCIENCE		
SUBJECT	GEOGRAPGIC ANALYSIS & TECHNIQUES		
SUBJECT CODE	GIS3711		
DATE	JUNE/JULY 2022		
DURATION	**3 HOURS**	**MARKS**	**100**

UNIVERSITY OF NAMIBIA EXAMINATIONS: SPECIAL/SUPPLEMENTARY EXAMINATION

Examiner: Ms. Margaret N. Angula (University of Namibia)

Internal Moderator: Prof. Godfrey Tawodzera, PhD (University of Namibia)

This **paper** consists of 6 pages including this cover page.

Answer all questions

Instructions.

1. Work in an orderly manner and present your work neatly.
2. While most of the marks will be awarded for content, candidates are encouraged to use their own ideas to promote critical thinking and demonstrate own understanding of what is being asked for.
3. Number your questions correctly and clearly.
4. Answer all the questions in Sections A & B

SECTION A: Nature of Scientific Knowledge and Research Methodology [50]

Question 1

1.1 Mouton's three world framework is useful in differentiating knowledge. Describe how the three world framework of Sutton is useful in choosing a research topic? (3)

1. 2 Describe the difference between basic (pure) and applied research? (4)

1.4 What are the differences between Geography and Environmental Studies? (4)

Question 2

2.1 Complete the following steps that we follow in research. (5)

Research Process Outline
1. Topic identification
2.
3.
4 Research objectives
5 Research approach, methodology & description of study sites
6.
7.

8 Presentation of research findings
9. Interpretation of findings
10. Discussion of research findings
11.

2.2 This excerpt is taken form an MA thesis from University of Western Cape (Osei, 2017)

The negative impact of climate change is projected to impact all facets of the Ghanaian economy and this threatens the development prospect of the country. The impact will be substantial on the poor and smallholder farmers that rely heavily on natural rainfall for farming activities. Adaptation and perhaps mitigation are important avenues through which to reduce the impact of climate change. Numerous studies have investigated the determinants of climate change adaptation strategies among farmers (see Mandleni & Anim, 2011; Tazeze, et al., 2012). However, these studies focused extensively on perceptions of climate change, incentives and ability to adapt, and other environmental factors. The role of social capital as determinant of household decision to adapt to climate change has not been comprehensively investigated. Moreover, previous studies that considered social capital used it in the form of single dimension or aggregate index (Ngigi et al., 2012). These studies were unable to show how different components of individual social capital such as bonding, bridging and linking influence the choice of adaptation. Further, most studies on social capital in the climate change arena are qualitative in nature and focus on group and 4 institutional perspective (Sekine et al., 2009; Pelling, 2003; Pelling & High, 2005; Adger, 2003). This study used a mixed methodology approach to bridge the qualitative and the quantitative realms

Answer the following questions:

2.2.1 What would be an appropriate title or topic for this research (2)

2.2.2 Construct the problem statement for this study (3)

2.2.3 Construct two research objectives/research questions for this study (4)

2.2.4 Suppose this is a mixed method research design, illustrate the mixed research approach model that is most appropriate. (4)

Question 3

3.1 Read the scenario below and answer the following questions.

Supposed you are asked to conduct an urban agriculture feasibility study by the City of Windhoek. You are given permission to do quantitative approach, experimental design, on selected plots given to you by the city of Windhoek because you requested for these plots. You are planting various vegetables using various fertilizers and different quantities of water to see which ones are most feasible for Windhoek soils. You have 60 plots samples for your experiments. You are asked to present your methodology to the City of Windhoek. **Answer the following question in a way that you would need to present it to the City of Windhoek management and council.**

3.1.1 Describe in detail and include illustrations in your answers, how you would use Salomon 4 ways experimental design. (8)

3.2 Read the scenario below and answer the following questions.

Supposed you are doing your research for a post-graduate degree you enrolled at UNAM (MSc. Geography and Environmental Studies). Your study focuses on waste management and environmental health among informal settlement households and residents from Katima Mulilo Town. The total households in the informal settlement is estimated to be around 1,250 with a population of 5,280 residents. You are defending your proposal to the Department of environmental science. You have decided on a quantitative research approach. **Answer these questions as part of your methodology that you are presenting to the panel.**

3.2.1 Identify the most appropriate research design and give rationale for your answers. (3)

3.2.2 Describe the most appropriate method and technique for this research study? (3)

(b). Describe why you chose this method and technique? (3)

3.2.3 Identify the most appropriate sampling strategy/method for this study and describe in detail how you would select individuals in this survey? (4)

SECTION B: Geo-statistics **[50]**

Question 4 **[12 Marks]**

4.1 Differentiate between the following terms:

(i) Alternative Hypothesis and Null Hypothesis (4)

4.2 In many countries the death penalties still exists. One of the crimes that carry death penalty is murder.

(i) What are type I and Type II errors in a murder trial? (4)

(ii) Which one of the two errors is more serious? (4)

Question 5 **[12 Marks]**

5. Semer steering committee members were asked to provide the maximum speed limit they drive in residential areas. Below is some of their responses.

40	40	65	55	80	45	70	120	100	35	80	60	70	60	60	70	120	100

Calculate the following for the speed limit driven in residential areas:

(i) Mean (3)
(ii) Mean deviation (3)
(iii) Variance (3)
(iv) Standard deviation (3)

Question 6 **[10 Marks]**

6. A sample of size n=100 produces a sample mean of 16. Assuming the population standard deviation is 3:

(i) Compute a 95% confidence interval for the population mean. (5)

(ii) Compute a 80% confidence interval for the population mean. (5)

Question 7 **[16 Marks]**

7. Janice and Paul did a study on feelings of stress and life satisfaction. Participants completed a measure on how stressed they were feeling (on a 1 to 30 scale) and a measure of how satisfied they felt with their lives (measured on a 1 to 10 scale). The table below indicates the participants' scores. Using this data, answer the following questions:

Participant number	**Stress score (X)**	**Life Satisfaction (Y)**
1	11	7
2	25	1
3	19	4
4	7	9
5	23	2
6	6	8
7	11	8
8	22	3
9	25	3
10	10	6

(i) Draw a rough scatterplot of the data (3)

(ii) Calculate the correlation (r) between stress and life satisfaction. (10)

(iii) Write a brief interpretation of this correlation, including the strength, direction, and an explanation of the effect (3)

TOTAL MARKS: [100]