



**NAMIBIA UNIVERSITY  
OF SCIENCE AND TECHNOLOGY**

**FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT**

**DEPARTMENT OF LAND AND SPATIAL SCIENCES**

<b>QUALIFICATION:</b> BACHELOR OF GEOINFORMATION TECHNOLOGY	
<b>QUALIFICATION CODE:</b> 07BGEI	<b>LEVEL:</b> 7
<b>COURSE CODE:</b> GMN 621S	<b>COURSE NAME:</b> GEOINFORMATION MANAGEMENT
<b>DATE:</b> JULY 2023	<b>SESSION:</b> 1
<b>DURATION:</b> 3 Hours	<b>MARKS:</b> 100

<b>SECOND OPPORTUNITY / SUPPLEMENTARY EXAMINATION QUESTION PAPER</b>	
<b>EXAMINER:</b>	MS ROXANNE MURANGI
<b>MODERATOR:</b>	DR OLUIBUKUN AJAYI

<b>INSTRUCTIONS</b>
<ol style="list-style-type: none"><li>1. Write your student number on each answer sheet used.</li><li>2. Answer ALL the questions.</li><li>3. Read each question carefully before attempting to answer.</li><li>4. Write clearly and neatly.</li></ol>

<b>INSTRUCTIONS</b>
<ol style="list-style-type: none"><li>1. Non-programmable calculator</li><li>2. Ruler</li><li>3. Pen</li><li>4. Pencil</li><li>5. Eraser</li></ol>

**This paper consists of four (4) pages (excluding this cover page)**

**Question 1**

1.1. Describe the importance of a problem tree analysis. (2)

1.2. There are six (6) main steps involved in the formation of a problem tree hierarchy. List these six steps. (6)

1.3. Namibia is considered one of the driest countries in Sub-Saharan Africa, with 92% of its land classified as semi-arid, and dry. Land degradation is a severe concern in the country, a situation exacerbated by climate change (Chioreso & Begbie-Clench, 2015). The causes of this problem have been researched and debated for a long time. You are part of the team that is conducting a desktop analysis to determine the causes of this problem.

a) Develop a problem tree that depicts the major problem and three main causes, and for each of the main reasons/causes, identify two sub-causes (second level) for land degradation. (10)

b) Formulate a Logic Framework matrix for land degradation using the template below as guidance and populate the various sections. Redraw the template in your answer sheet. (15)

Objective Description	Verifiable Indicators	Sources of Verification	Assumption
Overall Objective:			
Purpose			
Result			
Activities			
			Precondition

[33]

**Question 2**

- 2.1. Outline four differences between a departmental and an enterprise GIS. (8)
- 2.2. Describe briefly what a "Needs Assessment" is and why it is done. (max. three points for the general explanation and max. nine points for the description of its components). (12)

**[20]**

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**Question 3**

- 3.1. In your own words, describe the purpose of a needs assessment for an organisation. (4)
- 3.2. The GIS planning and implementation methodology can be subdivided into four main phases. Briefly explain the four phases. (8)

**[12]**

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**Question 4**

- 4.1. What does the IPD abbreviation stand for? (1)
- 4.2. What is the critical function of the IPD in a GIS planning process? (3)
- 4.3. What is the relation between IPD and MIDL? (3)
- 4.4. The characteristics of the data design creation determine the system specifications. List these characteristics and provide two examples for each. (6)
- 4.5. Topological errors and absolute errors are two types of spatial errors that are possible in GIS. Briefly discuss them. (4)
- 4.6. Explain the differences between an object-oriented data model and an object-relational data model. (4)

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**Question 5**

- 5.1. What is a B/C Ratio? What does the abbreviation stand for and what is the B/C Ratio used for? (Or, in other words: What does the B/C Ratio indicate in an economic project analysis?) (3)
- 5.2. Namibia is busy implementing a National Spatial Data Infrastructure (NSDI) Policy and the Namibia Statistics Agency (NSA) is mandated by the Statistics Act, No. 9 of 2011 to implement this. What is the (main) mandate of the NSA? (3)
- 5.3. Outline the relevant/important issues of implementing the NSDI in Namibia. (8)

[14]

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