



PAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT
DEPARTMENT OF LAND AND SPATIAL SCIENCES

QUALIFICATIONS: DIPLOMA IN GEOMATICS, BACHELOR OF GEOMATICS, BACHELOR OF GEOINFORMATION TECHNOLOGY, DIPLOMA IN LAND ADMINISTRATION, BACHELOR OF LAND ADMINISTRATION, BACHELOR OF TOWN AND REGIONAL PLANNING, BACHELOR OF PROPERTY STUDIES, DIPLOMA IN PROPERTY STUDIES, BACHELOR OF REGIONAL & RURAL DEVELOPMENT BACHELOR OF NATURAL RESOURCE MANAGEMENT, BACHELOR OF NATURAL RESOURCE MANAGEMENT IN NATURE CONSERVATION	
QUALIFICATIONS CODES: 06DGEO,07BGEO, 06DLAD, 07BLAM, 07BTAR, 06DPRS, 08BPRS, 07BRAR, 07BNRS, 07BNTC	LEVEL: 5
COURSE CODE: GES512S	COURSE NAME: GEOGRAPHIC INFORMATION SYSTEMS 1
DATE: JANUARY 2024	SESSION: 1
DURATION: 3 HOURS	MARKS: 100

SECOND OPPORTUNITY / SUPPLEMENTARY EXAMINATION QUESTION PAPER	
EXAMINER:	MS ROXANNE MURANGI
MODERATOR:	MR MIGUEL VALLEJO

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

PERMISSIBLE MATERIALS
<ol style="list-style-type: none">1. Pen2. Pencil3. Ruler and Eraser

This paper consists of three (3) pages (excluding this cover page)

Question 1

Define the following terms in the GIS context:

- 1.1. Buffer (2)
- 1.2. Layer (2)
- 1.3. Vector (2)
- 1.4. Database (2)
- 1.5. Intersect (2)

[10]

Question 2

- 2.1. Briefly explain what the purpose of GIS is. (4)
- 2.2. Geographic Information Systems (GIS) consist of five components. Name any three of the components and explain briefly what role they play. (6)
- 2.3. In your own words, discuss the term geographic information. Provide two examples of geographic features that can be represented by a point, line, and polygon on a map. (8)
- 2.4. There are five types of questions that a sophisticated GIS can answer. Provide any three questions with suitable explanations or examples of what a geographical information system can answer. (6)

[24]

Question 3

- 3.1. What is a Map Projection? (2)
- 3.2. Explain the one problem of a map projection. (3)
- 3.3. Briefly explain what a local datum is. (2)
- 3.4. Briefly discuss what a vertical datum is. (3)
- 3.5. Describe the three types of map projections by the distortion properties. (6)

[16]

Question 4

- 4.1. The town council of Gobabis hired you as a GIS consultant. To identify a potential site to establish a landfill for the town. You have been tasked to locate a new dumpsite for their town to safely dispose of their waste by using GIS methods and techniques.
- a) List at least five geographic datasets you will need to carry out the analysis. (5)
- b) List any two methods of spatial analysis that would be acceptable for this study to locate the new landfill site. (2)
- c) Provide at least three spatial criteria for locating an appropriate landfill site. (Hint focus on proximity analysis). (9)
- 4.2. Discuss what selection by location query is. List the three most typically used options for selection by location query. (4)
- 4.3. There are three types of vector-based overlays. Briefly discuss the point-in-polygon and line-in-polygon overlays. (4)

- 4.4. Explain the concept of utilising counts and cell values within a raster data model. (4)

[28]

Question 5

- 5.1. Assume you are tasked with creating a map that shows the number of COVID-19 cases reported in each region of Namibia. What type of map and other GIS outputs will you produce? Motivate your answers. (6)
- 5.2. Based on the data type used in the map type mentioned in Question 5.1 to indicate the number of COVID-19 cases per region, indicate the data type used and name three rules for the classification of the data type used. (4)
- 5.3. Name four essential map elements that should be inserted in the map created in Question 5.1. (4)
- 5.4. There are three types of thematic maps. Briefly explain what a choropleth map is. Provide two examples and the data type used to display the data. (4)
- 5.5. Briefly discuss what a chorochromatic map is. Provide any three examples of a chorochromatic maps. (4)

[22]
