



**NAMIBIA UNIVERSITY**  
OF SCIENCE AND TECHNOLOGY

**FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT**

**DEPARTMENT OF LAND AND SPATIAL SCIENCES**

<b>QUALIFICATIONS:</b> DIPLOMA IN PROPERTY STUDIES, DIPLOMA IN GEOMATICS, BACHELOR OF GEOMATICS, BACHELOR OF PROPERTY STUDIES, BACHELOR OF LAND ADMINISTRATION, BACHELOR OF GEOINFORMATION TECHNOLOGY, BACHELOR OF REGIONAL AND RURAL DEVELOPMENT, BACHELOR OF TOWN & REG. PLANNING, BACHELOR OF URBAN AND REGIONAL PLANNING	
<b>QUALIFICATION CODES:</b> 06DIPS, 06DPRS, 06DGEO, 07BLAM, 07BGEO, 07BGEI, 07BORR, 07BRAR, 07BTAR, 07BURP, 08BOPS, 08BPRS	<b>LEVEL:</b> Level 6 - 06DIPS, 06DPRS, 06DGEO Level 7 - 07BLAM, 07BGEO, 07BGEI, 07BORR, 07BRAR, 07BTAR, 07BURP Level 8 - 08BOPS, 08BPRS
<b>COURSE CODE:</b> GES512S	<b>COURSE NAME:</b> GEOGRAPHIC INFORMATION SYSTEMS 1
<b>SESSION:</b> DECEMBER 2025	<b>PAPER:</b> THEORY
<b>DURATION:</b> 3 HOURS	<b>MARKS:</b> 100

<b>SECOND OPPORTUNITY/SUPPLEMENTARY EXAMINATION QUESTION PAPER</b>	
<b>EXAMINER</b>	Mr Ryan Benade
<b>MODERATOR:</b>	Mr Erich Naoseb

**THIS QUESTION PAPER CONSISTS OF (6) PAGES**

(Excluding this front page)

**INSTRUCTIONS**

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

**PERMISSIBLE MATERIALS**

1. Examination paper.
2. Examination script.
3. Calculator, ruler, pencils, eraser

**Question 1**

Answer the multiple-choice questions listed below. Please select the ONE most relevant to the following questions. Indicate the correct answer on the answer sheet.

- 1.1 GIS is defined as: (1)
- A. A tool for drawing maps only
  - B. A computer-based system for capturing, storing, analysing and displaying spatial data
  - C. A statistical package for processing numerical data
  - D. A network of satellites for positioning
- 1.2 Which of the following is not a component of a GIS? (1)
- A. Hardware
  - B. Software
  - C. People
  - D. Climate
- 1.3 Discrete phenomena include: (1)
- A. Temperature
  - B. Rainfall
  - C. Rivers and parcels
  - D. Elevation
- 1.4 In a raster data model, the smallest unit of data is called: (1)
- A. Node
  - B. Pixel
  - C. Vertex
  - D. Polygon

- 1.5 A map projection that preserves area is called: (1)
- A. Conformal projection
  - B. Azimuthal projection
  - C. Equivalent projection
  - D. Mercator projection
- 1.6 The unique identifier linking attribute data to spatial data is: (1)
- A. Foreign key
  - B. Projection
  - C. Datum
  - D. FID
- 1.7 Which GIS function finds features within a specified distance of another feature? (1)
- A. Overlay analysis
  - B. Proximity analysis
  - C. Network analysis
  - D. Rasterisation
- 1.8 Which of the following is not an essential element of a map? (1)
- A. Legend
  - B. North arrow
  - C. Title
  - D. Paragraph text
- 1.9 Large-scale maps are: (1)
- A. More detailed, covering small areas
  - B. Less detailed, covering large areas
  - C. Always thematic maps
  - D. Always topographic maps



- 3.1 Identify the type of data represented in A and B. (2)
- 3.2 Differentiate between these two types of data, explaining their role in GIS and provide an example of each. (4)
- 3.3 Explain the difference between continuous and discrete geographic phenomena. Provide one example of each and explain how they are best represented in GIS. (6)
- 3.4 Using diagrams, if necessary, describe the three vector geometry types. For each, give one real-world example. (6)
- 3.5 Describe how cell values and pixel counts are used to represent geographic information in the raster data model. (4)

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**Question 4**

- 4.1 List and explain any three methods of vector data creation. (6)
- 4.2 Define an attribute table in GIS. Explain how it links spatial and non-spatial data and give one example of an operation that can be performed using attribute tables. (4)
- 4.3 Imagine you are tasked with designing an emergency response plan for flooding in northern Namibia. Explain step by step how you would use the following analyses to support evacuation route planning and safe-zone identification:
- A. Overlay analysis (3)
- B. Proximity analysis (Buffering) (3)
- C. Network analysis (4)

**Question 5**

- 5.1 Imagine you are creating a GIS map of health facilities in Namibia. Distinguish between qualitative and quantitative data you would collect and explain how each type could be represented cartographically. (4)
- 5.2 Figure 2 below depicts the "Wildlife crime cases (%) in Namibia".

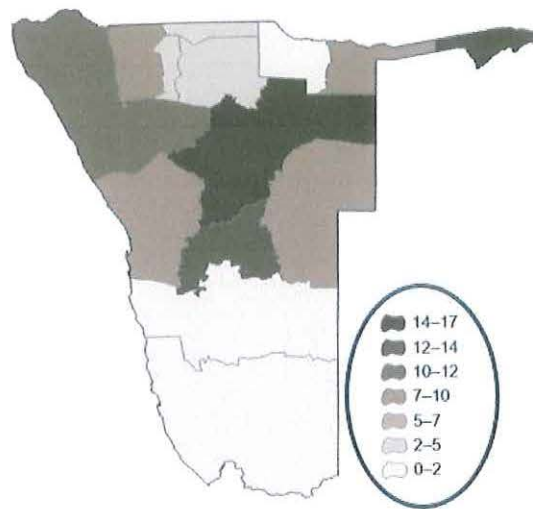


Figure 2

- A. Outline the four rules that guide the classification of the data type circled. (4)
- B. Suggest four cartographic elements you could add to this map to improve its clarity and professionalism. (4)
- 5.3 Explain the difference between general reference maps and thematic maps. Provide an example of each. (6)
- 5.4 Explain how choropleth maps differ from chorochromatic maps in terms of the type of data they represent and the way symbols/colours are applied. (4)

5.5 Describe the principles of cartographic design. Explain how any three of these improve map communication (6)

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