



**NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

FACULTY OF ENGINEERING AND SPATIAL SCIENCES

DEPARTMENT OF ARCHITECTURE AND SPATIAL SCIENCES

QUALIFICATION: DIPLOMA IN LAND ADMINISTRATION, DIPLOMA IN PROPERTY STUDIES, BACHELOR OF LAND ADMINISTRATION, BACHELOR OF PROPERTY STUDIES, BACHELOR OF NATURE RESOURCE MANAGEMENT	
QUALIFICATION CODE: 06DGEM, 06DLAD, 06DPRS, 07BLAD, 08BPRS, 07BNRS	LEVEL: 5
COURSE CODE: GES512S	COURSE NAME: GEOGRAPHIC INFORMATION SYSTEMS 1
SESSION: JUNE 2022	PAPER: THEORY
DURATION: 3 HOURS	MARKS: 100

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
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MODERATOR:	MR. MIGUEL VALLEJO

THIS QUESTION PAPER CONSISTS OF SEVEN (7) PAGES

(INCLUDING THIS FRONT PAGE)

INSTRUCTIONS
<ol style="list-style-type: none">1. Fill in the exam sheet. Write your name and student number on the answer sheet.2. Read each question carefully before attempting to answer.3. Answer ALL the questions.4. Write clearly and neatly.5. Materials allowed: Ruler, Pen, Pencil, Eraser (rubber)

Question 1

State if the following statements are True or False:

- 1.1 Spatial data means we have data that has graphic values. (1)
- 1.2 A (geographic) field is a geographic phenomenon for which, for every point in the study area a value is not relevant. (1)
- 1.3 Man-made phenomena are usually objects. (1)
- 1.4 Nominal & categorical data values are referred to as 'qualitative data'. (1)
- 1.5 GIS represents X-coordinate in a vertical direction. (1)
- 1.6 Data processing is not regarded as one of the functions of an information system. (1)
- 1.7 A GIS operation that combines the geometries and attributes of the input layers to create the output is known as an overlay. (1)
- 1.8 Raster graphic in GIS represents data in a rectangular grid of pixels. (1)
- 1.9 False Easting applies to the longitude (X) coordinate. (1)
- 1.10 Global Positioning Systems (GPS) readings are based on the WGS84 datum. (1)

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Question 2

Define the following terms and provide two examples of each:

- 2.1 Scale (2)
 - 2.2 Developable surface (2)
 - 2.3 A datum (2)
 - 2.4 Feature dataset (2)
 - 2.5 Geocoding (2)
- [10]**
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Question 3

- 3.1 Explain how the vector data model differs from the raster data model in representing spatial features and provide one suitable example of what each can represent. (4)
- 3.2 What is the difference between a coordinate and a coordinate axis? (3)
- 3.3 What is the difference between a secant and a tangent projection? (2)
- 3.4 What are the three important characteristics of projections? (3)
- 3.5 What is the difference between a geoid and a spheroid? (2)
- 3.6 Differentiate between spatial and non-spatial attributes and provide two examples for each. (4)
- 3.7 Differentiate between spatial and non-spatial attributes and provide two examples for each. (4)

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Question 4

4.1 There are four categories of GIS analytical functions. Briefly discuss them and provide an example for each (8)

4.2 Explain the type of vector overlay and the Boolean operation used in Figure 1. (4)

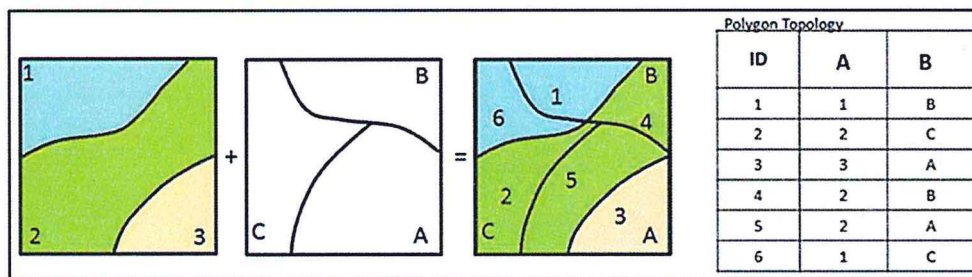


Figure 1

4.3 Explain the operation shown below in Figure 2. (2)

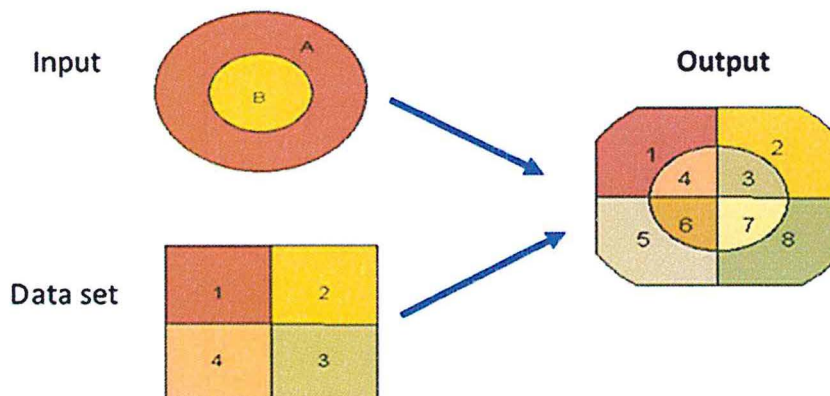


Figure 2

4.4 Write a valid SQL expression to select "Cities" with people between 2500 and 35,000 using a field called POP2000 from the Citizens layer. (4)

[18]

Question 5

5.1 Explain the map projections below in Figure 3. (6)

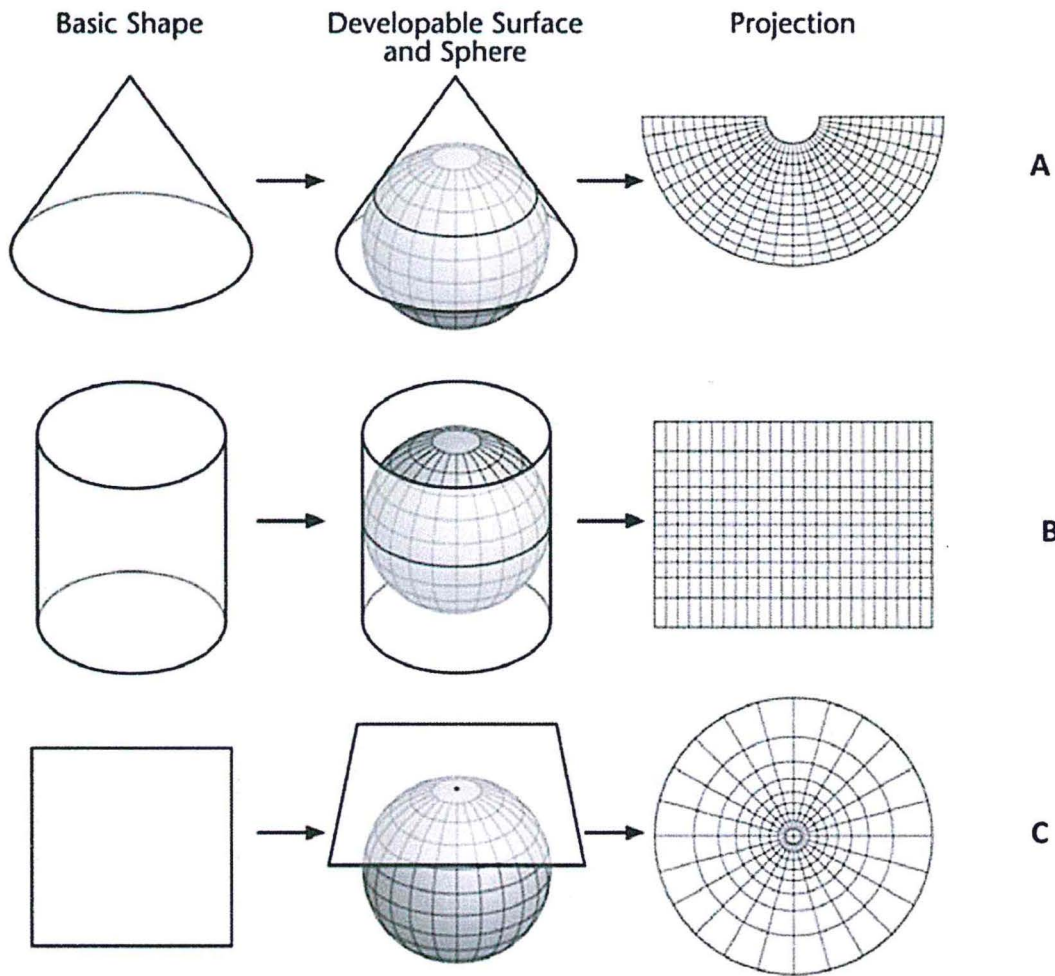


Figure 3

5.2 Outline and explain the three categories of map projection. Provide one example of each. (6)

5.3 Outline any six properties of the Namibian Coordinate System. (6)

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Question 6

- 6.1 Identify the type of map A, B, C and D are below in Figure 4. (4)
- 6.2 Under which thematic map category would you classify maps A, B, C, and D in Figure 4?
Motivate your answer. (8)
- 6.3 Identify the data type for each map in figure 4. (4)
- 6.4 List any five map elements found in any map. (5)
- 6.5 What is a small-scale map? (1)

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