NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT

DEPARTMENT OF LAND AND SPATIAL SCIENCES

QUALIFICATION: BACHELOR OF NATURAL RESOURCE MANAGEMENT, BACHELOR OF NATURAL RESOURCE MANAGEMENT IN NATURE CONSERVATION, ADMINISTRATION, BACHELOR OF LAND ADMINISTRATION, BACHELOR OF TOWN AND REGIONAL PLANNING, BACHELOR OF PROPERTY STUDIES, DIPLOMA IN PROPERTY STUDIES, BACHELOR OF REGIONAL & RURAL DEVELOPMENT	
QUALIFICATION CODE: 07BNRS,07BNTC, 06DLAD, 07BLAM, 07BTAR, 06DPRS, 08BPRS, 07BRAR	**LEVEL:** 5
COURSE CODE: GES512S	**COURSE NAME:** GEOGRAPHIC INFORMATION SYSTEMS 1
DATE: JULY 2023	**SESSION:** 1
DURATION: 3 HOURS	**MARKS:** 100

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

INSTRUCTIONS
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.

MATERIALS PERMISSIBLE
1. Ruler 2. Pen 3. Pencil 4. Eraser

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

Question 1

Define the following terms in the GIS context:

1.1. Map projection (2)

1.2. Geo-referencing (2)

1.3. Database (2)

1.4. Map scale (2)

1.5. Geographic analysis (2)

1.6. Polygon overlay (2)

1.7. Intersect (2)

[14]

Question 2

2.1. Define the term geographic phenomena. List the three key elements that define a geographic phenomenon. (5)

2.2. Explain hardware and people as components of GIS. (4)

2.3. Outline two main advantages that GIS has over other types of information systems. (3)

2.4. The four functions of GIS are data entry, data storage and maintenance, spatial analysis and manipulation, and data visualization. Briefly discuss data storage and maintenance, as well as data analysis and manipulation. (4)

[16]

Question 3

3.1. Explain what a coordinate system is. Provide the two main elements of a coordinate system. (3)

3.2. What is the main practical importance of a coordinate system? (2)

3.3. Briefly explain what map projection is. (2)

3.4. Map projections are categorized according to four characteristics. Name any three characteristics. (3)

3.5. Figure 1 shows a type of map projection class. Determine the map projection class. Explain whether it is a tangent or a secant and why. (4)

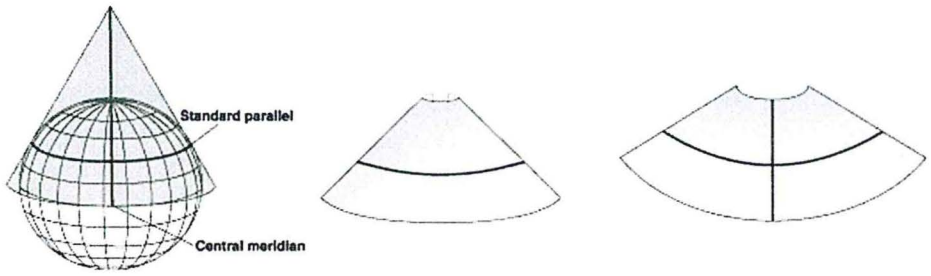

Figure 1

3.6. The basis of making map projection selection is based on three criteria. List them. (3)

3.7. Name the three categories of map projection with their respective distortion properties. Provide one example of each. (6)

[23]

Question 4

4.1. Name and briefly explain each of the three functions you can perform to understand data characteristics in GIS. (6)

4.2. Discuss how the vector data model differs from the raster data model in representing spatial features. Provide an appropriate example of what each can represent. (4)

4.3. Explain the raster data model as a means of representing GIS data. (4)

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

4.5. Name four methods of vector data creation. (4)

[22]

Question 5

5.1. Identify and briefly describe the type of overlay function in Figure 2. (4)

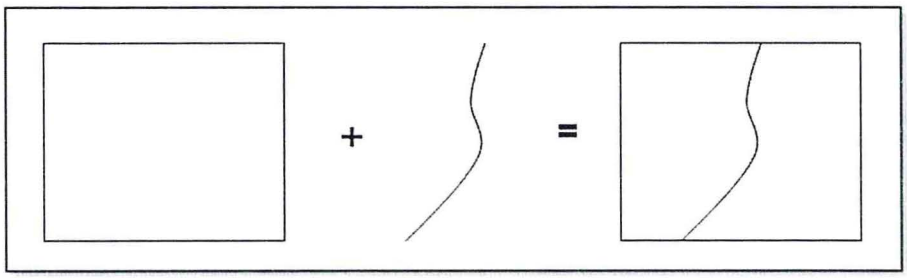

Figure 2

5.2. Explain network analysis briefly and discuss two examples of network analysis techniques. (6)

5.3. Explain the selection by attribute query and what type of question does it answer? (3)

5.4. Briefly discuss what a chorochromatic map is. Provide two examples of chorochromatic maps. (3)

5.5. Name four (4) rules that must be followed to classify quantitative data. (4)

5.6. Classification decisions are influenced by five factors. What are these factors? (5)

[25]
