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 (NATURE CONSERVATION), BACHELOR OF GEOINFORMATION TECHNOLOGY, BACHELOR OF LAND ADMINISTRATION, BACHELOR OF PROPERTY STUDIES HONOURS, BACHELOR OF REGIONAL AND RURAL DEVELOPMENT, BACHELOR OF URBAN AND REGIONAL PLANNING, DIPLOMA IN PROPERTY STUDIES	
QUALIFICATION CODE: 07BNRS, 07BGEI, 07BLAM, 08BOPS, 07BORR, 07BURP, 06DIPS	**QUALIFICATION LEVEL:** 07BNRS - 7, 07BGEI - 7, 07BLAM - 7, 08BOPS - 8, 07BORR - 7, 07BURP - 7, 06DIPS - 6
COURSE: INTRODUCTION TO GEOSPATIAL DATA	**COURSE CODE:** IGD411S
SESSION: JULY 2025	**PAPER:** THEORY
DURATION: 2 HOURS	**MARKS:** 80

SECOND OPPORTUNITY / SUPPLEMENTARY EXAMINATION QUESTION PAPER

EXAMINER: Ms D. Husselmann
MODERATOR: Mr E. Naoseb

THIS QUESTION PAPER CONSISTS OF 5 PAGES (Including this front page)

INSTRUCTIONS

1. Answer ALL the questions.
2. Write clearly and neatly.
3. Number the answers clearly.
4. Answers to calculations must be rounded off to three decimal places, excluding answers to co-ordinate conversions.

PERMISSIBLE MATERIALS

1. Examination paper.
2. Examination script.
3. Calculator and other drawing equipment.

Question 1

1.1. What do the following acronyms stand for? (5)

a. MSL

b. GCP

c. DEM

d. GIS

e. GPS

1.2. State whether the following statements are true or false. (5)

a. Geospatial data is special data that is referenced to the earth.

b. With maps it is possible to show full details of all map features on the map.

c. Contour lines are imaginary lines.

d. Aerial photographs are not subjected by relief displacement.

e. Another name for satellites is SV's which stands for spatial vehicles.

1.3. Fill in the missing word. (5)

a. A spatial ... is a concept used to define an exact location in space.

b. ... maps show as much of the landscape, elevations, roads towns etc as possible.

c. A ... is one of the most important map elements and show the subject that is being conveyed in the map.

d. ... photographs are obtained when the axis of the camera is not vertical.

e. ... is determining position using the intersection of distances.

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Question 2

2.1. What are the three characteristics of geospatial data? (3)

2.2. Which data model uses:

a. rows and columns, forming equal size cells called pixels to show location. (2)

b. points, lines and polygons to show location.

2.3. Calculate the distance from 56.178° E to 30.294° E at 35.621° S. (4)

2.4. Match each co-ordinate system with the correct unit for its co-ordinates by writing down the co-ordinate system and the unit next to it. (3)

CO-ORDINATE SYSTEM	CO-ORDINATE FORMAT
Polar	Meters
Geographic	Degrees, minutes and seconds
Projected	Meters and degrees, minutes and seconds

[12]

Question 3

3.1. Convert the following Degrees Minutes and Seconds to Decimal Degrees. Show your work. (6)

22.2813° S

23.0815° E

3.2. The farm Lazyboy located in the Omaheke region has the co-ordinates below. Calculate distance from A to E. (4)

	Y	X
A	+ 322.10	+ 725.20
B	+ 320.50	+ 731.40
C	+ 262.30	+ 758.60
D	+ 236.70	+ 704.80
E	+ 294.90	+677.00

3.3. Calculate the scale of map A if the length of a river is 12 cm on the map, while the same river is 60 mm on map B with scale 1:150 000. (4)

[14]

Question 4

4.1 A scale is defined as the ratio or relationship between the size of the features on the map and their corresponding features on the ground. List the six factors that effects the choice of scale. (6)

4.2 Two different types of contours exist; a. bolded contours at a specified interval and b. contours that are found inbetween the bold contour. What is each called, indicate the specific letter describing the type with the name next to it. (2)

4.3 Given a slope of 75.89%, convert your slope to degrees. (3)

4.4 Given the following figures, calculate the volume of the dam: (5)

Contour (m)	Area (m^2)
1700	3650
1650	3223
1600	2955
1550	2346
1500	2158

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Question 5

5.1 Name the two different types of aerial photographs. (2)

5.2 What are the requirements for producing orthophotographs? (4)

5.3 Which have a larger scale; aerial photograph or satellite image? (1)

5.4 Calculate the size of the area covered by a photograph measuring 10 cm by 15 cm on a scale of 1:50 000. Give your answer in hectares. (6)

[13]

Question 6

6.1 List the four types of DOP measures. (4)

6.2 List six GPS/GNSS error sources, excluding human error. (6)

[10]