NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF NATURAL RESOURCES AND SPATIAL SCIENCES

DEPARTMENT OF GEO-SPATIAL SCIENCES AND TECHNOLOGY

QUALIFICATION: BACHELOR OF GEOINFORMATION TECHNOLOGY, BACHELOR OF LAND ADMINISTRATION, DIPLOMA IN LAND ADMINISTRATION, BACHELOR OF GEOMATICS, DIPLOMA IN PROPERTY STUDIES, BACHELOR OF PROPERTY STUDIES, BACHELOR OF TOWN AND REGIONAL PLANNING, BACHELOR OF REGIONAL AND RURAL DEVELOPMENT	
QUALIFICATION CODE: 07GITB, 07BLAD, 06DLAD, 07BGEM, 27DPRS, 27BPRS, 07BTRP, 07BRRD	**LEVEL:** 5
COURSE: GEOGRAPHIC INFORMATION SYSTEMS 1	**COURSE CODE:** GES512S
DATE: JANUARY 2019	**SESSION:**
DURATION: 3 HRS	**MARKS:** 100

2nd OPPORTUNITY / SUPPLEMENTARY EXAMINIATION QUESTION PAPER

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MODERATOR: Mr. Miguel Vallejo

THIS QUESTION PAPER CONSISTS OF (4) 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

1. What is the purpose of a Geographical Information System (GIS)? Provide an example of a GIS. (4)

2. A GIS (Geographic Information Systems) is a computer-based systems that provides four capabilities relative to spatial data. Name the four capabilities. (4)

3. Discuss 3 of the five questions a GIS can answer. (6)

4. Discuss briefly Data as one component of GIS. (3)

5. Name and briefly explain the three modelling techniques for information systems. (6)

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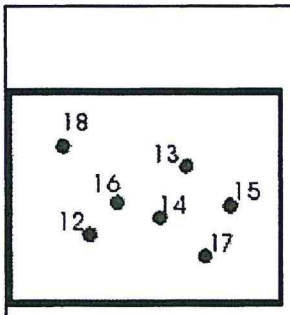
Question 2

1. Differentiate between a coordinate and a coordinate system? (2)

2. When is it necessary to use point geometry to model a geographic phenomenon? (2)

3. Based on Figure 1 below, which GIS concept is displayed? Explain the concept mentioned. (3)



	Type	Age (yrs)	Height (m)
12	Mopane	20	15
13	Terminalia spp	18	10
14	Baobab	120	30
15	Dead vlei	30	5
16	Sisiphus spp	26	3
17	Acacia	60	9
18	Grewia spp	10	2

Figure 1

4. Briefly explain what is a datum. (3)

5. What is the relationship between a geoid and an ellipsoid? (2)

6. Which term describes a surface that can be laid flat without stretching or tearing? Name three types of such a surface onto which the reference sphere is projected. (4)

7. Which term is used for map projections that preserve shape, area, distance and direction? (4)

8. Name and describe the type of projection represented by Figure 2 below. (4)

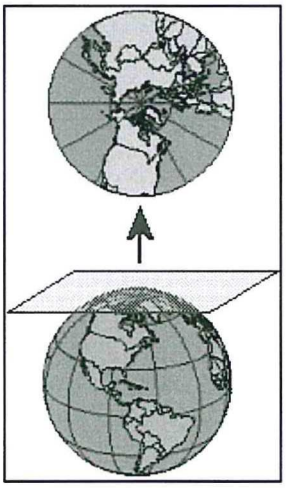


Figure 2

9. What are the two most important factors to consider when choosing a map projection? (2)

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Question 3

1. Data input to a geographical information system can be best divided into three categories. Name these categories. (3)

2. There are three concepts related to attribute tables. Name these concepts. (3)

3. What is the fundamental difference between raster and vector data models in GIS? (2)

4. Explain how pixel size influences the accuracy of a raster dataset. (3)

5. Digitising is one method of creating vector data. Name four problems that are associated with paper map digitisation. (4)

6. Explain the concept of values and counts within raster data based on Figure 3 below. (4)

Attributes of wanaheda

OID	ObjectID	Value	Count	Landcover
0	0	66	9708	unidentified
1	1	97	29257	unidentified
2	2	119	70086	unidentified
3	3	137	119810	bare soil
4	4	155	142756	roads
5	5	176	131878	grass
6	6	203	94882	unidentified
7	7	237	66490	unidentified
8	8	255	2150813	built up areas

Record: 9 Show: All Selected Records (0 out of 9 Selected.)

Figure 3

7. Provide one advantage and disadvantage of raster data, as well as one advantage and disadvantage of vector data. (4)

8. Name three methods that can be used to create raster data. (3)

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Question 4

1. What is the difference between spatial analysis and GIS analytical functions? (4)

2. Name any four operations that can be performed in order to understand the data characteristics. (4)

3. In Geographical Information Systems (GIS) (ArcMap), entering data in attribute tables is done in two common ways. Explain the two methods used to enter data in an attribute table. (2)

4. Mention any three (3) differences between a static map and a GIS map. (3)

5. List the types of questions maps can answer. (3)

6. Name and explain the two types of maps. (4)

7. Name any two map elements. (2)

8. You are tasked to create a map that will show the farms the government of Namibia has resettled landless people between 1990 and 2010. Name the three basic principles of map design that you will consider before designing the map. (3)

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