THE STATE UNIVERSITY OF ZANZIBAR

SCHOOL OF COMPUTING, COMMUNICATION AND MEDIA

DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY

FINAL EXAMINATION

SEMESTER I

INTRODUCTION TO GEOGRAPHICAL INFORMATION SYSTEM – INF 2111

Date: 24- 02- 2023 **Time: 09:00 AM – 12:00 PM**

INSTRUCTIONS

1. This paper consists of **TWO** sections, **A** and **B**, which carries 24 and 36 marks respectively.
2. Answer all questions from section A, and any THREE questions from section B.
3. Cellular phones and any other unauthorized materials are NOT allowed in the examination room.
4. **ANSWER EACH QUESTION ON SEPERATE SHEET**
5. This exam consists of four (4) printed pages, including cover page

SECTION A (24 marks)

Answer all questions

1. For each of the item i – viii, choose the correct answer among the given alternatives and write its letter beside the item number [8 marks]

i. The information in GIS is entered and stored as

A. Panels B. Layers C. Single panel D. Dual panel

ii. Which of the following can be used for representing a real world feature on two dimensional surfaces?

A. Plan B. Drawing C. Scale D. Map

iii. Which of the following acts a benefit of GIS?

A. Maintaining geo spatial data
B. Spatial data sharing
C. Accurate data information
D. Presence of data retrieval service

iv. The 'boundary model' is sometimes also called

A. Topological data model
B. Temporal data model
C. Topological discrete model
D. Temporal discrete model

v. Among the following, which doesn't come under the components of GIS?

A. Hardware B. Software C. Compiler D. Data

vi. GIS represents a location in _____ dimensional coordinates

A. 2 B. 3 C. 4 D. 5

vii. What are the two general data formats used in GIS?

A. Point and Line
B. Spatial and Attribute
C. Raster and Vector
D. Analog and Digital

viii. GIS applications are _____ tools

A. Mobile B. Computer C. Machinery D. None of the above

2. Write TRUE or FALSE for the following Statements [8 marks]

i. Nominal and Interval data values are referred to as 'qualitative data'

ii. Data cannot be shared in the process of GIS

iii. Discrete fields divide the study space in mutually exclusive, bounded parts, with all locations in one part having the same field value.

iv. Map elements that provide little contrast are easily lost in the overall visualization.

v. Vector feature data do not have to be stored with "topology."

vi. Images are not georeferenced.

vii. GPS requires use of three satellites for an earth surface fix

viii. Reality can be represented in GIS as a series of layers or as objects

3. For each of the item i – viii, match the correct answer(s) among the given alternatives and write its letter beside the item number [8 marks]

i. Accuracy	A. Trilateration
ii. 'Spatial databases' are also known as	B. Silver polygons
iii. Precision	C. Gaps between polygons
iv. Mercator projection	D. Concurrent database
v. Topology error	E. Geographic fields
vi. GLONASS	F. Distance distortion
vii. Air temperature and barometric pressure	G. Measure how far each value in the dataset is from the mean
viii. Ratio data values	H. Geospatial database
	I. Have a natural zero value
	J. Area distortion
	K. GPS navigation operated by China
	L. GPS navigation operated by Russia
	M. Closeness of observations to the true values

SECTION B (36 marks)

Answer any THREE questions, each question carries 12 marks.

4. a. What is the digitizing process? [4 marks]

   b. Before starting the on-screen digitization in the spatial data input, the scanned image must be georeferenced. Briefly explain the concept of geo-referencing? [4 marks]

   c. What do we consider when the hardcopy maps are used as spatial data source? [4 marks]

5. a. Why is an Earth Surface is projected to flat? [4 marks]

   b. What is the challenge behind the Earth projection? [4 marks]

   c. GIS describe an object in two interrelated ways, with examples discuss it. [4 marks]

6. a. Why map is a model? Briefly discuss. [3 marks]

   b. With the examples discuss the main domain of spatial data quality. [6 marks]

   c. Vector data model uses discrete elements to represent the geometry of real world entities. Briefly describe the types of vector data model. [3 marks]

7. a. Mention at least 6 Geo-visualization tools. [3 marks]

   b. What is the most important consideration when designing a map? [4 marks]

   c. Identify and explain five functional elements of GIS [5 marks]

8. a. Why primary data are more preferred than secondary data? [4 marks]

   b. With examples, explain 4 types of spatial variables measurement scales? [4 marks]

   c. Briefly describe how the GPS works? [4 marks]

THE STATE UNIVERSITY OF ZANZIBAR (SUZA)

SCHOOL OF NATURAL AND SOCIAL SCIENCE

DEPARTMENT OF SOCIAL SCIENCE

GEOGRAPHICAL INFORMATION SYSTEM (GIS)

MIDTERM TEST (20%)

16th May 2023 **TIME: 60 MIN**

Answer all Questions

1. Write "True" or "False" for the following statements (5 marks)
   i. Reality can be represented in GIS as a series of layers or as objects.
   ii. Human factors influence the success of GIS as a decision support tool.
   iii. Nominal & interval data values are referred to as *'qualitative data'*
   iv. The 'boundary model' is sometimes also called Topological data model
   v. Barometric pressure is an examples of geographic field.

2. i. What is a GIS? (1.5 marks)
   ii. Mention at least 3 examples of GIS. (1.5 marks)

3. The Revolutionary Government of Zanzibar has setup the MALARIA project which aims at fight against MALARIA fever, and Shehia of Kikwajuni has been selected as the pilot area. You are hired as Geo-Edu experts in the project, and your assignment is to conduct spatial analysis to identify the potential breeding locations for Malaria mosquitoes.
   i. What are the potential spatial datasets for your assignment? (3 marks)
   ii. Which data model format is best for each of the dataset identified in (i) above? (3 marks)
   iii. Explain the importance of each of the datasets in your assignment (3 marks)

4. Why primary data are more preferred than secondary data in Geospatial analysis? (3 marks)

All the Best .