



UNIVERSITY EXAMINATIONS

SECOND SEMESTER 2023/2024 ACADEMIC YEAR

**FIRST YEAR EXAMINATION FOR THE DEGREE OF
BACHELOR OF SCIENCE IN ENVIRONMENTAL
SCIENCE**

**GEOG 122: INTRODUCTION TO GEOGRAPHIC
INFORMATION SYSTEMS 1**

**ENSC123: INTRODUCTION TO GEOGRAPHIC INFORMATION
SYSTEMS**

STREAM: R

TIME: 2 HRS

DAY: THURSDAY [11.30A.M – 1.30P.M] DATE: 18/04/2024

THIS QUESTION PAPER CONSISTS OF TWO (2) PAGES

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INSTRUCTIONS TO CANDIDATES

- i) Answer **QUESTION ONE** and **ANY OTHER TWO** Questions.
- ii) Maps, sketches, diagrams and examples should be used where they serve to illustrate the answers.

QUESTION ONE (COMPULSORY) (30 Marks)

- a) Highlight the milestones in the historical development of Geographic Information Systems (GIS). **(7 Marks)**
- b) Explain the uniqueness of GIS compared to other Database Management Systems (DBMs). **(6 Marks)**
- c) Explain the factors that necessitated the rapid growth and development of Geographic Information Systems (GIS). **(6 Marks)**
- d) Briefly explain the parameters of a map that should be specified in GIS. **(6 Marks)**
- e) Citing relevant examples, explain the various attribute data types in GIS. **(5 Marks)**

QUESTION TWO (20 Marks)

- a) Describe raster data model in GIS and highlight its salient features. **(10 Marks)**
- b) Discuss the advantages and disadvantages of the raster data structure in GIS **(10 Marks)**

QUESTION THREE (20 MARKS)

- a) State the functional definition of GIS. **(4 Marks)**
- b) Citing relevant examples, examine in details the main functions of GIS. **(16 Marks)**

QUESTION FOUR (20 MARKS)

- a) Explain the Vector data structure and highlight the differences between the *Spaghetti* and *Topologic* data **(10 Marks)**
- b) Examine the merits and demerits of vector data models in GIS. **(10 Marks)**

QUESTION FIVE (20 MARKS)

Using relevant examples, discuss the various applications of Geographic Information Systems (GIS) in resource management. **(20 Marks)**

