



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR**

THIRD YEAR SECOND SEMESTER EXAMINATIONS

MAIN EXAMINATION

**FOR THE DEGREE OF
BACHELOR OF SCIENCE IN GEOSPATIAL INFORMATION
SCIENCE**

COURSE CODE: DPG 310

COURSE TITLE: SPATIAL ANALYSIS & MODELING IN GIS

DATE: 21/4/2023

TIME: 3-5 PM

INSTRUCTIONS TO CANDIDATES

This paper contains **four (4)** questions

Question one (1) is compulsory {total = 30 Marks}

Attempt any other two (2) {total = 40 Marks} from the remaining questions

Be brief and to the point

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 2 Printed Pages. Please Turn Over ⇨

SECTION I: COMPULSORY

Question ONE

- a) Explain the **THREE** conditions that trace analysis must meet. **(9 Marks)**
- b) Using examples, distinguish between the following:
- i. Directed and undirected networks **(3 Marks)**
 - ii. Planar and non-planar networks **(3 Marks)**
 - iii. Data and information **(3 Marks)**
- c) Discuss **FOUR** types of Networks where Network Analysis tools can be applicable. **(12 Marks)**

SECTION II: ATTEMPT ANY OTHER TWO (2) QUESTIONS

Question TWO

Evaluate any **FIVE** functional components of GIS that make it useful in spatial analysis and modelling. **(20 Marks)**

Question THREE

Explain the **FIVE** categories of attribute data. **(20 Marks)**

Question FOUR

With the aid of well-labelled sketches in each case, explain the following analyses:

- i. Buffer **(4 Marks)**
- ii. Clip **(4 Marks)**
- iii. Intersection **(4 Marks)**
- iv. Union **(4 Marks)**
- v. Dissolve **(4 Marks)**