



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**SCHOOL OF SPATIAL PLANNING**  
**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN**  
**PUBLIC HEALTH AND BACHELOR OF SCIENCE IN COMMUNITY HEALTH AND**  
**DEVELOPMENT**  
**SEMESTER 2022/2023 ACADEMIC YEAR**

**CENTRE: MAIN CAMPUS**

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**COURSE CODE: PPB1207**

**COURSE TITLE: GEOGRAPHIC INFORMATION SYSTEMS (gis)**

**EXAM VENUE:**

**STREAM: PUBLIC HEALTH**

**DATE:**

**EXAM SESSION:**

**TIME: 2 HOURS**

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**Instructions:**

- 1. Answer question 1 ( compulsory ) and ANY other 2 questions.**
- 2. Candidates are advised not to write on the question paper.**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room.**

**QUESTION ONE: 30 Marks**

- a. State any FIVE definitions of Geographic Information Systems (GIS) (5mks)
- b. Differentiate between vector and raster data in GIS (10mks)
- c. Explain any FIVE metric properties of Map Projections in GIS (5mks)
- d. Discuss the applications of Geographic Information in Public Health or Community Health Development (10mks)

**QUESTION TWO: 20 Marks**

- a. Explain the topology or spatial relationships of vector data (10mks)
- b. Using illustrations, explain the process of spatial georeferencing in a mapping exercise (10mks)

**QUESTION THREE: 20 Marks**

- a. Using illustrations, discuss the following types of map projections (10mks)
  - i. Cylindrical Projection
  - ii. Conical Projections
- b. Discuss the various methods of Raster Data Capture in GIS (10mks)

**QUESTION FOUR: 20 Marks**

- a. Explain any FIVE advantages of GIS Databases (5mks)
- b. GIS experts apply various components and design principles when compiling their maps and constructing page layouts. Using diagrams/illustrations, discuss this statement (15mks)

**QUESTION FIVE: 20 Marks**

As a GIS Expert working for a County office where agriculture forms an important rural economy. a bond has been passed to provide funding to install a renewable energy plant in a rural area that your office serves. Due to the dominance of agriculture in your County, it is decided that the renewable energy site will accept animal manure, crop silage, and municipal solid waste. Using illustrations, discuss the Design Criteria for conducting a suitability analysis of locating the renewable energy plant. (20mks)