



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**SCHOOL OF SPATIAL PLANNING**  
**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SPATIAL**  
**PLANNING AND DESIGN**  
**SEMESTER 2022/2023 ACADEMIC YEAR**

**CENTRE: MAIN CAMPUS**

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**COURSE CODE: PPB1210**

**COURSE TITLE: COMPUTER AIDED CARTOGRAPHY**

**EXAM VENUE:**

**STREAM: SPATIAL PLANNING**

**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.**
  
- 1. Candidates must hand in their answer booklets to the invigilator while in the examination room.**

### QUESTION ONE: 30 Marks

- a. Computer Aided Cartography is defined as both an art, science, and technology, explain this statement (5mks)
- b. Explain any **FIVE** metric properties of map projections (10mks)
- c. Explain any **FIVE** advantages of Digital/Web Mapping (5mks)
- d. You have been tasked to prepare a base map for a spatial planning exercise of your village, discuss how you will apply ArcGIS and Universal Map Downloader in its preparation (10mks)

### QUESTION TWO: 20 Marks

- a. Explain the following types of Cartographic Maps (10mks)
  - i. Cadastral Maps
  - ii. Utility Maps
  - iii. Socio-economic Maps
  - iv. Environmental Maps
  - v. Topographical Maps
- b. Using illustrations, explain the process of map georeferencing in a cartographic mapping exercise (10mks)

### QUESTION THREE: 20 Marks

- a. Using illustrations, explain the following types of cylindrical map projections (10mks)
  - i. Mercator projection
  - ii. Universal Transverse Mercator (UTM) projection
  - iii. Equidistant cylindrical projection
  - iv. Lambert's cylindrical equal-area projection
  - v. Pseudo-cylindrical projections
- b. Discuss any **TEN** functions of a Cartographic Map. (10mks)

### QUESTION FOUR: 20 Marks

- a. Explain the various models used in cartographic modeling (5mks)
- b. Cartographers apply many design principles when compiling their maps and constructing page layouts. Using diagrams/illustrations, discuss this statement (15mks)

### QUESTION FIVE: 20 Marks

As a Cartographer 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 Cartographic Modelling processes for a suitability analysis of locating the renewable energy plant based on the following themes.

- i. Problem Context and Model Goals (5mks)
- ii. Design Criteria (Flowcharting) (10mks)
- iii. Model Implementation, Testing, and Refinement (5mks)