



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF HEALTH SCIENCES

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE

PUBLIC HEALTH/COMMUNITY HEALTH AND DEVELOPMENT

3rd YEAR 1ST SEMESTER 2017/2018 ACADEMIC YEAR

KISUMU CAMPUS

COURSE CODE: PSP 3314

COURSE TITLE: SPATIAL DATA ANALYSIS

EXAM VENUE: STREAM: BSc Public/ Comm. Hlth & Dev

DATE: **EXAM SESSION:**

TIME: 2.00 HOURS

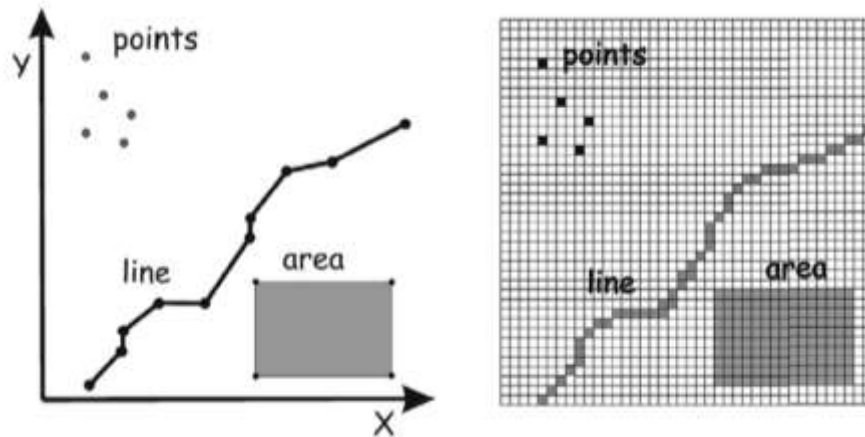
Instructions:

- 1. Answer all the questions in Section A and 2 questions in Section B.**
- 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.**

SECTION A

Answer all the questions in Section A (30MARKS)

- a) Define the following
- i. Geospatial Information System, GIS (2mks)
 - ii. Spatial Data Analysis (2mks)
- b) Differentiate the data models represented in the figure below (2mks)



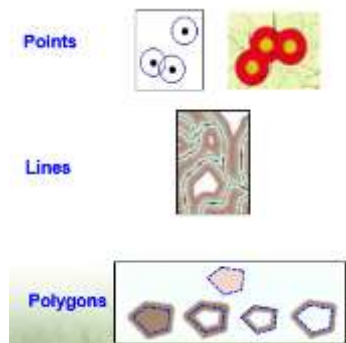
A

B

- c) List three models of GIS data input. (5mks)
- d) Study the spatial overlays diagrams below and differentiate their use in spatial data analysis (4mks)



A



B

- e) Briefly describe any two types of map projections. (4mks)
- f) As a Community or Public Health officer, list four ways of how to apply Spatial Data Analysis in your profession (4mks)
- g) What are the differences between DSM and DEM? (2mks)
- h) How can you digitize a map manually? (4mks)
- i) List four methods of Vector data input (4mks)

SECTION B 40 (MARKS)

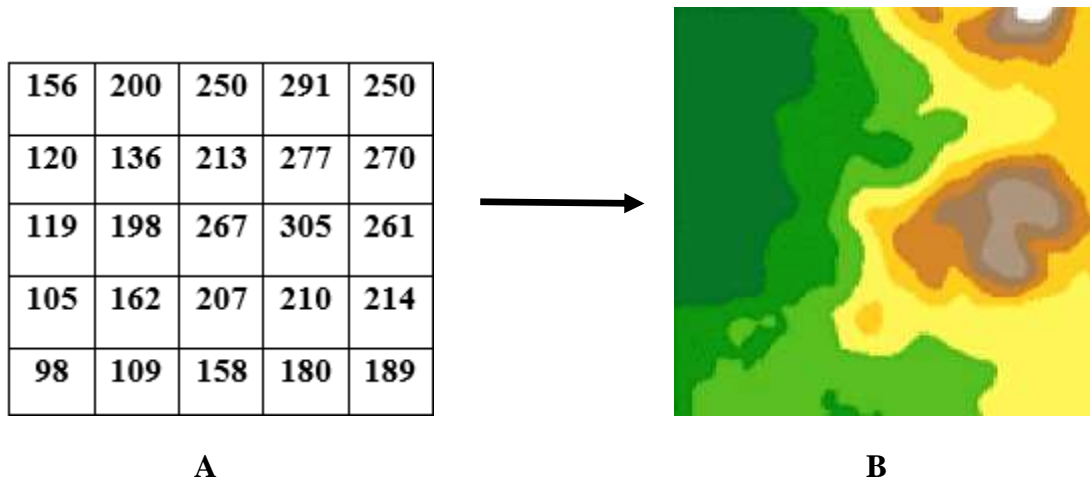
Answer any Two questions in this Section (Each Question 20 MKS).

QUESTION TWO (20 MARKS)

- a) Discuss four Spatial Analysis Methods (8mks)
- b) Highlight any two functions of digital processing and analysis. (2mks)
- c) Describe the different elements of image interpretation? (10mks)

QUESTION THREE (20 MARKS)

- a) The diagram below shows spatial representation of Digital Elevation Model (DEM) in both software coding (A) and earth's surface (B). Explain how B is obtained from A (4mks)



- b) Describe the processes of Spatial Data Analysis (6mks)
- c) Spatial data can either be primary or secondary. Describe what the two sets mean and give examples in each. (10mks)

QUESTION FOUR (20 MARKS)

- a) Discuss the two categories of image classifications. (6mks)
- b) What are the components of spatial references? (4mks)
- c) Describe any five angular parameters projection of satellite images. (10mks)

QUESTION FIVE (20 MARKS)

- a) Discuss components of GIS (10mks)
- b) Compare Vector and Raster Data highlighting both advantages and disadvantages (10mks)