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 2019/2020 ACADEMIC YEAR

KISUMU CAMPUS

COURSE CODE: PSP 3314

COURSE TITLE: SPATIAL DATA ANALYSIS

DATE: 14/08/2019 **EXAM SESSION: 2.00 – 4.00 PM**

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

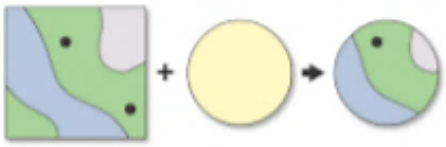
i. Geospatial Information System, GIS (2mks)

ii. Spatial Data Analysis (2mks)

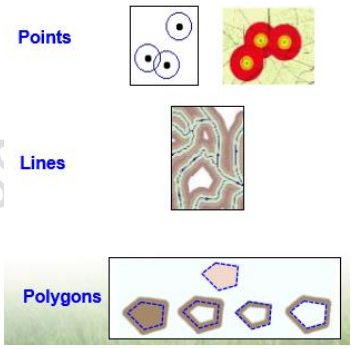
b) What is the relationship between Remote Sensing and GIS? (2mks)

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

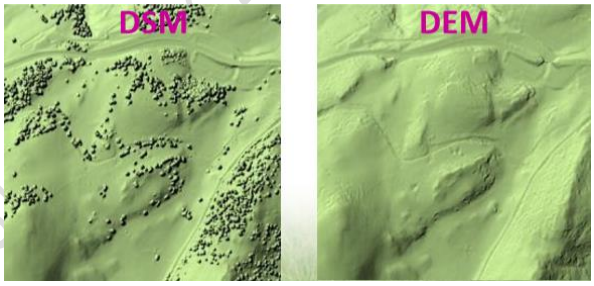


B

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 as in diagram below? (3mks)



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).

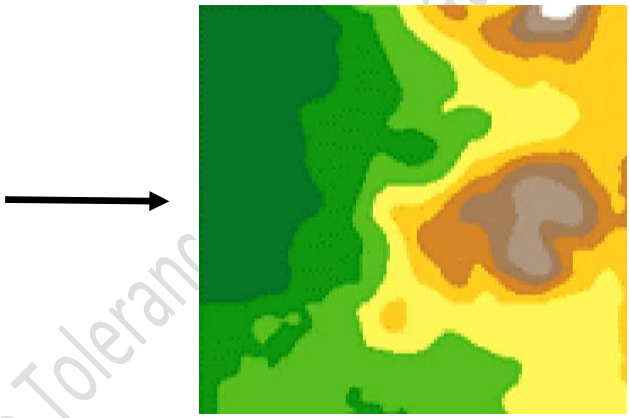
QUESTION TWO (20 MARKS)

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)

156	200	250	291	250
120	136	213	277	270
119	198	267	305	261
105	162	207	210	214
98	109	158	180	189



A **B**

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)