JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF SPATIAL PLANNING AND NAURAL RESOURCE MANAGEMENT

UNIVERSITY EXAMINATIONS FOR 4TH YEAR 2ND SEMESTER EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE IN SOIL SCIENCE, AND BACHELOR OF SCIENCE IN INFORMATION COMMUNICATION AND TECHNOLOGY

MAIN CAMPUS

COURSE CODE: PSP 3214

COURSE TITLE: GEOGRAPHIC INFORMATION SYSTEMS

DATE: 22/05/18 **EXAMINATION SESSION:** 9.00 – 11.00AM

TIME: 2 HOURS

INSTRUCTIONS

1. This paper contains FIVE (5) questions
2. Answer question 1 (Compulsory) and ANY other 2 Questions
3. Write all answers in the booklet provided

SECTION A (30 MARKS)

Answer ALL the questions in this section

Question 1

(a) State four advantages of using Remote Sensing as a source of data in a GIS (4 marks)

(b) Using suitable diagrams to illustrate your answer, explain the following errors in data acquisition

i. Gap (2 marks)

ii. Slivers (2 marks)

(c) Discuss briefly "Hardware" as one component of GIS (5 marks)

(d) Discuss briefly the impact of the internet on GIS (5 marks)

(e) State four areas that the government can apply GIS for national development (4 marks)

(f) State four differences between vector and raster data structures (8 marks)

SECTION B (40 MARKS)

Answer any TWO (2) questions from this section

Question 2

i) Outline the process of developing a GIS database (5 marks)

ii) Explain the disadvantages of the relational database structure (5 marks)

iii) Explain types of analysis that can be performed in the GIS database (10 marks)

Question 3

i. Using suitable examples, explain the difference between attribute and spatial data. (5 marks)

ii. Outline the five components of data quality championed by the National Standard for Digital Cartographic Data for adoption worldwide. (15 marks)

Question 4

Explain the analytical functions of a GIS in each of the following areas:

i. Data Pre-processing and Manipulation (6 marks)
ii. Data Analysis (10 marks)
iii. Data Display (4 marks)

Question 5

i. Explain on-the-fly data projection (6 marks)
ii. Explain any 5 elements in map production process (10 marks)
iii. Distinguish between Geographic and Projected coordinates (4 marks)