



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY  
SCHOOL OF SPATIAL PLANNING AND SCHOOL OF HEALTH SCIENCES  
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF ARTS IN  
SPATIAL PLANNING, BACHELOR OF SCIENCE IN WATER RESOURCE AND  
ENVIRONMENTAL MANAGEMENT, BACHELOR OF SCIENCE IN PUBLIC HEALTH  
AND BACHELOR OF SCIENCE COMMUNITY HEALTH  
SEMESTER 2016/2017 ACADEMIC YEAR**

**CENTRE: MAIN AND KISUMU CAMPUS**

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**COURSE CODE: PSP 3214**

**COURSE TITLE: GEOGRAPHIC INFORMATION SYSTEMS**

**EXAM VENUE:**

**STREAM: SPATIAL PLANNING**

**DATE: 27/04/17**

**EXAM SESSION: 2.00 – 4.00 PM**

**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 1**

With reference to Geographical Information System (GIS):

- i) Define GIS [2 marks]
- ii) Explain the functions of GIS [10 marks]
- iii) Using suitable examples differentiate between point, line and polygon features [6 marks]
- iv) With the help of diagrams, differentiate between raster and vector data structures [6 marks]
- v) Outline the polygon overlay spatial analysis with diagrams [6 marks]

## **QUESTION 2**

As pertains to GIS data capture and editing

- i) Define data capture [2 marks]
- ii) Discuss data capture process for field or analogue vector data [6 marks]
- iii) Outline possible sources of data for any GIS project. [6 marks]
- iv) State the advantages of using Geographic Positioning System (GPS) as a source of data for GIS [6 marks]

## **QUESTION 3:**

Database often is basically a collection of information organized in such a way that it can easily be accessed, managed, and updated. In respect to GIS database

- i) Outline the process of database development [5 marks]
- ii) Describe the constraints in relational database [5 marks]
- iii) Explain types of analysis that can be performed in the GIS database [10 marks]

## **QUESTION 4:**

In respect to map production and coordinate reference system

- i) Distinguish between Geographic and Projected coordinates [4 marks]
- ii) Explain map elements in map production process [6 marks]
- iii) With the aid of a diagram, describe Universal Transverse Mercator (UTM) Coordinate Reference System [10 Marks]

## **QUESTION 5**

- a) List possible GIS application areas in national development [5 marks]
- b) Explain possible spatial and attribute data about cholera outbreak in a country. [10 marks]
- c) Lists possible layers in a GIS project of an urban area. [5 marks]