



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF SPATIAL PLANNING AND NATURAL RESOURCE MANAGEMENT
UNIVERSITY EXAMINATION FOR DEGREE OF BACHELOR OF ARTS IN
SPATIAL PLANNING
2ND YEAR 1ST SEMESTER 2013/2014 ACADEMIC YEAR
REGULAR**

COURSE CODE: PSP 3214

COURSE TITLE: INTRODUCTION TO GEOGRAPHICAL INFORMATION SYSTEM

EXAM VENUE: LR 6

STREAM: Spatial Planning)

DATE: 15/04/14

EXAM SESSION: 9.00 – 11.00 AM

TIME: 2.00 HOURS

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 ONE

- a). Geographical Information System are "super " systems. Discuss with respect to other Information Systems. (10 marks)
- b) Briefly give an account of the historical development, evolution and future trends in Geographical Information Systems. (10 marks)
- c). State the significance of the knowledge of Geographical Information Systems to you in your professional life (spatial planner or health professional). (10 marks)

QUESTION TWO

- a) Describe the strengths and weaknesses of two data models in GIS. (10 marks)
- b).Use a sketch to explain the database management systems (DBMS) as used in GIS . (10 marks).

QUESTION THREE

- a).Briefly explain how you would use the following hardware devices in a GIS system. (10 marks)
- i. Digitizer
 - ii. Scanner
 - iii. Gps
 - iv. Camera
 - v. Computer CPU
- b).You have been provided with an image file from a scanned topographical sheet map and saved in a folder on the computer desktop . A close examination of the properties of the image file reveals to you that it is tagged image file (.tif). Explain how you would convert this image into Gis shape file and thereafter geo-reference it for map operations. (10 marks)

QUESTION FOUR

- a). Using illustrative examples and diagrams explain the following vector data models (8 marks)
- i. Points
 - ii. Segments
 - iii. Polygons
 - iv. Multi-patch

b).State three advantages and three disadvantages of raster datasets in GIS. (7 marks)

c). Explains the significance of topology in GIS database management. (5 marks)

QUESTION FIVE

a).List three types of geo-databases types in Arc-GIS. (3 marks)

b) By aid of a simple diagrams explain how you would use buffering technique to show the distribution of the following

i. Cholera outbreak around a water point in a village (5 marks)

ii. A 10 meter road reserve along Bondo- Usenge Road. (5 marks)

c) . Explain the term map overlays and show how it is important in geographical studies . (7 marks)