



AMREF INTERNATIONAL TRAINING CENTRE

Qualification Code :
Qualification : Environmental Science Level 6
Unit Code : ENV/CU/SCI/CR/06/6/A
Unit of Competency : Environmental Information Systems

WRITTEN ASSESSMENT

Time: 3 Hours

INSTRUCTIONS TO CANDIDATE

1. This paper has two sections A and B
2. You are provided with a separate answer booklet
3. Marks for each question are as indicated
4. Do not write on the question paper

This paper consists of five (3) printed pages. Candidates should check the question paper to ascertain that all the pages are printed as indicated

SECTION A: (40 MARKS)

Answer ALL the questions in this section

1. Distinguish between Environmental Information Systems and remote sensing
(4 Marks)
2. Identify two examples of **active** remote sensing instruments. (2 marks)
3. A local county government wants to map pollution sources in the urban area using an Environmental Information Systems (EIS). State two types of data that would be essential for this task. (2 Marks)
4. Many institutions are embracing the evolution of technologies in studies. State four limitations of using remote sensing in environmental studies (4marks)
5. Geographic Information Systems (GIS) data is normally categorized into two different groups. Identify the two types of GIS data. (4marks)
6. Travelling companies have embraced the use of global positioning system GPS in their businesses. State any four advantages of GPS surveys (4marks)
7. Remote sensing instruments are categorized based on how they detect energy from Earth's surface. Distinguish between active and passive remote sensing instruments. (4 marks)
8. Information systems involve the collection of data which is later interpreted and decisions made based on the results. Distinguish between data preparation and data analysis in GIS (4marks)
9. There are various techniques used in studying the types of data in GIS. List down any four advantages of using vector data types in GIS (4marks)
10. There are a number of steps involved when preparing GIS images for study. Identify any four importance of carrying out enhancement of GIS images (4marks)
11. You are invited to educate the youths on how to use a map in an environmental information system conference. Distinguish between topographical map and thematic maps (4marks)

SECTION B: (60 MARKS)

Answer any THREE questions in this section.

12. Technology is a very vital tool in the management of environmental resources
- a) Describe five applications of GPS in monitoring endangered wildlife species in a national park (10 Marks)
 - b) Highlight five applications of remote sensing techniques in observing crops in a farm (10 Marks)
13. Environmental information systems apply radar systems in the management of environmental resources
- a) With an aid of a labelled diagram, describe the working of RADAR system as used environmental information system (16 marks)
 - b) Explain the interaction that exists between visible solar radiation and atmospheric gases (4marks)
14. The construction of models of spatial forms can be thought as a series of stages.
- a) Explain six steps involved in this process (12 Marks)
 - b) Explain four reasons why it is useful to set the On The Fly OTF projection on in any GIS project (8 Marks)
15. Scanning of maps is a very important stage in GIS projects
- a) Discuss six issues That are always considered when scanning maps for use in GIS projects (12marks)
 - b) Explain the four techniques used by the Universal Transverse Mercator UTM for georeferencing (8 Marks)