



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. Define the following terms; georeferencing and geospatial data (4 Marks)
2. Every technology has both advantages and disadvantages. Mention any four limitations of GPS technology (4marks)
3. Environmental monitoring helps in preventing future issues and solving the current environmental problems. State four benefits of using space-based techniques in monitoring offshore oil spill (4marks)
4. Radar is one of the remote sensing technique used in GIS. State the four major applications of radar system in air traffic control (4marks)
5. Data collected for GIS projects needs to be supervised when being classified. Outline the four processes of carrying out unsupervised classification of GIS data (4marks)
6. GIS entails different components. Mention the four key components of GIS (4marks)
7. The modern world today likes the information technology and applies it in many fields. List down four disadvantages of graphic communication (4marks)
8. There are many information systems that are used globally. Mention four factors that makes GIS distinctive from other information systems (4marks)
9. For any system to work, there must e principles that guard its operations. List down four principles of remote sensing (4marks)
10. Remote sensing is broadly divided into two categories. Mention the two types of remote sensing giving an example of each (4marks)

SECTION B: (60 MARKS)

Answer any THREE questions in this section.

11. GIS and remote sensing are widely used in the management of natural resources for sustainable development
 - a) Describe five roles of GIS in soil mapping processes (5Marks)
 - b) Briefly analyze five applications of remote sensing techniques in management of the following habitats in the coastal region of Kenya coral reefs, mangroves and shoreline protection (15 Marks)
12. It is important to scan maps during GIS projects

- a) Discuss six issues to be considered when scanning maps in GIS (12 marks)
 - b) Explain FOUR techniques used by the universal transverse Mercator for georeferencing (8 marks)
13. A group of students were assigned a task to present the working of a radar system during a class session
- a) With an aid of a diagram, describe the working of a radar system (16 Marks)
 - b) Explain the two interactions between visible solar and atmospheric gases observed (4 Marks)
14. The construction of models of spatial forms can be thought as a series of stages.
- a) Outline the six steps taken in this process (12marks)
 - b) Briefly explain four importance of studying environmental information systems in schools (8 Marks)