The Management University of Africa

Sponsored by the Kenya Institute of Management

UNDERGRADUATE UNIVERSITY EXAMINATIONS

SCHOOL OF MANAGEMENT AND LEADERSHIP

DEGREE OF BACHELOR OF EDUCATION ARTS

GEO 425: REMOTE SENSING

DATE: 3RD DECEMBER 2024

DURATION: 2 HOURS

MAXIMUM MARKS: 70

INSTRUCTIONS:

1. Write your registration number on the answer booklet.
2. **DO NOT** write on this question paper.
3. This paper contains **SIX (6)** questions.
4. Question **ONE** is compulsory.
5. Answer any other **THREE** questions.
6. Question **ONE** carries **25 MARKS** and the rest carry **15 MARKS** each.
7. **Write all your answers in the Examination answer booklet provided.**

QUESTION ONE

Read the case study below carefully and answer questions that follow:-

GEOGRAPHICAL APPROACH OF REMOTE SENSING

Modern geographical studies and technology applies the science of remote sensing as a means to obtaining information about an area or object without being in direct contact with that area or object. Such studies and approaches have proved relevant in the study of geographical phenomena. Remote sensing uses devices as sensors to support the scientific endeavor. Remote sensing concept was envisaged by early philosophers such as Socrates in the year 400 BC. He predicted that man must rise above the clouds to the top of the atmosphere in order to understand the environment in which he lives".

Remote sensing was further developed by other ancient philosophers such as nicephone Niepce (1822), Wallace (1960), Wilbur Wright in (1909) among others. Today's geographical scholar's need embrace the Science of remote sensing to be able to detect dynamic phenomena in other geographical fields such as in the management of natural resources, agricultural practices for sustainable development and predict earth's dynamic processes in an efficient manner.

Required:

a) Christine was teaching form two students at Kirima Junior Secondary on the topic remote sensing. What would be the concept. **(3 Marks)**

b) Analyze classifications of remote sensing she would teach the students. **(4 Marks)**

c) Propose five techniques of remotely collecting data. **(10 Marks)**

d) How would Christine describe satellites? **(2 Marks)**

e) Propose **four** advantages and **two** disadvantages of using satellites as remote sensing gadgets. **(6 Marks)**

QUESTION TWO

a) Assess ways the following can limit effective analysis of satellite imagery

(i) Contamination

(ii) Signal interference

(iii) Fore shortening **(6 Marks)**

b) Form two students were learning about aerial photographs. Propose three factors they would be of value in remote sensing. **(6 Marks)**

c) Compute the scale of photography. Given distance on the photograph as 2cm and the distance on the ground is 1 km **(3 Marks)**

QUESTION THREE

a) Propose four advantages of using electromagnetic spectrum sensors **(8 Marks)**

b) Karen was teaching about remote sensing to form three students in Pendo School. Demonstrate how she would classify remote sensing. **(4 Marks)**

c) Karen used a camera to demonstrate its application in remote sensing. Propose three constraints she would encounter. **(3 Marks)**

QUESTION FOUR

a) Resolution is vital in the detection of an object in remote sensing. Analyze four types of resolution. **(8 Marks)**

b) Compute the speed of light give wave length ( ) as 1000km and the frequency (V) is 100 **(4 Marks)**

c) Examine any three ways the atmosphere affects quality of remote sensing

(i) The effects of cloud cover

(ii) Effects of atmospheric pollution.

(iii) The weather conditions, such as mist, rainfall **(3 Marks)**

QUESTION FIVE

a) Propose and describe any three approaches to enhance resolution **(9 Marks)**

b) Suggest any three properties of electromagnetic radiation **(6 Marks)**

QUESTION SIX

a) John was presently a lesson on aerial photographs; evaluate five of this application as remote sensors. **(10 Marks)**

b) Assess any five ways remote sensing is applied in water resource management **(5 Marks)**