



ELIZADE UNIVERSITY
FACULTY OF BASIC AND APPLIED SCIENCES

DEPARTMENT: PHYSICAL AND CHEMICAL SCIENCES

PROGRAMME: APPLIED GEOPHYSICS EXAM TITLE: DEGREE EXAMINATION

COURSE CODE & TITLE: AGY 303: Principles of Remote Sensing & GIS

TIME ALLOWED: 2 hrs

SEMESTER/SESSION: FIRST / 2018/2019

INSTRUCTIONS: Write your matriculation number on the cover page of the exam booklet.

Answer question NUMBER 1 and any OTHER TWO questions.

HOD's SIGNATURE

1. (a) What is the electromagnetic spectrum?
(b) With the aid of diagram, describe the inter-relationship between the components of remote sensing.
(c) Outline **five (5)** factors that could cause geometric distortion in remote sensing imageries.
(d) Name **four (4)** types of passive sensors and **four (4)** types of active sensors
(e) From your understanding of the visible light spectrum, use the Plank's law to prove that blue light has more energy than red light. (Given that Plank's constant = (6.6×10^{-34}) Js and speed of light = $(3 \times 10^8$ m/s)). (24 marks)
2. (a) Use the Wien's displacement law to determine the maximum wavelength of radiations emitted by a human body. (From standard thermometer, normal human body temperature is given as 310 K). With respect to the visible light spectrum, comment on your result.
(b) Write explanatory notes on the following:
 - (i) Instantaneous field of view of a sensor
 - (ii) Temporal resolution
 - (iii) Radiometric resolution
 - (iv) Spectral resolution
(c) (i) Define atmospheric scattering. (ii) List and explain the **three (3)** types of atmospheric scattering. (18 marks)
3. (a) Differentiate between vector and raster models.
(b) Explain the principles of the whiskbroom and pushbroom scanners.
(c) What is a sensor? Give **three (3)** simple examples of remote sensors. (18 marks)
4. (a) (i) Explain the concept of GIS. (ii) Discuss four functions of GIS.
(b) Briefly explain the following: Data, Information and spatial data.
(c) Outline **six (6)** types of remote sensing. List **one (1)** use or advantage or disadvantage of each. (18 marks)