CHUKA  **UNIVERSITY**

UNIVERSITY EXAMINATIONS

FOURTH YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCE

ENSC 434: GEOGRAPHICAL INFORMATION SYSTEM

STREAMS: BSC (ENSC) **TIME: 2 HOURS**

DAY/DATE: TUESDAY 14/04/2020 **8.30 AM – 10.30 AM**

INSTRUCTIONS:

- **Answer ALL Questions in Section A and any Two Questions in Section B**
- **Do not write anything on the question paper**

SECTION A (30 MARKS)

1. Write short notes on the following terms as used in Geographical Information System:

   (a) Ground truthing [2 marks]
   (b) GIS modelling [2 marks]
   (c) Spatial Database management [2 marks]

2. Identify and briefly discuss the three types of "raster" data. [4 marks]

3. Explain the two forms of data and their practical uses in map visualization [4 marks]

4. Explain using various examples application of GIS to environmental planning. [6 marks]

5. Describe functional elements of a GIS using examples and illustrations. [6 marks]

6. Identify and briefly discuss the three types of "vector" data. [4 marks]

SECTION B (40 MARKS)

7. (a) Describe how the effects of atmospheric scattering on remote sensing data can be accounted for. [10 marks]

(b) Outline three types of scattering that occur in the Earth's atmosphere, giving any possible wavelength and directional dependencies of each scattering type. [10 marks]

8. (a) Discuss the characteristics of real remote sensing platforms. [10 marks]

(b) With examples outline various remote sensing platforms. [10 marks]

9. (a) Discuss various remote sensing sensor's resolutions. [10 marks]

(b) Discuss the advantages and disadvantages of vector and raster data. [10 marks]
