Total number of printed pages–4

3 (Sem–4/CBCS) GGY HC 3

2025

GEOGRAPHY

(Honours Core)

Paper : GGY–HC–4036

(Remote Sensing, GIS and GPS)

Full Marks : 60

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. Answer the following questions objectively : 1×7=7

   (a) Define attribution data.

   (b) What is the range of Electromagnetic Rediation (EMR) spectrum visible to the human eyes ?

   (c) How many satellites are there in the GPS constellation ?

(d) What is the name of the organisation responsible for receiving and processing of remote sensing data in India ?

(e) Write full form of LIDAR.

(f) Name the type of sensor that has its own source of light.

(g) What is swath ?

2. Answer the following questions very briefly : 2×4=8

(a) What is Buffer analysis ?

(b) What are the functional segments of the Global Positioning System (GPS) ?

(c) What is Spectral Reflectance Curve ?

(d) Give *two* examples of Passive sensor.

3. Answer the following questions in short : ***(any three)*** 5×3=15

(a) Illustrate the Electromagnetic Spectrum and its characteristics.

(b) Differentiate between raster data and vector data and provide examples for each.

(c) Explain the different types of resolutions of a sensor with reference to Indian remote Sensing Satellites.

(d) Describe the differences between Supervised and Unsupervised classification in digital image processing.

(e) Explain how spatial analysis techniques can be used in Environmental Impact Assessment.

4. Answer ***any three*** of the following questions : 10×3=30

(a) Define Electromagnetic Radiation (EMR). Explain various forms of interactions of incident EM energy with the earth's atmosphere. 2+8=10

(b) Describe the primary functions of Geographic Information System (GIS). Explain how these functions facilitate data manipulation, visualization and decision-making in various fields. Provide relevant examples to support your answer. 4+6=10

(c) Explain the working principles of GPS with necessary diagrams.

(d) Discuss the role of Remote Sensing in monitoring Land use and Land cover changes and its applications in natural resources management. 7+3=10

(e) Explain the different elements of visual image interpretation and their roles in image interpretation of an area.
7+3=10

(f) Describe the geometry of a vertical aerial photograph with suitable diagrams.
