

Total number of printed pages-4

**3 (Sem-6/CBCS) GLG HC 2**

**2023**

**GEOLOGY**

(Honours Core )

Paper : GLG-HC-6026

**(Remote Sensing and GIS)**

Full Marks : 60

Time : Three hours

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

1. Answer the following questions :  $1 \times 7 = 7$
- (a) The point on the ground vertically beneath the perspective centre of the camera is known as
- (i) principle point
  - (ii) perspective centre
  - (iii) nadir point
  - (iv) isocentre

*Contd.*

(b) Which one has the shortest wavelength?

- (i) X-ray
- (ii) Ultraviolet rays
- (iii) Visible ray
- (iv) Gamma ray

(c) A range of electromagnetic wavelengths where radiation can pass through the earth's atmosphere with relatively little attenuation is

- (i) atmospheric shimmer
- (ii) atmospheric window
- (iii) atmospheric reflection
- (iv) contrast stretching

(d) Main components of GPS

- (i) space segment
- (ii) control segment
- (iii) user segment
- (iv) All of the above

(e) In this case of uniform distribution stretch

- (i) equal number of pixels are assigned for each DN value
- (ii) unequal number of pixels are assigned for each DN value
- (iii) larger number of pixels are assigned for each DN value
- (iv) None of the above

(f) Unit of projected co-ordinate system is

- (i) meter
- (ii) degree
- (iii) Both degree and meter
- (iv) None of the above

(g) A Geographic Co-ordinate System includes

- (i) an angular unit of measure
- (ii) a prime meridian
- (iii) a datum
- (iv) All of the above

2. Write in brief on the following :  $2 \times 4 = 8$

- (i) Nadir point
- (ii) Electromagnetic spectrum
- (iii) Georeferencing
- (iv) Image enhancement



3. Write short notes on **any three** of the following : 5×3=15

- (a) Spectral response curve
- (b) Resolution and its types
- (c) Discuss the reason for image rectification and the basic steps of image rectification
- (d) Geocentric and local datum
- (e) Supervised image classification

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

(a) Write explanatory notes on the following : 5×2=10

(i) Remote sensing platforms and its types

(ii) Geostationary satellite

(b) What is aerial photography ? Write about the types and scale of aerial photograph. 2+4+4=10

(c) Write a note on different elements of photo interpretations.

(d) What is GPS ? How does a GPS work discuss the basic principles ? Write a detailed account on application of GPS in earth science. 2+4+4=10

(e) Give a detailed account on image processing methods.

(f) What do you mean by projected co-ordinate system ? Discuss the types of projection with suitable diagram.