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 : 1×7=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

(b) Which one has the shortest wavelength ?

(i) X-ray

(ii) Ultraviolet rays

(iii) Visible ray

(iv) Gamma ray

(c) A range of electromagentic 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 : 2×4=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.
