Total number of printed pages–7

3 (Sem–6 / CBCS) GLG HC 2

2022

GEOLOGY

(Honours)

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 ***(any seven)*** : 1×7=7

   (a) Which of the following spectral bands is used in remote sensing ?

   (i) Visible band

Contd.

(ii) Thermal band

(iii) Microwave band

(iv) All of the above

(b) RADAR is a type of

(i) active sensor

(ii) passive sensor

(iii) Both of the above

(iv) None of the above

(c) Which of the following is NOT a component of GIS ?

(i) Hardware

(ii) Software

(iii) Methods

(iv) Compiler

(d) Which of the following is NOT a type of spatial data used in GIS ?

(i) Attribute data

(ii) Vector data

(iii) Raster data

(iv) Image data

(e) Which of the following resolutions of satellite images enables us to observe changes like flood, crop growth etc. on the surface of the earth over a period ?

(i) Spectral resolution

(ii) Spatial resolution

(iii) Temporal resolution

(iv) Radiometric resolution

(f) The forward overlap between two adjacent aerial photos along the same flight line is kept at approximately _____ %.

(Fill up the blank)

(g) On a vertical aerial photograph, the scale (S) is expressed as

(i) S = Focal length × Flying height

(ii) $S = \frac{\text{Flying height}}{\text{Focal length}}$

(iii) $S = \frac{\text{Focal length}}{\text{Flying height}}$

(iv) $S = \frac{\text{Focal length}}{\text{Air base}}$

(h) What is the full form of GIS ?

(i) What is the full form of GPS ?

(j) What is the full form of DEM ?

2. Write briefly on ***any four*** of the following : 2×4=8

(a) Visible band

(b) Characteristics of the LISS-3 sensor

(c) Black body radiation

(d) Active sensor

(e) FCC

(f) Geoid and Ellipsoid

(g) Raster data

(h) DEM

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

(a) Principles of remote sensing

(b) Electromagnetic spectrum

(c) Aerial photography

(d) Atmospheric windows

(e) Vertical exaggeration

(f) Satellite image restoration

(g) Band ratioing

(h) Segments of GPS

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

(a) Discuss the functions and types of remote sensing sensors.

(b) Write elaborately about different elements of photo interpretation.

(c) Write in detail about types and characteristics of satellites.

(d) Discuss the advantages and disadvantages of aerial photography and satellite imaging.

(e) Write elaborately about the techniques of image enhancement.

(f) What do you mean by geographic data ? Write elaborately on vector data models with neat sketches wherever necessary.

(g) Discuss elaborately about application of GIS in earth sciences.

(h) Distinguish between geographic coordinate system and projected coordinate system.

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