2025

(CBCS)

(6th Semester)

GEOGRAPHY

TENTH PAPER

(Remote Sensing and Geographical Information System)

(Revised)

Full Marks : 75

Time : 3 hours

The figures in the margin indicate full marks for the questions

(SECTION : A—OBJECTIVE)

(*Marks* : 10)

Tick (✓) the correct answer in the brackets provided : 1×10=10

1. The first known aerial photograph was taken in 1858 by

(a) Arthur Batut ( )

(b) Albert Maul ( )

(c) Gaspard-Félix Tournachon ( )

(d) George R. Lawrence ( )

2. Maximum tilt tolerance is usually _____ from the perpendicular line to the camera axis in vertical aerial photograph.

(a) 1° ( )

(b) 3° ( )

(c) 13° ( )

(d) 33° ( )

3. The tiny particle of electromagnetic radiation is known as

(a) photon ( )

(b) cell ( )

(c) pixel ( )

(d) hertz ( )

4. The electromagnetic region lying between 0·4 μm and 0·7 μm is called

(a) cosmic ray ( )

(b) visible light ( )

(c) microwave ( )

(d) infrared ( )

5. The altitudinal distance of a geostationary satellite from the earth is about

(a) 26000 km ( )

(b) 30000 km ( )

(c) 44000 km ( )

(d) 36000 km ( )

6. In which direction the sun-synchronous satellites are designed to orbit the earth?

(a) North-South ( )

(b) East-West ( )

(c) Along equator ( )

(d) Follow the moon ( )

7. What is the basic output of GIS or spatial data analysis system?

(a) Software ( )

(b) Numbers ( )

(c) Map ( )

(d) Location ( )

8. Which GIS data model represents the real world using discrete objects and their characteristics?

(a) Vector data model ( )

(b) Raster data model ( )

(c) Tabular data model ( )

(d) Image data model ( )

9. The black colour on satellite imagery represents

(a) dense forest ( )

(b) built-up area ( )

(c) water bodies ( )

(d) cropping field ( )

10. The process of examining a remote sensing image and manually identifying the features in that image is called

(a) image classification ( )

(b) image interpretation ( )

(c) image building ( )

(d) image compression ( )

(SECTION : B—SHORT ANSWERS)

(*Marks* : 15)

Write short notes on the following : 3×5=15

UNIT—I

1. Fiducial marks

OR

2. Principal point

UNIT—II

3. Atmospheric window

OR

4. Electromagnetic spectrum

UNIT—III

5. Remote sensors

OR

6. Earth observation satellites

UNIT—IV

7. Raster data

OR

8. Vector data

UNIT—V

9. Challenges in using remote sensing and GIS for land use analysis

OR

10. Size or shape as elements of image interpretation

(SECTION : C—DESCRIPTIVE)

(*Marks* : 50)

Answer the following questions : 10×5=50

UNIT—I

1. Differentiate between vertical and oblique aerial photographs. What are the advantages and disadvantages of vertical aerial photograph? 6+2+2=10

OR

2. Give a detailed account of the historical development of aerial photography. 10

UNIT—II

3. What is remote sensing? Explain the principles and components of satellite remote sensing. 2+4+4=10

OR

4. What is electromagnetic spectrum? Describe how electromagnetic radiation interacts with the surface of the earth. 3+7=10

UNIT—III

5. Describe the different platforms used for remote sensing. Discuss the advantages and disadvantages of space-borne or aerial platform. 6+2+2=10

OR

6. Define satellites. Explain the types of satellite orbits and their uses. 2+4+4=10

UNIT—IV

7. What is GIS? Explain, in detail, each component of GIS. 4+6=10

OR

8. What do you mean by spatial and non-spatial data in GIS? Differentiate between the two types of data. 6+4=10

UNIT—V

9. Discuss the importance of remote sensing and GIS in analysis of urban sprawl and urban planning. 5+5=10

OR

10. Explain the application of remote sensing in forest monitoring. 10

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