

**2 0 2 5**

( 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  $\mu\text{m}$  and 0.7  $\mu\text{m}$  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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