

1] Remote sensing

- The method of collecting information about an object, place or phenomenon with the help of distantly placed sensors without touching is known as remote sensing.

2] Sensor

Instrument used for data collection through remote sensing are called sensor.

Cameras on the earth surface and in aircraft and scanners in satellite serve as sensor

3] Remote sensing divided in to two on the basis of source of light what are they?

- **An energy source is essential for remote sensing. This can be solar energy or artificial sources of light. Based on the source of energy remote sensing divided in to two**

1) Active remote sensing - Remote sensing based on artificial source of light is called Active remote sensing

2) Passive remote sensing - Remote sensing based on the energy from the sun

4] Based on platform remote sensing divided in to three what are they?

- **Platform - The information is collected with the help of either cameras or sensors. The surface where the sensor or cameras is placed for collecting information by remote sensing is called the Platform.**
- **Terrestrial Photography**
- **Aerial Remote Sensing**
- **Satellite Remote Sensing**

5] Terrestrial Photography

Taking photographs of the earth's topography from the earth's surface and from higher elevation is called Terrestrial Photography

Demerit

Limited possibility of usage , Not applicable in vast regions

6] Aerial Remote Sensing

The continuous process of capturing photographs of the earth surface using cameras mounted on balloons or aircraft is known as Aerial Remote Sensing

It generally used to gather clear information about small regions.

- **merit**
- **Used collecting information about Small Regions**
- **Continuous pictures of the areas along the path of the aircraft are made available.**
- **Collecting Information About any Place**
- **Overlapping**
- **It useful for viewing a region as a whole and for distinguishing the heights and depression of the earth surface**
- **Used during War**
- **Prepare Topographic Maps**

Limitation of Aerial remote sensing or demerit

- **Requires Open Space for takeoff and Landing Planes**
- **Shaking of the Aircrafts may affect the quality of the photograph**
- **Frequent landing for Refueling the Aircraft increase the Cost.**
- **Not Possible in Vast and extensive Area**

7] Name the modern technology used to overcome the limitation of Aerial remote sensing?

Satellite remote sensing

8] what do you mean by Overlap of aerial photographs?

To maintain continuity and ensure three dimensional view each aerial photographs covers about 60% area of the adjacent photograph also this is known as overlap in aerial photographs

9] Stereo pair - adjacent photographs with overlap

10] Stereoscope -the instrument that provide three dimension view of aerial photographs

- **When view through stereoscope the stereo pair gives a synoptic view of the area and will help in understanding the undulation of the terrain**

11] Satellite Remote Sensing

- **The process of collecting information using sensor fitted on artificial satellite is called SRS. Artificial Satellites can be classified in to two**
- **Geostationary Satellites**
- **Sun Synchronous Satellites**

12] write the features of Geostationary Satellites?

- **These satellites move in accordance with the earth rotation.**
- **These satellites orbit the earth at a height of about 36000 km with the same orbital velocity and direction as that of the earth.**
- **One third of the earth comes under its field of view.**
- **Since they move according to the orbital movement of the earth they always face the same region of the earth.**
- **This help in continuous data collection of an area.**
- **It used for weather studies and telecommunication.**
- **Example : INSAT SATELLITES**

13] Write the features of Sun Synchronous Satellites?

- **It revolve around the earth along the poles.(move around the north and south pole)**
- **It travels at a lower elevation.**
- **The orbit of these satellites is about 1000 km below the earth surface.**
- **The field of view is less than that of the Geostationary Satellites**
- **Repetitive data collection is possible.**
- **It used for data collection on natural resource , land use , ground water etc**
- **These satellites are mainly used for remote sensing purpose**

- **Example : IRS Series**

14 what is Spectral signature?

- **Every object on the earth surface reflects electromagnetic radiation in different measures.**
- **The Amount of energy reflected by each object is its Spectral signature OR**
- **The Measure of Reflected Energy by Each Object is called spectral signature of that object.**
- **Spectral signature of sand is different from that of vegetation.**

15] what is Satellite imagery?

- **The scanner on artificial satellites recognise the different object on the earth surface on the basis of their spectral signatures and transmit the data to the ground control station in digital form.**
- **These are analysed with the help of computers and transformed in to images these are known as the Satellite imagery**

16] What is Spatial Resolution of the sensor?

- **The size of the smallest object on earth that can be recognised by the sensor is the Spatial Resolution. OR**
- **The size of the smallest object that sensor can distinguish**

17] Uses of remote sensing technology?

- **For weather observation**
- **For ocean exploration**
- **For understanding land use**
- **For oil explorations**
- **For the monitoring of flood and drought**
- **For identifying forest fires in deep forest and to adopt control measures.**
- **To collect data regarding the extent of crops and spread of pest attack**
- **To locate place with ground water potentials**

18] Geographic information system

- **GIS is a computer based information management system for the storage , retrieval and analysis of spatial data and their peculiarities and also for displaying them in the form of maps table and graphs.**
- **Today, Software are used for preparing maps with the help of data collected through remote sensing and other methods of survey.**
- **This software is also used for incorporating more details in the maps and analysing them for various purposes. This system is known as GIS.**

USES

- **This software exhibit maps, renew maps, and produce new maps.**
- **Preparation of maps and graphs based on data acquired.**

19] Spatial data

- **Each object on the earth surface has its own latitudinal and longitudinal position. Hence the latitudinal and longitudinal position of object should also be given while preparing maps. Such information is known as spatial data.**
- **Example: Among the countries of the world the location of India is between north latitudes 8*4 and 37*6 and east longitudes 68*7 and 97*25.**
- **Each place on the earth has a specific location.**

20] Attributes

- **The characteristics of spatial data can be recorded with the help of their attributes.**
- **The characteristics of spatial data are attributes.**
- **The attributes can be combined with their spatial data using GIS software.**

21] Classify the following geo information in to spatial data and attributes?

- **Silent valley , Kerala , Population , vegetation , Land area , Port Blair**

Spatial data - Kerala, silent Valley, Port Blair

Attributes- Population, vegetation, Land area.

22] Layers

- **Spatial data can be stored as different layers.**
- **Spatial information can be converted in to different layers with the help of GIS software.**
- **If the earth's surface feature are represented as different layers , their spatial relationship can be easily understood**

23] What are the analytical capabilities of GIS?

- **Overlay Analysis , Buffer Analysis , Network Analysis**

Network analysis

- **Deals with the Linear Features (Road, Railway, Rivers..) on a Map**

Possibilities of network analyzing

- **It help to find out the nearest and less congested roads**
- **It help to find out shortest route and routes without toll**
- **Travel time and cost are reduced**
- **Roads having less accident rate can be determined**
- **Identify the shortest way to hospital**
- **To find out route with less traffic , petrol pumps, hotels and hospital.**

Buffer Analysis

- **It used for analysing the activities around a point feature or at a definite distance along a linear feature.**

Overlay Anaylisis

- **It used for understanding the mutual Relationship between & Changes undergone by the various feature of the earth surface**

Eg. Land Usage in a particular Area in a certain Period

24] What are the uses of GIS?

- **Compile data from different sources**
- **Update and incorporate data easily**
- **Conduct thematic studies**

- **Represent geographic features spatially**
- **Generate visual models of future phenomena and process based on the data collected.**
- **Prepare maps tables and graphs.**

25] Global positioning system

- **Satellite based tracking system are used for monitoring the location and movement of object on the earth surface**
- **The most important among this GPS of the USA**
- **GPS help sensing the latitudinal and longitudinal location and elevation of objects on the earth surface along with the corresponding time.**
- **Group of 24 Satellites helps it**
- **Uses Signals from Artificial Satellites (Atleast 4)**
- **GPS Receiver is needed**

26] match the following

A	B	C
SPECTRAL SIGNATURE	POLAR ORBITING	SENSOR
SPATIAL SIGNATURE	REFLECTION EMR	INSAT
SUN SYNCHRONOUS SATELLITE	ROTATION ALONG WITH EARTH	PHYSICAL CHARACTERISTICS OF THE OBJECT
GEOSTATIONARY SATELLITE	RECOGNISE THE SIZE OF SMALLEST OBJECT	IRS

