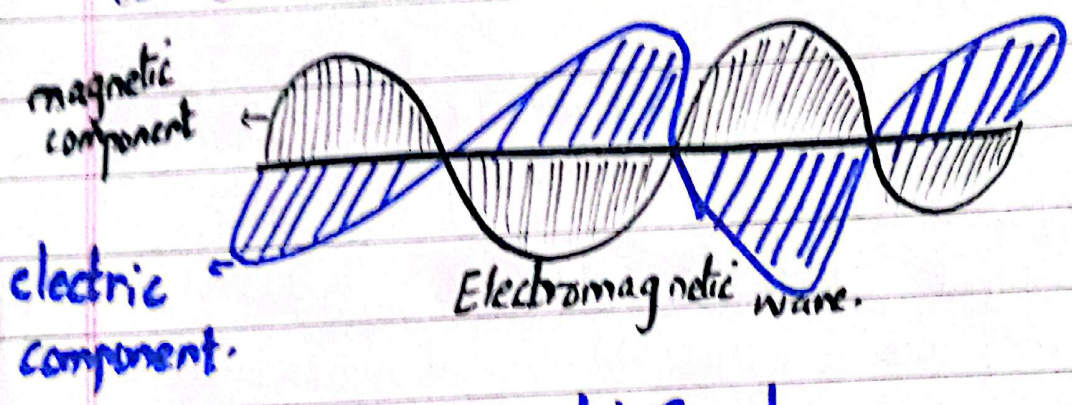


Q) What is electromagnetic radiation and also write two uses of each type of radiation.

Definition

Electromagnetic radiation refer to the energy that is propagated to the space in the form of electromagnetic radiation. It consist of both electric and magnetic component travel perpendicular to each other.



Electromagnetic Spectrum

Different types of electromagnetic radiation make a electromagnetic spectrum. They are following types of electromagnetic spectrum.

- Radiowaves . microwave . infrared . visible
- ultraviolet . X-ray . gama ray.

Uses of electromagnetic radiation

- Radiowaves

Radiowaves has longest wavelength and

shortest energy.

Uses

Radio waves are use in communication satellite.

They are used in TV signals.

• Microwave

Microwaves have shorter wavelength than radiowaves and highest energy than radio wave.

Uses

- They are used to cook food in microwave oven.
- They are also used in radar to predict weather.

Infrared Waves

They are two types of infrared waves. Near infrared and far infrared radiations

Uses

They are used in high power telescope like Hubble's telescope.

They are used to heat strained muscles and tissue.

Visible Radiation

visible radiation have a range 300-750nm.

Uses

They are used to see the object. They make object visible.

X-ray

They ~~are~~ Their wavelength ranges to ~~350nm~~ ^{0.01-10}

Uses

- X-ray is used to take the picture of bone to diagnose properly.
- X-ray also helps doctor to treat many diseases.

Gamma-rays

Their wavelength ranges less than 0.01nm.

Uses

They are used to treat cancer.

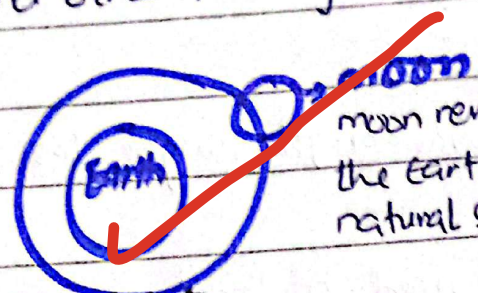
They are used to sterilize food and many research equipments.

4

Q What is satellite? Write about functioning of communication satellite? Write its application.

Satellite:

Definition: "Satellite is a ^{moving} revolving body that revolve around other heavenly bodies." ~~called~~



Moon revolve around the Earth. It is a natural satellite.

Types of satellite

They are two types of satellite.

- Natural satellite
- Artificial satellite.

Natural satellite

Those satellite that present naturally in space called natural satellite.

e.g Moon.

Artificial satellite

Those satellite which are man-made and used for various task is called artificial satellite.

e.g Global positioning satellite.

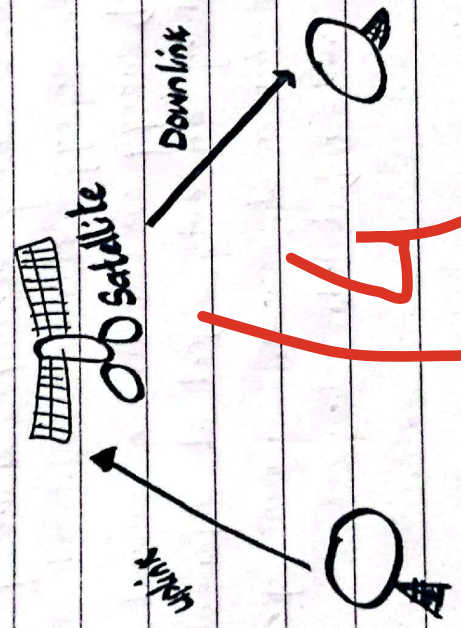
Working of communication satellite

Communication satellite work on radio wave

Communication satellite used high frequency and high wavelength radiation called radio waves. The working of communication satellite based on two system.

- **uplink**
- **downlink**

Those system which is used to sent information from earth to space. called uplink.	Those system used to sent information from space to earth called downlink.
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good answers!!!

Application

If you want to watch live match playing in England. The signal sent from stadium to space. The satellite receive, interpret that signal and sent down via downlink to the earth surface covering space area including Pakistan. The antenna of TV receive signal and matched the frequency and you can watch match on TV.

What is remote sensing and also write various types of resolution?

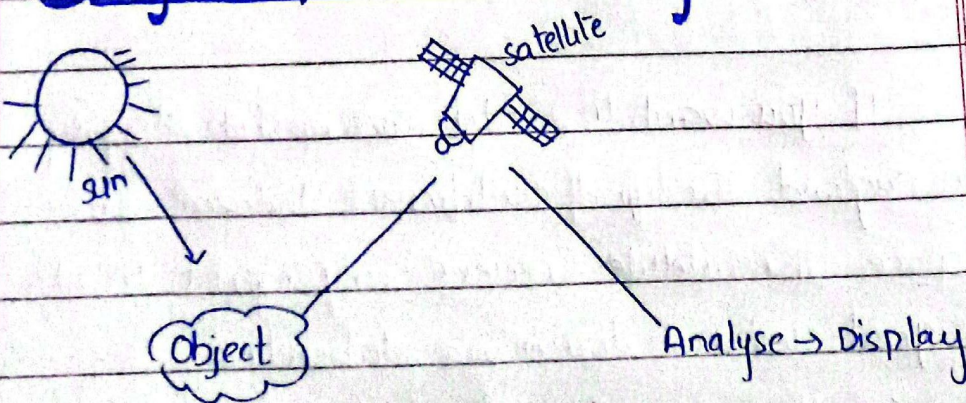
Remote Sensing

"Remote sensing is a science of acquiring information about earth surface without being in contact with it."

Principals of remote sensing

every object in the earth surface emit, absorb and radiate energy of various wavelength. The remote sensing technique mainly work on solar energy which is most abundant source of energy on earth. The amount of energy emitted by different object at different wavelength capture by remote sensor, then analyse and display into useful information.

Daigram of remote sensing



Resolution

In remote sensing, information is obtained from the earth's surface.

There are four types of resolution: spatial, spectral, temporal, and radiometric.

Spatial

Spatial resolution refers to the size of the smallest object that can be distinguished by the sensor.

Pixel size is a measure of spatial resolution. The smaller the pixel size, the more accurate the information.

Spectral

Spectral resolution refers to the ability of the sensor to distinguish between different wavelengths of light.

Higher spectral resolution allows for more detailed analysis of the target. This is important for identifying different types of vegetation and minerals.

Radiometric

Radiometric resolution refers to the ability of the sensor to distinguish between different levels of brightness or intensity.

Higher radiometric resolution allows for more detailed analysis of the target. This is important for identifying different types of vegetation and minerals.

Temporal

Temporal resolution refers to the frequency with which the sensor can observe the same area.

Resolution

In remote sensing, resolution refer to amount of information obtained from satellite image.

Types of resolution

There are four types of resolution.

Spatial resolution

spectral resolution

Radiometric resolution

Temporal resolution

Spatial resolution

Spatial resolution refer to size and amount of pixel. The greater the number and size of pixel, more accurate the satellite image will be.

Spectral resolution

Spectral resolution refer to the ability of sensing instrument to define fine wavelength intervals. Higher the wavelength passing the sensor, more accurate the image will be.

Radiometric resolution

Radiometric resolution refer to ability of instrument to distinguishes the difference of low intensity light.

Temporal resolution

Temporal resolution refer to the process of taking image of same earth surface