

- Define remote sensing ?
- What is the need for spatial data ?
- Explain the two categories of spatial data acquisition ?
- Which are the elements of remote sensing ?
- Distinguish between active and passive remote sensing ?
- Define atmospheric windows
- ~~Expte~~ What is scattering ? Explain Rayleigh, Mie and non selective scattering ?
- ~~Explain~~ energy interactions <sup>that occur</sup> with the target ? How are they related ?
- Which are the different
- What is a Lambertian surface ?
- Define spectral reflectance ?
- What are the characteristics of an ideal remote sensing system ? Compare them with those of real remote sensing <sup>sys</sup>
- What is spectral signature ?
- What is a sensor ? Explain any two passive sensors and any two active sensors ?
- Geostationary satellite  
Syn synchronous orbit  
Near polar orbit  
Instantaneous FOV  
FOV
- How diffraction affects spatial resolution ?

→ Swath

Spectral resolution

Temporal resolution

Revisit time

Digital numbers

→ BIP, BIL, BSQ (utility)

→ Explain the principle of imaging radar systems?

→ What is polarization? what are like polarized and cross polarized radar images?

→ SLAR (side looking airborne radar)

→ Radar layover

→ Radar foreshortening

→ Speckle in radar images

→ Principle of LIDAR

→ Advantages of laser compared to radar

→ Principle of thermal remote sensing

→ How can you monitor forest fires that burn at 800K?

→ What is photogrammetry

→ Photographic nadir

→ Scale

- How are the following related
  - RD and distance from principal point
  - RD and elevation
- How can you determine object height from relief displacement measurement?
- GCPs
- Explain any one source of radiometric distortion
  - Correcting haze (atmospheric scattering)
  - Destriping
- Explain any two sources of geometric distortion?
- How can you use mapping polynomials for image correction
- (including GCPs resampling and interpolation)
- Mathematical models for
  - a) aspect ratio correction
  - b) earth rotation skew correction
  - c) panoramic effect correction
- Georeferencing
- Mosaicking
- Data fusion

— What is photointerpretation? What are the advantages (4) and disadvantages that it offers over quantitative analysis using computers?

— Spontaneous recognition

— Elements of visual interpretation

• Tone, Shape, Pattern, Texture, Association

— CORINE mapping process.

— ~~Linear~~ Contrast modification

• Linear

• Saturating

• Logarithmic

— Histogram matching (principle)

— Matching to a mathematical reference

→ Image smoothing

— Median filtering

— Edge detection

— Spatial derivatives

• Robert's operator

• Sobel operator

• Prewitt operator

— Subtractive smoothing

— Texture

• GLCM features

- Principal component transform
- o (Numerical example)
- Tasseled cap transformation
- NDVI
- Maximum likelihood classification
- Minimum distance classification
- Parallelepiped classification
- K nearest neighbour classifier
- Linear discrimination
- Iterative optimization clustering algorithm
- Clustering by histogram peak selection
- What is GIS ?
- What are the utilities of a GIS ?
- All of the four slides and one lecture note.

