



KERALA AGRICULTURAL UNIVERSITY
B.Tech.(Agrl. Engg.) 2022 & Previous Admissions
VI Semester Final Examination - June 2025

Lwre.3209

Remote Sensing and GIS Applications (1+1)

Marks: 50
Time: 2 hours

I Fill in the blanks

(10x1=10)

1. The Global Positioning System (GPS) consists of a constellation of satellites.
2. Image restoration techniques aim to improve the quality of remote sensing imagery by reducing and correcting geometric distortions.
3. Aerial photographs taken with the camera axis directed vertically provide a view of the terrain.
4. Spectral reflectance curves illustrate how different materials interact with electromagnetic radiation at specific
5. The segment of GPS consists of ground stations responsible for monitoring and controlling the GPS satellites.

State True or False

6. The NAVSTAR GPS system was developed by the European Union.
7. Multispectral scanners utilize only one spectral band for imaging.
8. GLONASS is a global navigation satellite system developed by India.

Define the following

9. Orthophotos
10. Stereoscopic Vision

II Write short on ANY FIVE of the following

(5x2=10)

1. Describe the primary applications of remote sensing and GIS in land and water resource management.
2. Explain the concept of spectral signatures in remote sensing.
3. Describe the importance of the end lap and side lap in aerial photography.
4. Differentiate between whisk-broom and push-broom scanners.
5. Explain the difference between supervised and unsupervised classification in remote sensing.
6. What are the major components of spatial data?
7. What are the different types of resolutions in satellite remote sensing?

III Answer ANY FIVE of the following

(5x4=20)

1. What are the fundamental components of remote sensing (RS), and what advantages and limitations are associated with this technology?
2. Explain the concept of spectral reflectance curves for vegetation, soil, and water in remote sensing, highlighting their unique characteristics and significance in land cover classification.
3. Discuss the different types of aerial photographs, their scales, and the importance of end lap and side lap in planning aerial photography missions.
4. Explain the importance of map projections in GIS, and discuss the characteristics of different map projection classes.
5. Explain the Indian Regional Navigation Satellite System (IRNSS) and its objectives.
6. Define microwave remote sensing and its significance in Earth observation.
7. What are the key elements involved in the Image interpretation?

IV

Write an essay on ANY ONE of the following

(1x10=10)

1. Discuss the process of digital data analysis in remote sensing (image restoration, enhancement, information extraction, and classification). Explain each step in detail, including the techniques and methods commonly used for each process.
2. Provide an overview of the history and development of the Global Positioning System (GPS). Explain the key components and objectives of GPS design, and describe the segments; space, control, and user in detail.
