



**KERALA AGRICULTURAL UNIVERSITY**  
**B.Tech. (Agrl. Engg.), 2022 Admission, Semester VIII**  
**FINAL EXAMINATION**

**Elid. 4206 Applications of Geospatial Techniques in Water Resources (2+1)**

**Total marks: 50**

**Duration: 2 hrs**

**I. Answer ALL of the following**

**[10×1 = 10 marks]**

1. Shuttle Radar Topographic Mission (SRTM) data were collected using .....
  - a) Optical sensors
  - b) LiDAR sensors
  - c) Interferometric radar
  - d) Thermal sensors
2. The formula for calculating Normalized Difference Vegetation Index (NDVI) is .....
  - a)  $(NIR + Red)/(NIR - Red)$
  - b)  $(Red - NIR)/(Red + NIR)$
  - c)  $(NIR - Red)/(NIR + Red)$
  - d)  $NIR \times Red$
3. The superior capability of hyperspectral remote sensing for material identification than multispectral remote sensing is primarily due to its higher .....
  - a) Spatial resolution
  - b) Spectral resolution
  - c) Radiometric resolution
  - d) Temporal resolution
4. Geostationary satellites orbit at approximately ..... km.
  - a) 600
  - b) 1000
  - c) 35786
  - d) 42000
5. .... is a satellite based radio navigation system that provides accurate position, velocity and time information worldwide.
6. Regions of the electromagnetic spectrum with minimal atmospheric absorption are called .....
7. .... is an example of projected coordinate system.
8. .... is the primary source of elevation information used for watershed delineation.
9. Supervised classification does not require training samples from known feature classes. (TRUE/FALSE)
10. Raster data represent geographic features using a grid of cells/pixels. (TRUE/FALSE)

**II. Write short notes on any FIVE of the following**

**[5×2=10 marks]**

1. Coordinate system and its components.
2. Characteristics of microwave radiation for remote sensing applications.
3. Working principle of global positioning system (GPS)

(P.T.O)

4. Digital image processing and its functional categories
5. Active and passive remote sensing with examples
6. Principal component analysis
7. Supervised and unsupervised classification

**III. Describe any FIVE of the following**

[5×4=20 marks]

1. Shuttle Radar Topographic Mission (SRTM) data
2. Geographical Information System (GIS) and its components
3. Compare vector and raster models
4. Georeferencing
5. Resolutions in remote sensing
6. Digital Elevation Model (DEM), its characteristics and sources
7. Geometric correction

**IV. Write an essay on any ONE of the following**

[1×10=10 marks]

1. Application of remote sensing and geographic information system in watershed management.
2. Application of Remote sensing and Geographic Information System in drought assessment.