NOTIFICATION (Advt No. 1/2018)

Syllabus (Paper III)

Post Code - 304

Area: Remote Sensing/GIS.

Remote Sensing

- **General:** Principles of Remote Sensing, Platforms and sensors, Indian Remote Sensing Satellite programs, Spectral Signatures, Atmospheric Effects, Resolution
- **Image Operations:** Data Format, LUT; Image Restoration; Noise Reduction; Radiometric Correction of Data; Geometric Correction of Data; Linear and Non-linear Transformations for Geometric Corrections; Histogram Significance
- **Image Enhancements:** Radiometric Enhancement; Spatial Enhancements; Contrast stretching—Linear and Non-linear Methods; Vegetation indices
- **Digital Image Processing:** Supervised and Unsupervised Classification Methods; Change Detection, Accuracy Assessment.
- **Advances in Remote Sensing:** Thermal, Microwave and Hyper-spectral Remote Sensing; LIDAR; Object oriented classification; Digital Photogrammetry and Information Extraction Techniques
- **Remote Sensing Applications:** Natural Resource Mapping; Environmental Mapping and Monitoring; Geomorphic/Geological Mapping—Lithology and Structure; Land Use Mapping;

Geographical Information System (GIS)

- **Basics:** Components of GIS; Coordinate Systems, Datum and Projections in GIS.
- **GIS Data:** Raster and Vector Data, Conversion; Digitization; Data Standards
- **Data and Information Sources for GIS:** ISRO Geoweb Services, Water Resource Information System of India, Bhuvan Geoportal
- **Application Methods:** DEM/DTM, Spatial Analysis, Terrain analysis, Network analysis, Customization, Remote Sensing Data and GIS Integration;

- **GIS Applications:** Rural and Urban Land Use; Rural and Urban Change; Rural and Urban Information System; GIS in Planning; Forest Fire Mapping; GIS in Health Services and Disease Mapping; Solid Waste Management; Wild Life Habitat Suitability Studies; Shortest Path Characteristics; Spatial Decision Support System.

Global Positioning System (GPS)

- Overview of GPS/ other Navigation System, Navigation Principles, constellation, GPS Errors, Differential GPS
- Surveying methods and integration with GIS themes Application case studies
- Comparisons of different navigation systems.