Nirma University

Institute of Technology

Semester End Examination (IR) May 2022

B. Tech. in (IC, CE, EC), Semester-VI

2CLOE02 REMOTE SENSING, GIS AND GPS (OPEN ELECTIVE)

Roll / Exam No. _____ Supervisor's initial with date _____

Time: 3 Hours Max. Marks : 100

Instructions:
1. Attempt all questions.
2. Figures to right indicate full marks.
3. CO indicates Course Outcome and BL indicates Revised Bloom's Taxonomy Action Verbs.
4. Draw neat sketches wherever necessary.
5. Use section wise separate answer book.

SECTION-I

Q-1. [A] CO2,BL2 Describe the various engineering applications of RS, GIS & GPS **[08]**

Q-1. [B] CO2,BL5 Compute the first eccentricity and second eccentricity of an Earth ellipsoid having inverse flattening as 300.8017 **[04]**

OR

Q-1. [B] CO3,BL4 Determine the 3-D Cartesian Co-ordinates X, Y and Z of a map location having the Spheroidal Co-ordinates: Latitude = 18°30'45" and N, Longitude = 80°45'30" E, h = 24 m. Use parameters of Everest Ellipsoid: a = 6377276 m, finv = 300.8017 **[04]**

Q-1. [C] CO3,BL5 Discuss GPS user equivalent errors. How will you improve the accuracy of your GPS data? **[06]**

Q-2. [A] CO3,BL3 Explain Geodetic Datum system. Describe geodetic datum system used in GPS. **[08]**

Q-2. [B] CO2,BL5 Propose the solution for flood and tsunami disaster using GIS technology. List out the data to be collected for the same. Explain how GIS was used in any disaster happened in India. **[08]**

OR

Q-2. [B] CO1,BL4 Distinguish between (i) GPS satellite and Remote Sensing Satellite. (ii) Geostationary and Polar satellite orbits **[08]**

Q-3. [A] CO1,BL3 Explain by polar and geosynchronous orbit. Briefly explain the following terms in the context with orbital remote sensing: Orbital period, Apogee, Perigee, Inclination, Ascending and descending orbit. **[08]**

Q-3. [B] CO2,BL4 What are DEM and LULC? Differentiate between ArcGIS and QGIS. List out the step wise process to download the DEM data. **[08]**

SECTION-II

Q-4. [A] CO2,BL5 Propose any two solutions for the development of any city using GIS technology. **[08]**

Q-4. [B] CO1,BL4 Compare the following: **[04]**
(i) Active and Passive Remote sensing
(ii) Spatial and Spectral Resolution of Satellite Image

OR

Q-4. [B] CO1,BL4 Explain NDVI and NDWI in detail. **[04]**

Q-4. [C] CO1,BL3 Explain spectral signature of vegetation, soil and water. What is false color composite? Explain it using a neat sketch. **[06]**

Q-5. [A] CO2,BL4 Explain unsupervised and supervised image classification. Explain one of the algorithm in both of classification technique. **[08]**

Q-5. [B] CO3,BL4 Discuss why GPS requires minimum four satellites. Explain basic principle of GPS. **[08]**

OR

Q-5. [B] CO3,BL4 Discuss various GPS segments with their functions. Briefly discuss various errors and Bias of GPS. **[08]**

Q-6. [A] CO2,BL3 How to register image in GIS software? List out various platform where we get the GIS data. **[08]**

Q-6. [B] CO1,BL3 What do you mean by image stretching? Explain linear and non-linear stretching techniques. **[08]**

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