DOON UNIVERSITY, DEHRADUN

Midterm Exam- First Semester, 2014

M.Tech (Environmental Technology)

Course: ETC – 590: Remote Sensing & GIS Application in Environmental Management

Time Allowed: 2 Hours *Maximum Marks: 30*

Section A **(14 Marks)**

a). Define: (Write in short, Any 10) (10x1= 10 Marks)

1. Reflectance
2. Radiance
3. Pushbroom sensor
4. Whiskbroom sensor
5. Wein's Displacement Law
6. Swath
7. Emissivity
8. Trilateration
9. What is the wavelength ranges of Thermal IR?
10. How Kinetic Temperature is related to Radiant Temperature?
11. Differentiate Active and Passive Sensor.
12. How many segments are there in a GNSS system? Name them.

b). True/False. Correct if false showing/ stating the reason. (4X1=4Marks)

1. Thermal inertia of object A is greater than object B. Object A will show more fluctuation in temperature (T/F).
2. Radiance is used in spectral signature (T/F).
3. QZSS is of China(T/F).
4. Geo stationary orbit is usually preferred for Remote Sensing Satellites (T/F).

Section B (Any 4) **(4X2=8 Marks)**

1. What is the primary differences among non-selective, Rayleigh, and Mie scattering.
2. What is Resolution and what are its types?
3. Draw and explain the Thermal Signature of water, soil, vegetation and metals.
4. Draw and explain the spectral reflectance curve for water, vegetation and dry soil. What all can be inferred with it?
5. Explain how ranging is done in GNSS. How many satellites are required for it?
6. Differentiate between Across Track & Along Track Sensors.

Section C (Explain Any 2) **(2x4=8 Marks)**

1. What are geometric and radiometric errors? Explain their types.
2. What is Electromagnetic spectrum? What are atmospheric windows?
3. Explain DGPS, Errors in GNSS and Advantages of GNSS.