

BE/B.TECH(Full Time) DEGREE END SEMESTER EXAMINATIONS. NOV/DEC 2011

GEOINFORMATICS

FIFTH SEMESTER

**GI 9302- MICROWAVE REMOTE SENSING**

**(REGULATION 2008)**

Time : 3 hr

Answer ALL Questions

Part-A(10x2=20 Marks)

1. What are the properties of plane waves?
2. Brief out the vegetation response to active microwave energy.
3. Write the relationship between Brightness temperature and Surface temperature.
4. Write the specification and data products of TRMM mission.
5. What do you mean by interferogram?
6. Differentiate polarization synthesis and polarization signature.
7. List out the various beam modes and its corresponding incident angles, area of coverages and resolutions of radarsat -1 mission.
8. How will you generate the three dimensional view of the terrain surface using Radarsat mission.
9. What do you mean by tilt modulation and hydrodynamic modulation?
10. Write the beam modes and incident angles to be selected for crop tillage practices and in identification of clear cuts.

Part-B (5x16=80 Marks)

1. Discuss in detail about the Sea Surface Height measurement using Microwave Altimeters. (16)
2. a. (i) Discuss in detail about the geometric distortions occurred in Microwave imagery (10)  
a. (ii) Explain in detail about the need of Synthetic aperture radar over Real aperture radar. (6)

**(OR)**

- b. (i) Explain in detail about the radar back scattering from point scatterers, resonant scatterers and Facets (8)
- b. (ii) State and prove the Maxwell's first equation (8)

3. a. (i) Write the detailed explanation about the discrimination of microwave energy with various radar system parameters. (10)

a. (ii) Write about the reduction process of speckle in radar images. (6)

(OR)

b. Explain in detail about the radiation laws and emission characteristics of various earth features (16)

4. a. Give the detailed explanation about the experimental space borne missions and Interferometric space borne missions (16)

(OR)

b. Discuss in detail about the Specification and Characteristics of Topex –Posaidon and QuickScat Wind Scatterometer. (16)

5. a. Explain in detail about the role of microwave remote sensing in the field of Oceanography. (16)

(OR)

b. Discuss in detail about the Soil moisture assessment using synthetic aperture radar data. (16)