

GUJARAT TECHNOLOGICAL UNIVERSITY
ME Semester –I Examination Feb. - 2012

Subject code: 711206N**Date: 21/02/2012****Subject Name: Remote Sensing and its Applications****Time: 10.30 am – 01.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Draw the spectral reflectance curves and explain how they are utilized to distinguish between vegetation, wet soil and water bodies by analyzing target behavior in different spectral bands. **07**
- (b) Explain path radiance and noise with respect to energy intercepted by the sensor. Explain interaction of EMR with the target to highlight the importance of reflection, absorption and transmission. **07**
- Q.2** (a) Explain the advantage of using remote sensing areal photos and satellite images over conventional survey **07**
- (b) Enlist different type of resolutions; explain spatial and temporal resolution **07**
- OR**
- (b) Explain the term spectral signature. Describe the spectral signatures of healthy and diseased crop to explain how crop damage assessment can be done on a regional scale with the help of remote sensing. **07**
- Q.3** (a) Explain multi spectral and pan chromatic remote sensing **07**
- (b) Justify the statement, “Image is not fully optimized even after preprocessing and image enhancement is necessary before interpretation.” Give the concept of histogram equalization, linear and non linear contrast enhancement. **07**
- OR**
- Q.3** (a) Enlist the basic components of a satellite sensor and explain the function of filter and detector **07**
- (b) Explain the need for preprocessing of an image before image interpretation. **07**
- Q.4** (a) Explain geostationary and sun synchronous satellites and their importance with respect to image capturing **07**
- (b) Give the importance of image classification. How is classification done by supervised training in GIS software? **07**
- OR**
- Q.4** (a) (i) Explain rasterisation and when is the rasterisation of data useful. **07**
- (ii) Explain encoding method for tabular analog data and explain the encoding method for remotely sensed analog image.
- (b) Explain how remote sensing can be useful in prevention against natural hazards as well as in damage assessment due to natural hazards. **07**

- Q.5** (a) Explain the utility of remote sensing in monitoring the changing land use pattern in and around an urban area. How is such a study planned? **07**
- (b) Give the importance of radiometric resolution; explain the concept of pixel and digital number. **07**

OR

- Q.5** (a) Explain the concept of filtering process in image enhancement. Give the advantage of high pass and low pass filter. **07**
- (b) Define active and passive remote sensing their advantages and disadvantages **07**
