



NBY-003-020404 Seat No. _____

M. Sc. (Physics) (Sem. IV) (CBCS) Examination

April / May - 2017

**ET - 5 : Remote Sensing & Applications
(New Course)**

Faculty Code : 003

Subject Code : 020404

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- 1** Answer any **seven** of the followings : **14**
- (1) What do you mean by "atmospheric window"?
 - (2) Explain the Rayleigh scattering.
 - (3) Define the "ground resolution" of the image.
 - (4) What do you mean by "Digital Number" in remote sensing?
 - (5) Explain the term "Ground Segment Distance" (GSD).
 - (6) What is the use of filters in remote sensing?
 - (7) Define the "Field Of View" (FOV).
 - (8) Explain the "dominant wavelength" of radiation.
 - (9) Why the cloud and fog look white?
 - (10) List the advantages of digital images.
- 2** Answer any **two** of the following. **14**
- (a) Describe the electromagnetic radiation. Explain the Stefan-Boltzmann law and black body. Explain the dominant wavelength.
 - (b) Describe how the energy interacts in the atmosphere. What is "atmospheric window"? How it is useful in remote sensing?
 - (c) Explain the energy interaction with earth surface features. Define specular and diffuse reflectors. Briefly explain the spectral reflectance and spectral signature.

- 3** Answer the following : **14**
- (a) Explain the construction of simple camera and explain the film exposure.
 - (b) What do you mean by "film density"? Describe any one method to find the density of the film. What information you get from the film density?

OR

- 3** Answer the following : **14**
- (a) Describe the elements of photogrammetry. Show how the parallax measurements are made and which parameters can be evaluated using parallax measurements.
 - (b) Assume that two road intersections shown on a photograph can be located on a 1:25,000 scale topographic map. The measured distance between the intersections is 47.2 mm on the map and 94.3 mm on the photograph. What is the scale of the photograph? What will be the length of fence that measures 42.9mm on the photograph?

- 4** Answer any **two** of the following : **14**
- (a) Describe the Across track scanning system. Define the ground resolution. Show how the multispectral across track system is operated.
 - (b) Draw the diagram of thermal scanner and explain its working.
 - (c) Describe the Along track scanning system in details.

- 5** Write short notes on any **two** of the following. **14**
- (a) Advantages of digital images.
 - (b) Negative-to-positive black and white film sequences
 - (c) Ideal and Real remote sensing system
 - (d) The Global Positioning System.