



MBW-003-1204005 Seat No. _____

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

April / May - 2018

ET - 9 : Remote Sensing & Application

Faculty Code : 003

Subject Code : 1204005

Time : Hours]

[Total Marks : 70

Instruction : All questions are compulsory. The figure on right indicates marks.

1 Answer Any **Seven** of the following : **14**

- (a) Explain the photo scale and its relation to focal length.
- (b) What do you mean by "atmospheric window"?
- (c) List the primaries of additive and subtractive color system.
- (d) Explain the "dominant wavelength" of radiation.
- (e) Why the cloud and fog look white?
- (f) Explain the concept of Black-body radiation.
- (g) Define relief displacement.
- (h) What do you mean by "Digital Number" in remote sensing?
- (i) Define the "ground resolution" of the image.
- (j) Explain the normal angle, wide angle and super wide angle lenses.

2 Answer Any **Two** of the followings :

- (a) Describe the electromagnetic radiation. Explain the Stefan-Boltzmann law and black body. Explain the dominant wavelength. **7**

- (b) Explain the energy interaction with earth surface features,, Define specular and diffuse reflectors. Briefly explain the spectral reflectance and spectral signature 7
- (c) Describe how the energy interacts in the atmosphere. What is " atmospheric window"? How it is useful in remote sensing? 7
- 3** Answer the following :
- (a) Define the "photographic scale". Draw the geometry of a vertical photo and explain the average scale of the terrain. 7
- (b) Using proper geometric drawing explain how the relief displacement can be measured. Derive the expression to find the height of the object. 7
- OR**
- 3** Answer the following :
- (a) Describe the characteristics of image parallax. 7
- (b) Derive the expression for the height measurements using image parallax. 7
- 4** Answer Any **Two** of the followings :
- (a) Explain the across track scanning system with proper diagram. Define "ground resolution". 7
- (b) Using proper diagram describe the operating principle of across track Multispectral scanners. 7
- (c) Describe any one method of the instrument "Densitometer". Explain why you need to measure the density of the film. 7
- 5** Write short notes on Any **Two** of the followings : 14
- (a) Digital Image Processing
- (b) Satellite "LANDSAT" overview
- (c) Calibration of sensors to generate digital number(DN)
- (d) Land use/Land cover application of remote sensing