



BBD-003-1204005

Seat No. _____

M. Sc. (Sem. IV) Examination

July - 2021

ET-09 : Physics

(Remote Sensing & Applications)

Faculty Code : 003

Subject Code : 1204005

Time : 2.30 Hours]

[Total Marks : 70

Instructions :

- (1) All questions carry equal marks.
- (2) Answer any five of the following.

- 1 (a) What do you mean by “atmospheric window” ? **14**
(b) Define the ‘ground resolution’ of the image.
(c) Explain the term ‘Ground Segment Distance’ (GSD).
(d) Define the ‘Field of View’.
(e) Why the cloud and fog look white ?
(f) List the primaries of additive and subtractive color system.
(g) Explain the photo scale and its relation for focal length.
- 2 (a) Describe the Stefan-Boltzmann law. **14**
(b) Explain the Rayleigh scattering.
(c) What do you mean by ‘Digital number’ in remote sensing ?
(d) What is the use of filters in remote sensing ?
(e) Explain the ‘dominant wavelength’ of radiation.
(f) List the advantages of digital images.
(g) Explain the parallax in the stereo pair of image.
- 3 (a) Explain the energy interaction with earth surface features. **7**
Define specular and diffuse reflectors. Briefly explain the spectral reflectance and spectral signature.
(b) Explain the construction of simple camera and explain the **7**
film exposure.

- 4 (a) Describe the Across track scanning system. Show how the multispectral across track system is operated. 7
- (b) Describe the Along track scanning system in detail. 7
- 5 (a) Draw the diagram of thermal scanner and explain its working with full details. 7
- (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 ? 7
- 6 (a) What is the relief displacement ? With the help of diagram explain how the relief displacement can be measured ? Also determine the height of the object using the displacement. 7
- (b) Write a note on : Global Positioning System. 7
- 7 (a) Write a note on : negative-to-positive black and white film sequences. 7
- (b) Write a short note on : Ideal and real remote sensing system. 7
- 8 (a) What is spectral reflectance ? Describe in detail the same for vegetation, soil and water. 7
- (b) Write a note on : LANDSAT satellite and their characteristics. 7
- 9 (a) Define film exposure. Write the expression for it and explain the effect of each parameter. What do you understand by f-stop numbers ? 7
- (b) Discuss in detail the geometric factors influencing the film exposure. 7
- 10 (a) Write a note on : Calibration of sensors to generate digital number (DN). 7
- (b) Write a note on : Land use/Land cover application of remote sensing. 7