Roll No. | | | | | | | | | | |

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. / B. Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS, NOV/DEC 2021

B.E CIVIL ENGINEERING (TM)
Fifth Semester
CE5001 & Remote Sensing

(Regulation 2019)

Time: 3hrs Max.Marks: 100

CO 1	Understand the concepts and laws related to remote sensing.
CO 2	Understand the interaction of electromagnetic radiation with atmosphere and earth material.
CO 3	Acquire knowledge about satellite orbits and different types of satellites.
CO 4	Understand the different types of remote sensors.
CO 5	Gain knowledge about the concepts of interpretation of satellite imagery and civil engineering applications.

BL – Bloom's Taxonomy Levels
(L1 - Remembering, L2 - Understanding, L3 - Applying, L4 - Analyzing, L5 - Evaluating, L6 - Creating)

PART- A (10 x 2 = 20 Marks)
(Answer all Questions)

Q. No	Questions	Marks	CO	BL
1	Write the advantages of remote sensing over conventional methods.	**2**	1	L2
2	Define the terms wavelength and frequency?	**2**	1	L1
3	What is meant by spectral reflectance curve?	**2**	2	L1
4	What is the use of spectroradiometer?	**2**	2	L2
5	What is meant by critical velocity and escape velocity of satellites?	**2**	3	L1
6	What is meant by satellite orbit?	**2**	3	L1
7	Distinguish between active and passive remote sensing	**2**	4	L1
8	Write the advantages of microwave remote sensing.	**2**	4	L1
9	What are the different types of remote sensing data products based on level of processing?	**2**	5	L1
10	Write the example for edge enhancement technique	**2**	5	L2

PART- B (5 x 13 = 65 Marks)
(Restrict to a maximum of 2 subdivisions)

Q. No	Questions	Marks	CO	BL
11 (a) (i)	How Electromagnetic waves are generated from sun.	**5**	1	L3
(ii)	What is meant by electromagnetic spectrum? Explain the EMR spectrum based on wavelength range	**8**	1	L3
	OR			
11 (b) (i)	Explain the radiation principles are governed by the following laws (1) Basic Wave theory (2) Kirchhoff's law (3) Planck's law (4) Stefan – Boltzmann law (5) Wein's displacement law	**13**	1	L3
12 a (i)	Explain the different types of scattering in with suitable examples.	**13**	2	L4
	OR			
12 (b) (i)	Explain the characteristic of mesosphere.	**5**	2	L4

(ii)	Explain the electro magnetic radiation interaction with earth surface features	**8**	2	L4
13 (a) (i)	Explain the different laws related to motions of planets and satellites.	**8**	3	L4
(ii)	How the satellite moves in a circular path?	**5**	3	L4
	OR			
13 (b) (i)	Explain the different types of orbits with suitable drawings	**13**	3	L4
14 (a) (i)	Explain the accuracy of remote sensor with four parameters.	**13**	4	L4
	OR			
14 (b) (i)	What is meant by multispectral scanner? Explain the whisk broom and push broom scanner in detail with drawing	**10**	4	L4
(ii)	Write the uses and example for UAV.	**3**	4	L4
15 (a) (i)	Explain the different standard data products with suitable drawing.	**8**	5	L3
(ii)	Write the basic elements for the visual interpretation of satellite imagery	**5**	5	L3
	OR			
15 (b) (i)	Explain the image enhancement technique with suitable examples.	**13**	5	L3

PART- C (1 x 15 = 15 Marks)

(Q.No.16 is compulsory)

Q. No	Questions	Marks	CO	BL
16. (i)	Draw the typical spectral reflectance curve for vegetation, soil and water. Explain it in detail.	**8**	2	L5
(ii)	Write the causes of geometric errors and radiometric error	**7**	5	L6