Ref. No.: Ex/PG/CE/T/114B/2024

M.E. CIVIL ENGINEERING FIRST YEAR FIRST SEMESTER EXAM 2024

REMOTE SENSING AND ITS APPLICATION
Part – I

Answer Part I and Part II in Separate Answer Scripts

Time: 3 Hours **Full Marks: 100**

(60 marks for this Part)

Answer brief & to the point. Assume standard value for any parameter, if required

1. Explain the following – 4×4
   a. Sky appearing red during sunrise or sunset
   b. Smaller wavelengths like ultra-violet are not preferred for remote sensing study
   c. Requirement of Geometric correction for a digital image
   d. Band ratio

2. Name the different types of the following and state two major differences of each type. 5×4
   a. Earth orbiting Satellites
   b. Scattering of EM waves
   c. Image Classification
   d. Contrast manipulation
   e. Geometric Errors

3. Name different types of sensor resolutions and explain each of them highlighting their application in image analysis 2+12

4. Define the following parameters and state how they are computed 3+4+3
   a. DN Value
   b. Geometric Registration
   c. Spectral Reflectance

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M. E. CIVIL ENGINEERING EXAMINATION 2024
(First Year, First Semester)

REMOTE SENSING & ITS APPLICATION

Time: Three Hours

Full Marks 100
Part I: 60 Marks
Part II: 40 Marks

Use a separate Answer-Script for each part

Question No.		Part II (40 Marks)	Marks
*Answer any **TWO** questions from this Part.*			
1	(a)	Write short notes on: 'Spectral Reflectance', 'Global Positioning System (GPS)', and 'Spectral Reflectance Envelope'.	2x3=6
	(b)	Draw a typical 'spectral reflectance envelope' for deciduous and coniferous type tree.	10
	(c)	What is reference data? Why it is essential for remote sensing?	2+2=4
2	(a)	Explain fundamentals of visual image interpretation and its importance. What are the elements of visual image interpretation? Explain briefly.	5+10=15
	(b)	What are the different applications of remote sensing in natural resource management?	5
3	(a)	What are the basic information we can have from a FCC? Why the vegetation shows red in FCC?	5+2= 7
	(b)	When a play ground will not show red colour in FCC? How can you identify (visually) oxbow lake in FCC?	3+2= 5
	(c)	What is 'band ratio'? Why it is required in remote sensing?	3
	(d)	Why the knowledge about the study area is essential for image interpretation?	5
4	(a)	How do you select different bands for soil, vegetation and water? Explain briefly.	12
	(b)	"Spectral reflectance of two different features may be same, and similar features may be different". Explain its correctness.	5
	(c)	How do you identify the different kinds of vegetations in the satellite imageries?	3