

M.E. CIVIL ENGINEERING FIRST YEAR FIRST SEMESTER EXAM 2025

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. Why does sky appear blue in day time?
 - b. Why smaller wavelengths like ultra-violet are not preferred for remote sensing study?
 - c. Why does Geometric Correction Require for a digital image?
 - d. Why does rain potential clouds appear dark or black?

2. Name two types of each of the following and state two major characters of each types. 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 any two of them 2+(2×3)

4. Define the following parameters and state how they are computed 4×4
 - a. DN Value
 - b. Geometric Registration
 - c. Spectral Reflectance
 - d. Band Ratio

[Turn over

M.E. CIVIL ENGINEERING EXAMINATION 2025

(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) Draw a typical 'spectral reflectance envelope' for deciduous and coniferous type tree. | 8 |
| | (b) Draw a typical 'spectral reflectance curve' for vegetation, soil and water. | 8 |
| | (c) What is the difference between 'spectral reflectance envelope' and 'spectral reflectance curve'? Why this difference occurs? | 4 |
| 2 | (a) What is FCC? Make a list of the basic information which can be obtained from a FCC. | 2+6= 8 |
| | (b) Why the vegetation shows red in FCC? | 2 |
| | (c) When a play ground will not show red colour in FCC? | 2 |
| | (d) How can you identify (visually) oxbow lake in FCC? | 2 |
| | (e) How the 'flowing water' and 'stagnant water' bodies can be differentiated from FCC? | 2 |
| | (f) How do you identify the natural and artificial features through satellite imageries? | 2 |
| | (g) How do you differentiate cloud coverage from snow coverage in satellite imageries? | 2 |
| 3 | (a) Write a short note on 'Edge Enhancement' of an image and its utility. | 7 |
| | (b) What is called training stage in digital image processing? How it can be performed? | 2+5=7 |
| | (c) "Spectral reflectance of two different features may be same, and similar features may be different". Explain its correctness. | 6 |