BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: IMSc **SEMESTER : VIII**
BRANCH: MATHS AND COMPUTING **SESSION : SP/2025**

(OPEN ELECTIVE)
SUBJECT: GI509R1 DIGITAL SATELLITE IMAGE PROCESSING

TIME: 3 Hours **FULL MARKS: 50**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Before attempting the question paper, be sure that you have got the correct question paper.**
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

			CO	BL
Q.1(a)	Describe the different types of resolutions used in remote sensing.	[6]	1	3
Q.1(b)	Describe tangential scale distortion with the help of a suitable diagram.	[4]	2	3
Q.2(a)	Bring out the difference between Low Pass Filters and High Pass filters with respect to their uses.	[5]	2	2
Q.2(b)	Explain what is a FCC. Why was there a need for a standard FCC? Explain how are Standard FCC displayed.	[5]	2	5
Q.3(a)	Why are Indices required in Remote Sensing data analyses? Give an example of a Vegetation Index.	[5]	5	5
Q.3(b)	What is Image Fusion? Explain any one Algorithm for Image Fusion.	[5]	5	3
Q.4(a)	Describe k-means and ISODATA unsupervised clustering techniques.	[4]	4	3
Q.4(b)	Describe the Minimum-Distance-To-Means Classifier, Parallelepiped Classifier, and Maximum Likelihood Classifier, and write their differences.	[6]	4	4
Q.5(a)	Illustrate the followings: Azimuth direction, Range direction, Look angle, Depression angle and incident angle, grazing angle with respect to microwave sensor. Also give the expression for Range and Aimuth resolutions.	[4]	5	2
Q.5(b)	Write notes on MNF and SAM.	[6]	5	4

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