

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

CLASS: BTECH  
BRANCH: ECE/CHEMICAL

SEMESTER : VI  
SESSION : SP/2025

OPEN ELECTIVE  
SUBJECT: GI501 PRINCIPLES OF REMOTE SENSING

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.
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		CO	BL
Q.1(a)	Explain image acquisition process through passive remote sensing in optical range.	[5]	1 2
Q.1(b)	What types of resolutions are associated with any satellite image? Describe each one of them in brief	[5]	1 2
Q.2(a)	How is AWiFS different from WiFS?	[1]	2 2
Q.2(b)	Calculate the number of polar orbits a remote sensing satellite makes in a day if one orbit takes about 767 seconds.	[1]	2 5
Q.2(c)	Calculate the number of pixels of LISS IV sensor which may be accommodated in one MSS sensor with reference to their spatial resolution/	[3]	2 5
Q.2(d)	Bring out the difference between Across track and Along track sensors.	[5]	2 1
Q.3(a)	What do you understand by radiometric calibration? Write down the equation and steps for DN to reflectance conversion.	[6]	4 4
Q.3(b)	Write short notes on BIL and BIP.	[4]	3 2
Q.4(a)	Which type of energy is sensed by the sensor in thermal remote sensing? Give two example of thermal sensors and their application.	[5]	4 4
Q.4(b)	What are speckles? How maybe they identified and filtered from microwave images?	[5]	4 3
Q.5(a)	Explain relevance of ground truth in brief.	[5]	5 3
Q.5(b)	Give any one application of remote sensing in Agriculture/Forestry/ Water resources.	[5]	5 4

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