

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

**CLASS: M.Sc.
BRANCH: Geoinformatics**

**SEMESTER : II
SESSION : SP/2025**

SUBJECT: GI515R1 GEOINFORMATICS FOR HYDROLOGY & WATER RESOURCES

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)	Distinguish between confined and unconfined aquifers. Explain with suitable diagrams porosity and hydraulic conductivity.	[5] 1	3
Q.1(b)	Distinguish between specific yield and storage coefficient.	[5] 1	3
Q.2(a)	Explain Schlumberger and Wenner configurations for conducting electric resistivity surveying.	[5] 3	3
Q.2(b)	Write a note on the use of various satellite data and indices to assess the surface water quality	[5] 3	4
Q.3(a)	What is Rosgen's classification system of streams and rivers? Give an account of different stream types as per this classification system	[5] 3	2
Q.3(b)	What is the need for river basin interlinking? What are the Himalayan, Peninsular and Interstate components of this project in India?	[5] 3	3
Q.4(a)	What is meant by a watershed? What factors influence rainfall to run-off cycle in a watershed?	[5] 4	2
Q.4(b)	Discuss some of the important watershed problems and elaborate possible management strategies.	[5] 4	3
Q.5(a)	Describe surface runoff model (SCS) with highlighting the role of satellite data	[5] 5	3
Q.5(b)	What is understood by snow and glacier hydrology? How can glacier mass balance be linked to it?	[5] 5	4

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