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

CLASS: MSc **SEMESTER : II**
BRANCH: Geoinformatics **SESSION : SP/2023**

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.

			CO	BL
Q.1(a)	What is the working principle of recording type of rain gauge stations? Show with a diagram.	[5]	1	3
Q.1(b)	In a certain year if total rainfall at station A is 80 cm and at neighboring station B the record is missing. However, the annual average rainfall at station A and at B are 80 cm and 90 cm. Calculate the missing rainfall data.	[5]	1	3
Q.2(a)	Distinguish between confined and unconfined aquifers and show piezometric head of both the aquifers through a diagram.	[5]	1	3
Q.2(b)	Show with a diagram the vertical distribution of sub-surface water.	[5]	1	2
Q.3(a)	What is Rosgen's classification system of streams and rivers? Give a brief account of stream types as per this classification system.	[5]	2	3
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]	2	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)	How can artificial recharge be planned and what type of studies are required to be carried out for the same?	[5]	4	3
Q.5(a)	Describe the process of surface runoff calculation through SCS model.	[5]	5	4
Q.5(b)	Give a note on snow and glacier hydrology. How can glacier mass balance be linked to it?	[5]	5	4

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