BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION SP2023)

CLASS: BARCH   SEMESTER : IV
BRANCH: ARCHITECTURE   SESSION : SP2023

SUBJECT: AR251 BUILDING SERVICES - I (WATER SUPPLY & SANITATION)
TIME: 02 Hours   FULL MARKS: 25

INSTRUCTIONS:
1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates

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			CO	BL
Q.1(a)	Differentiate between Gravity Fed Distribution and Pumping System of water distribution systems.	[2]	CO1	Knowledge
Q.1(b)	Explain the steps in Water Treatment Process.	[3]	CO2	Knowledge
Q.2(a)	Draw a schematic diagram of water supply system in a house of three floors through municipal supply line using UGWT & OHT.	[2]	CO1	Synthesis
Q.2(b)	Draw and explain different types of Pipe systems used in Plumbing.	[3]	CO3	Analysis
Q.3(a)	Explain any two problems encountered and systems adopted related to water supply in high rise buildings.	[2]	CO1	Synthesis
Q.3(b)	Draw and explain Garbage chute in a building of three floors. Explain different types of Biogas plant.	[3]	CO5	Analysis & Knowledge
Q.4(a)	Explain the process of municipal solid waste management.	[2]	CO5	Comprehension
Q.4(b)	Draw and explain the components of a Sanitary Land filling Site.	[3]	CO5	Knowledge
Q.5(a)	A site has 40% of wooded area, 45% grassed area and 15% paved area. Run off coefficient for wooded, grassland and paved areas are 0.01, 0.2 and 0.95 respectively. If the annual average rainfall in the region is 100 mm and the area of the site is 180 hectares (01 hectares = 10,000 sq.m.) calculate the total rainfall that can be harvested through the site annually.	[2]	CO1	Application
Q.5(b)	Explain different water distribution layout systems. Sketch and explain floor traps used in a building based on different shapes.	[3]	CO1	Knowledge

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