



# GIET UNIVERSITY, GUNUPUR – 765022

## B. Tech (Fifth Semester Regular) Examinations, December – 2023 21BCVPE35001 – Industrial Waste Water Management (Civil)

Time: 3 hrs

Maximum: 70 Marks

(The figures in the right hand margin indicate marks)

**PART – A****(2 x 5 = 10 Marks)**Q.1. Answer **ALL** questions

	CO #	Blooms Level
a. What are the sources of industrial waste?	CO1	K1
b. List the different type of coagulants.	CO1	K1
c. Write four factors that determine efficiency of activated sludge process.	CO2	K1
d. How the wastes from Steel plant industry can be utilised?	CO3	K1
e. What are the sections mentioned on pre independence Period?	CO4	K1

**PART – B****(15 x 4 = 60 Marks)**Answer **ALL** questions

	Marks	CO #	Blooms Level
2. a. Explain the process of coagulation and how alum reacts with waste water?	10	CO1	K2
b. Explain any 5 coagulants with their chemical reactions.	5	CO1	K2
(OR)			
c. Briefly explain sources and characteristics of waste water.	10	CO1	K2
d. How neutralisation will help in waste water treatment?	5	CO1	K2
3.a. Discuss about different steps in tertiary treatment with neat sketches if necessary.	10	CO2	L2
b. What are the zone of pollution explain in detail?	5	CO2	L3
(OR)			
c. Discuss about oxidation pond.	7	CO2	L3
d. Explain activated sludge process with neat sketch.	8	CO2	L3
4.a. How the waste water are generated and treated from Textile industry?	15	CO3	L2
(OR)			
b. What are the characteristics of waste water from Distillery industry	15	CO3	L2
5.a. Explain the Processes of heavy metal Removal briefly.	10	CO4	L3
b. Explain the acts introduced in and after the Stockholm Declaration describes briefly with details?	5	CO4	L3

(OR)

- c. Design a Sedimentation tank which Supplies  $1.4 \times 10^6$  lit./day that detention period is 5hrs the velocity of flow is 12cm/min depth of the water tank is 4m. Assume and extra allowance of 80 cm is provided for sludge? 15 CO4 L3

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