Q. Code:742665

Reg. No. | | | | | | | | | | | | | |

B.E./ B. TECH.DEGREE EXAMINATIONS, MAY 2024

Sixth Semester

CH18006 – WASTEWATER TREATMENT

(Chemical Engineering)

(Regulation 2018A)

TIME:3 HOURS **MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Evaluate the various regulations related to wastewater treatment.	**5**
CO 2	Identify the reactors used in wastewater treatment.	**3**
CO 3	Compare unit processes in wastewater treatment.	**4**
CO 4	Discuss biological treatment methods of wastewater.	**6**
CO 5	Determine the advanced technologies in wastewater treatment.	**5**

PART- A(10x2=20Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	Classify biosolids.	**1**	**2**
2.	Mention the principal constituents of present in wastewater.	**1**	**2**
3.	Outline the factors leading to non-ideal flow in reactors.	**2**	**2**
4.	Relate the colors of wastewater.	**2**	**2**
5.	Interpret the precipitation reaction of alum with wastewater.	**3**	**2**
6.	Differentiate physical unit operations and chemical unit processes.	**3**	**2**
7.	List any four facultative bacteria used in attached growth processes.	**4**	**2**
8.	Classify the types of biological treatment process used in wastewater treatment with an example.	**4**	**2**
9.	Distinguish between depth filtration and surface filtration.	**5**	**2**
10.	Summarize about Ion-exchange process.	**5**	**2**

PART- B (5x 14=70Marks)

			Marks	CO	RBT LEVEL
11. (a)	**(i)**	List the impact of regulations on wastewater engineering.	**(7)**	**1**	**4**
	(ii)	Analyze health and environmental concerns in Wastewater management.	**(7)**	**1**	**4**

(OR)

(b)	Classify the commonly used laboratory methods to measure the amounts of organic matter present in Wastewater and explain it.	**(14)**	**1**	**4**
12. (a)	Identify the types of reactors used and its performance in wastewater treatment with their applications.	**(14)**	**2**	**3**
	(OR)			
(b)	Make use of strategies for reducing interior water use and wastewater flow rates.	**(14)**	**2**	**3**
13. (a)	Distinguish between coagulation and flocculation in wastewater treatment with neat sketch.	**(14)**	**3**	**4**
	(OR)			
(b)	Analyze the fundamentals of chemical oxidation reaction with its applications.	**(14)**	**3**	**4**
14. (a)	Draw a neat sketch of trickling filter and analyze it to the attached growth process.	**(14)**	**4**	**4**
	(OR)			
(b)	Explain the steps involved in anaerobic fermentation and oxidation processes.	**(14)**	**4**	**4**
15. (a)	Select the methods used in removal of organic and inorganic colloidal and suspended solids and explain it.	**(14)**	**5**	**3**
	(OR)			
(b)	Build the physical features of depth filter with neat diagram.	**(14)**	**5**	**3**

PART- C (1x 10=10Marks)

(Q.No.16 is compulsory)

		Marks	CO	RBT LEVEL
16.	Determine the actual amount of time a given volume of water will remain in the reactor and its average age using modeling characteristics of mixed flow reactor.	**(10)**	**4**	**5**

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