

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER- VII EXAMINATION – SUMMER 2026

Subject Code:2171303

Date:03-06-2026

Subject Name: Industrial Water Pollution & Control

Time: 02:30 PM TO 05:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1*	(a) Explain the important considerations to be kept in mind while discharging wastewater from industries into nearby stream.	03
	(b) Write a short note on “Basic water quality parameters required for boiler feed water & cooling water.”	04
	(c) Enlist the different processes & equipments to remove oil & grease from wastewater. Explain any one with the help of neat sketch.	07
Q.2	(a) Explain the term self purification of streams.	03
	(b) With the help of neat sketch write a brief note on “DO sag curve”.	04
	(c) Difference between effluent standards and stream standards. Give advantages and disadvantages.	07
	OR	
	(c) Justify “Why there are different discharge standards for different environmental sinks”.	07
Q.3	(a) What are the objectives of proportioning in industrial waste?	03
	(b) State the limitations of land disposal on sewage.	04
	(c) Enlist the methods for Neutralization. Explain any two in detail.	07
	OR	
Q.3	(a) Explain the basic objective of setting up a CETP.	03
	(b) How does segregation reduce the strength of waste water? Give an example.	04
	(c) What is Volume reduction? Enlist different techniques of volume reduction. Explain any one in detail.	07
Q.4	(a) Explain the possible advantages gained by installing modern methods of monitoring waste contaminants as far as strength reduction is concerned?	03
	(b) State the limitations of a CETP.	04
	(c) Write down waste water characteristics of effluent generated from textile industry. Also draw suitable waste water treatment plant for the same.	07
	OR	
Q.4	(a) How to determine depth of Euphotic zone in lake.	03
	(b) Difference between “criteria” and “standards”.	04
	(c) Derive the equation for steady state concentration of pollution in a lake.	07
Q.5	(a) List down various primary & secondary benefits of pollution abatement.	03
	(b) Explain the terms : Stratification and Overturn.	04
	(c) What is usually the greatest factor influencing an industry to reuse its wastewater.	07
	OR	
Q.5	(a) Differentiate between concentration based and load based standards.	03
	(b) Explain the different zones of lake based on biological activity.	04
	(c) A city discharges $1.33 \text{ m}^3/\text{s}$ of wastewater into a stream whose minimum rate of flow is $8.5 \text{ m}^3/\text{s}$. The velocity of the stream is 3.2 km/hr . The	07

temperature of wastewater is 20 °C and that of the stream is 15 °C. The BOD_5^{20} of wastewater is 200 mg/L and that of the stream is 1 mg/L. The wastewater contains no DO but the stream is 90 % saturated stream of the discharge. At 20 °C, $k_d = 0.3 \text{ day}^{-1}$, $k_r = 0.7 \text{ day}^{-1}$ and saturated DO value is 10.1 mg/L. determine the critical DO deficit and its location. Estimate BOD_5^{20} of the sample at the critical point. Use temperature co-efficient of 1.135 for k_d and 1.024 for k_r .
