

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2023****Subject Code:3151712****Date:05-12-2023****Subject Name:Environmental Instrumentation****Time:10:30 AM TO 01:00 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) List out different sensors require monitoring environmental parameters for water and air.	03
	(b) What are the natural qualities of water? What are the causes that change these qualities?	04
	(c) Draw Block diagram of water treatment plant and discuss function of each stage.	07
Q.2	(a) Write locations from where sample of waste water can be collected and how can be stored for the laboratory testing purpose.	03
	(b) How thermal conductivity detector used to measure effect of temperature of water.	04
	(c) What is sedimentation? explain with neat diagram.	07
	OR	
	(c) How the set up of instrumentation is done for the waste water treatment plant?	07
Q.3	(a) How do instruments help to control an environment?	03
	(b) What is viscosity? What are the causes of change of viscosity of water?	04
	(c) What is flotation? Explain with an example.	07
	OR	
Q.3	(a) What are the standards used for raw water? How those differ from treated water?	03
	(b) How sludge been introduced in water? Explain any one method to remove it.	04
	(c) What is meaning of coagulation? How does it affected by temperature?	07
Q.4	(a) What is air pollution? Enlist sources of air pollution.	03
	(b) What are the importance factors of air pollutions	04
	(c) How thermal power plant does affect air pollution? Explain in detail. What action must be taken to control the same?	07
	OR	
Q.4	(a) How CO and CO ₂ are generated? What are the effects of these gases on environment?	03
	(b) What are an analytic instruments used for the monitoring of air pollution? Explain any two.	04
	(c) How air pollution affects human health? Explain generation of disease by CO, CO ₂ , NO _x , SO _x , dust and smoke on human health.	07

- Q.5** (a) How gas flow can be measured by volume meter? **03**
(b) What amount of air quality index (AQI) is considered to be safe? How can it be measured, explain in detail. **04**
(c) Where open channel waste water flow measurement technique is used? Explain with an example. **07**
- OR**
- Q.5** (a) How does air pollution can be controlled? **03**
(b) How rain water harvesting is useful in human life? Explain technique and method of it. **04**
(c) Where non-open channel flow measurement technique is used? Explain with an example. **07**
