

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-V (NEW) EXAMINATION – SUMMER 2021****Subject Code:2150603****Date:17/09/2021****Subject Name:Environmental Engineering****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.

		<b>MARKS</b>
<b>Q.1</b>	(a) What is pH? State how acidic is pH 2 compare to pH 5	<b>03</b>
	(b) Schematically discuss microbial growth curve and give significance of lag phase.	<b>04</b>
	(c) What cause acidity and alkalinity in water? Describe the procedure of laboratory analysis of acidity	<b>07</b>
<b>Q.2</b>	(a) What is BOD/COD ratio? Give its significance	<b>03</b>
	(b) “Water contamination may or may not be present in polluted water” Justify the statement	<b>04</b>
	(c) How the location of transfer stations is fixed for solid waste collection? Describe the layout of transfer stations in your society	<b>07</b>
<b>OR</b>		
	(c) Derive the equation for first stage BOD and calculate 5 day BOD at 20°C if 3 day BOD at 30°C is 110 mg/L and $K_D$ at 20°C is 0.1	<b>07</b>
<b>Q.3</b>	(a) Define TDS, TSS and TS	<b>03</b>
	(b) Differentiate presumptive and confirmative test used for MPN?	<b>04</b>
	(c) Describe different types of hardness and explain how one can judge without lab test, the presence of hardness in water.	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(a) Discuss different compositions of typical Indian solid waste	<b>03</b>
	(b) Define and differentiate de-oxygenation and re-oxygenation curve.	<b>04</b>
	(c) Enumerate different types traps used in India and differentiate Interception trap and Gully trap showing their sketches.	<b>07</b>
<b>Q.4</b>	(a) Define (i) Sullage (ii) Refuse (iii) Garbage	<b>03</b>
	(b) Organize a house drainage plan for a G+2 apartment of 3BHK flat having 4 flats on each floor.	<b>04</b>
	(c) Schematically discuss the mechanical composting method of solid waste disposal and compare it with the method of sanitary land filling	<b>07</b>
<b>OR</b>		
<b>Q.4</b>	(a) State salient features of air (prevention and control of pollution) act 1981	<b>03</b>
	(b) Describe the effects of CO and PAN on human beings	<b>04</b>
	(c) Explain the working principles of any two air pollution control devices with sketches.	<b>07</b>
<b>Q.5</b>	(a) Give ambient air quality standards for SO <sub>2</sub> , NO <sub>2</sub> and SPM	<b>03</b>
	(b) Define DO, BOD, COD and TOC	<b>04</b>
	(c) Describe one pipe and two pipe systems of plumbing with sketches and compare their merits and demerits.	<b>07</b>

**OR**

- Q.5** (a) State salient features of water supply scheme **03**  
(b) Discuss the effects of noise pollution on human beings and suggests some control measures **04**  
(c) Enlist different disposal technologies used for hazardous waste and discuss method of incineration used for disposal of toxic waste. **07**

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