

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2022****Subject Code:3160611****Date:03/06/2022****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.

| | | MARKS |
|------------|---|--------------|
| Q.1 | (a) What is the necessity of water supply scheme? Draw a complete flow diagram of water treatment plant. | 03 |
| | (b) Discuss various control measures for water borne diseases. | 04 |
| | (c) Enlist different physical and chemical characteristics of water and discuss their environmental significance. | 07 |
| Q.2 | (a) Explain population forecasting by geometrical increase method. | 03 |
| | (b) Find average of pH 2 and pH 6. Calculate how much acidic is pH 2 compared to pH 6. | 04 |
| | (c) What is solid waste management? State the composition and characteristics of the municipal solid waste. | 07 |
| | OR | |
| | (c) What is an intake structure? Sketch and explain construction and working of a river intake. | 07 |
| Q.3 | (a) What causes alkalinity in water. | 03 |
| | (b) Give advantages and disadvantages of RCC pipe. | 04 |
| | (c) Give comparison between rapid sand filter and slow sand filter. | 07 |
| | OR | |
| Q.3 | (a) Explain reflux valve with neat sketch. | 03 |
| | (b) Write short note on Grid iron system of water distribution network. | 04 |
| | (c) Design a sedimentation tank for a water works, which supplies 1.4×10^6 liter/day water to the town. The sedimentation period is 5 hours, the velocity of flow is 12 cm/minute, depth of water in the tank is 4.0m. Assuming an allowance for sludge is to be made as 80cm. | 07 |
| Q.4 | (a) Differentiate between aerobic and anaerobic decomposition of wastewater. | 03 |
| | (b) What do you understand by sedimentation with coagulation? | 04 |
| | (c) What are various methods of disinfection? What are the chemicals used as disinfectants? | 07 |
| | OR | |
| Q.4 | (a) What is dB? Explain the effects of noise pollution. | 03 |
| | (b) Discuss the different methods of sewage disposal. | 04 |
| | (c) Determine BOD_8 at $15^\circ C$ if BOD_5 at $20^\circ C$ is 150 mg/l. $k_{D(20)} = 0.23$. | 07 |

- Q.5** (a) Differentiate between BOD and COD. **03**
(b) Write a short note on septic tank. **04**
(c) Explain DO sag curve with sketch. **07**
- OR**
- Q.5** (a) Explain effects of air pollution on human health. **03**
(b) Write a short note on composting. **04**
(c) Sketch and explain construction and working of trickling filter. **07**
