

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2018

Subject Code:2150603

Date:16/11/2018

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.

- Q.1**
- (a) Define BOD. What are the limitations of BOD test? **03**
 - (b) Find 3 day 30°C BOD of a sewage sample whose 2 day 20°C BOD is 150 mg/lit. **04**
 - (c) Explain the growth pattern of microbes based upon mass. **07**

- Q.2**
- (a) Explain sanitary significance of nitrate, fluoride and iron and manganese from drinking water point of view. **03**
 - (b) Give the classification of impurities present in water. **04**
 - (c) Explain different types of water demands that are to be considered while designing the water supply system of a town. **07**

OR

- (c) Enlist different methods of population forecasting. Find out the population of 2031 and 2041 using the data given below by any three methods of population forecasting: **07**

Year	Population
1981	45800
1991	57000
2001	68050
2011	75000

- Q.3**
- (a) What are the objective of Water (Prevention and Control of Pollution Act -1974) **03**
 - (b) Derive the first stage BOD equation with usual notations. **04**
 - (c) Explain the factors affecting self purification capacity of the river. **07**

OR

- Q.3**
- (a) Explain the self purification process of the stream. **03**
 - (b) Write short note on sewage sickness. **04**
 - (c) What is house drainage system? State the principles of house drainage system **07**

- Q.4**
- (a) Give classification of source of air pollution. **03**
 - (b) Give the classification of air pollutants. **04**
 - (b) Explain different types of plumbing systems used for house drainage with required sketch. **07**

OR

- Q.4**
- (a) What is transfer station? Why it is needed? **03**
 - (b) Give the classification, composition and characteristics of municipal solid waste. **04**
 - (b) Enumerate different air pollution control devices and explain the function of electrostatic precipitator in detail. **07**

- Q.5**
- (a) Explain the procedure to determine temporary and permanent hardness of water. **03**
 - (b) Explain sanitary land filling in detail with its respective merits and demerits. **04**
 - (c) Explain different measures to control noise pollution **07**

OR

- Q.5** (a) Explain different physical characteristics of wastewater. **03**
(b) Differentiate between **04**
(i) Domestic and Industrial wastewater.
(ii) Aerobic decomposition and Anaerobic decomposition
(c) Define 1. Sewage 2. Sullage. 3. Refuse 4. Compost 5. COD 6. Trap 7. Necrosis **07**
