

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur (GIET University)



B. Tech (Sixth Semester - Regular) Examinations, April 2026

23BCVOE36011 - Environmental Engineering

Civil Engineering

Time: 3 hrs

Maximum: 60 Marks

(The figures in the right hand margin indicate marks)

PART – A

(2 x 5 = 10 Marks)

Q.1. Answer **ALL** questions

- a. Define per capita demand.
- b. List any four sources of water.
- c. What is coagulation?
- d. Name any two disinfection methods.
- e. Define BOD and COD.

CO #	Blooms Level
CO1	K1
CO2	K1
CO3	K1
CO4	K1
CO5	K1

PART – B

(10 x 5 = 50 Marks)

Answer **ALL** the questions

- | | Marks | CO # | Blooms Level |
|---|-------|------|--------------|
| 2. a. Explain various sources of water available for a public water supply system. | 5 | CO1 | K1 |
| b. Discuss factors affecting the per capita demand of water in urban areas. | 5 | CO1 | K1 |
| (OR) | | | |
| c. What is design period? Describe the factors influencing the design period for water supply components. | 5 | CO1 | K2 |
| d. Explain different methods used for population forecasting in water demand estimation. | 5 | CO1 | K3 |
| 3.a. Explain the principle and working of different types of screens used in surface water treatment. | 5 | CO2 | K2 |
| b. What is plain sedimentation? Discuss factors affecting sedimentation efficiency. | 5 | CO2 | K2 |
| (OR) | | | |
| c. Describe sedimentation aided with coagulation and its mechanism. | 5 | CO2 | K4 |
| d. Explain coagulation and flocculation processes with suitable examples. | 5 | CO2 | K3 |
| 4.a. Define domestic wastewater and list its sources and composition. | 5 | CO3 | K2 |
| b. Discuss characteristics of wastewater and their importance in design. | 5 | CO3 | K2 |
| (OR) | | | |
| c. What are effluent discharge standards? Explain their significance. | 5 | CO3 | K2 |
| d. Explain the sequence of operations in primary wastewater treatment. | 5 | CO3 | K3 |
| 5.a. Define air pollution and explain its sources and classification. | 5 | CO4 | K2 |
| b. What are the different units of measurement used for air pollution? | 5 | CO4 | K2 |
| (OR) | | | |
| c. Explain the influence of meteorological conditions on air quality. | 5 | CO4 | K4 |
| d. What is lapse rate? How does it affect pollutant dispersion? | 5 | CO4 | K3 |
| 6.a. What is noise pollution and what are its major sources? | 5 | CO5 | K2 |
| b. Explain physiological and environmental impacts of noise pollution. | 5 | CO5 | K2 |
| (OR) | | | |
| c. What are National Ambient Air Quality Standards (NAAQS)? Discuss their importance. | 5 | CO5 | K2 |
| d. Compare different engineered systems for controlling particulate emissions. | 5 | CO5 | K3 |

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