Name: **Enrolment No:**	

UPES

End Semester Examination, December 2024

Course: Environmental Eng. & Management **Semester: I**

Program: M.Tech (Health, Safety and Environment) **Time : 03 hrs.**

Course Code: HSFS7001 **Max. Marks: 100**

SECTION A (5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Evaluate the role of a gravity settler in mitigating particulate matter emissions in an air pollution control system.	**4**	**CO1**
Q 2	Examine the mechanism by which coagulants function in water treatment processes	**4**	**CO2**
Q 3	What are the key components and implications of the Environmental Impact Assessment (EIA) process in accordance with the Government of India notification?	**4**	**CO1**
Q 4	How does the concept of mixing height influence air quality management strategies, and what factors contribute to its variability in different geographical regions and atmospheric conditions?	**4**	**CO2**
Q 5	Differentiate STP & ETP with example.	**4**	**CO2**
SECTION B (4Qx10M= 40 Marks)			
Q 6	The Dilution Factor P for an unseeded mixture of waste and water is 0. 030. The DO of the mixture is initially 9.4.0mg/L, and after five days, it has dropped to 3.6.0mg/L. The reaction rate constant K has been found to be 0.20 days-1. a) What is the five-day BOD of waste? b) What would be the ultimate carbonaceous BOD? What would be the remaining Oxygen demand after five days?	**10**	**CO3**
Q 7	Differentiate between the Hauled Container System and the Stationary Container System used in waste management. Provide a detailed analysis of their respective features, including logistical considerations, operational efficiency, and cost implications. **OR** Enumerate the mechanisms of Electrostatic Precipitators (ESPs), their practical applications in mitigating air pollution, and workings involved in their operation, while critically assessing their efficacy in diverse environmental contexts.	**10**	**CO3**
Q 8	Evaluate the effectiveness of public participation mechanisms within the EIA process, focusing on their role in enhancing environmental accountability and governance. Discuss key challenges and opportunities for meaningful engagement in diverse project contexts.	**10**	**CO4**

Q 9	A test bottle containing just seeded dilution water where its DO level drop by 1 mg/l in a 5-day test. A 300ml BOD bottle filled with 15 ml of wastewater and the rest seeded dilution water experiences a drop of 7.2mg/l at the same time. What would be the 5-day BOD of the wastewater?	**10**	**CO5**
SECTION-C (2Qx20M=40 Marks)			
Q 10	Enumerate the following with designing principle: a) Cyclone Separator b) Dry & Wet Scrubber c) Subsidence & Radiant Inversion d) Atmospheric Stability **OR** You are appointed as HSE engineer and have been tasked to carry out site investigations for a construction site. Describe the design aspect and discuss what information is required for the preparation of each unit for the wastewater treatment plant.	**20**	**CO4**
Q 11	Develop a comprehensive explanation of the key considerations in the design of landfills, integrating various environmental, engineering, and regulatory factors. Support your explanation by creating a well-labeled diagram that illustrates the essential components and features crucial for ensuring the effectiveness and sustainability of landfill designs.	**20**	**CO5**