


Name:			
Enrolment No:			
<b>UPES</b> <b>End Semester Examination, May 2024</b>			
<b>Course:</b>	<b>Environmental Engineering &amp; Management</b>	<b>Semester :</b>	<b>VI</b>
<b>Program:</b>	<b>B.Tech (FSE)</b>	<b>Time :</b>	<b>03 hrs.</b>
<b>Course Code:</b>	<b>HSFS3010</b>	<b>Max. Marks :</b>	<b>100</b>
<b>SECTION A</b> <b>(5Qx4M=20Marks)</b>			
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	CO2
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	Enumerate environmental stability and its various condition.	4	CO2
<b>SECTION B</b> <b>(4Qx10M= 40 Marks)</b>			
Q 6	Examine the specific stages outlined in the Government of India notification for Environmental Impact Assessment (EIA). How do these stages contribute to the comprehensive evaluation of potential environmental impacts? Critically analyze the role of public participation in the EIA process and discuss its significance in ensuring robust environmental management practices in diverse projects.	10	CO5
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.	10	CO3
Q 8	Illustrate and describe the behavior of plumes under varying atmospheric conditions, accompanied by a clear diagram.	10	CO4
Q 9	Explain the Gaussian plume dispersion equation for the gaseous pollutants.	10	CO3
<b>OR</b>			

	Identify and elaborate on the multiple factors influencing the vermi-composting process.		
<b>SECTION-C</b> <b>(2Qx20M=40 Marks)</b>			
Q 10	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.	<b>20</b>	<b>CO4</b>
Q 11	<p>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</p> <p style="text-align: center;"><b>OR</b></p> <p>A large power plant has a 200 m stack with inside diameter of 1.5m. The exit velocity of the stack gas is estimated at 8m/s at the temperature of 130<sup>0</sup>C. Ambient temperature is 23<sup>0</sup>C and the wind at stack height is estimated to be 3m/s. Estimate the total effective height of the stack. If</p> <p style="margin-left: 40px;">a) The atmosphere is stable with temperature increasing at the rate of 3<sup>0</sup>C/km.</p> <p style="margin-left: 40px;">b) The temperature is slightly unstable.</p>	<b>20</b>	<b>CO5</b>