

Name:

Enrolment No:



UPES

End Semester Examination, December 2024

Course: Environmental Analytical Chemistry

Program: Int B.Sc. M.Sc. Chemistry

Course Code: CHEM4007

Semester: VII

Time : 03 hrs.

Max. Marks: 100

Instructions: Attempt all the questions: Question no. 9 & 11 have internal choices.

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Illustrate the greenhouse effect. What is the impact of greenhouse effect on living beings?	4	CO2
Q 2	Elaborate how heavy metals impact water quality and which ones are most harmful?	4	CO3
Q 3	Describe the process of sulfur dioxide (SO ₂) measured in the atmosphere using an Ultraviolet Fluorescence analyzer?	4	CO2
Q 4	Define macro- and micronutrients in soil with examples.	4	CO4
Q 5	Differentiate between random and systematic sampling and give example for each type.	4	CO1

SECTION B
(4Qx10M= 40 Marks)

Q 6	State the main symptoms of H ₂ S poisoning, and how quickly do they appear in individuals exposed to high concentrations?	10	CO2
Q 7	Explain how ozone (O ₃) levels influence AQI values. Why is it considered a critical pollutant?	10	CO2
Q8	A) Discuss the concept of EIA with respect to sustainable development. B) Mention the beneficial impacts of EIA with respect to pollution monitoring.	5+5	CO1

Q 9	<p>Write a note on Minamata Disease caused by mercury poisoning in Japan.</p> <p style="text-align: center;">OR</p> <p>Discuss any two characterization techniques used in industrial wastewater treatment.</p>	10	CO3
<p>SECTION-C (2Qx20M=40 Marks)</p>			
Q 10	<p>Describe the factors affecting the persistence of pesticides in the soil? How does a pesticide's molecular structure affect its mode of action? Illustrate its mechanism.</p>	10+10	CO4
Q 11	<p>Discuss the treatment options available for cadmium poisoning. Comment on their effectiveness also?</p> <p style="text-align: center;">OR</p> <p>Describe Chemical Oxygen Demand (COD) and how it differs from Biochemical Oxygen Demand (BOD). What does COD measurement reveal about the presence of organic and inorganic pollutants in water?</p>	<p>20</p> <p style="text-align: center;">OR</p> <p>10+10</p>	CO3