

NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

Odd Semester Mid-Term Examination, 2023-24

Course Code: CHO541

Full Marks: 25

Course Name: SOLID AND HAZARDOUS WASTE MANAGEMENT WITH A HOLISTIC APPROACH

Time: 90 Minutes

Instructions: Answer all the questions.

Materials to be supplied: Graph paper shall be supplied, if required.

Question No.	Body of the Question	Marks	Mapped CO
1	<p>Answer any two questions:</p> <p>a) Analyze the role of stakeholders, such as farmers, industries, and local communities, in contributing to nutrient loading and eutrophication, and propose strategies for their mitigation efforts.</p> <p>b) Assess the challenges and limitations of predicting and managing biomagnification in complex and dynamic ecosystems.</p> <p>c) Evaluate the role of industries in causing acid rain and suggest policy measures to regulate their emissions effectively.</p>	5	CO1
2	<p>Answer any two questions:</p> <p>a) Evaluate the effectiveness of CPCB's initiatives in promoting pollution prevention and cleaner production practices in industrial establishments.</p> <p>b) Discuss the importance of public participation and community engagement in the work of environmental NGOs.</p> <p>c) Evaluate the potential conflicts between economic growth and the Polluter Pays Principle. How can these conflicts be reconciled to achieve sustainable development?</p>	5	CO1
3	<p>Answer any two questions:</p> <p>a) Discuss how the human order can influence and impact the other three orders of nature. Provide examples of both positive and negative impacts.</p> <p>b) Discuss the importance of considering real human needs for evaluating technologies. How does this approach differ from designing technology based on technological capabilities?</p> <p>c) Analyze the significance of "Biochemical Oxygen Demand (BOD)" as a water quality parameter in the context of organic pollution. Examine how high BOD levels can lead to the depletion of dissolved oxygen in water bodies.</p>	5	CO1
4	<p>Answer any two questions:</p> <p>a) Describe the various uses of fly ash in construction and industrial applications following the Fly Ash Handling Rules.</p>	5	CO1

Course Outcomes

CO1: Become aware of environment and health impacts of solid & hazardous waste & knowledge of legal aspects of management of solid & hazardous wastes.

CO2: Identify improper practices of solid & hazardous waste disposal and their environmental implications.

Know the basic engineering principles of solid & hazardous waste management

	<p>b) Critically evaluate the success of the Recycled Plastic Rules in achieving their objectives and reducing plastic waste generation in India.</p> <p>c) Design a standard operating procedure (SOP) for adequately segregating and disposing of biomedical waste in a healthcare facility, ensuring compliance with the rules.</p>		
5	<p>Answer any two questions:</p> <p>a) Differentiate between source separation and commingled collection methods, highlighting their respective benefits and challenges.</p> <p>b) Critique the limitations and challenges of achieving "zero waste" goals in urban areas and discuss the realistic expectations and benefits of such initiatives.</p> <p>c) Compare the sustainability of various waste disposal methods (landfilling, incineration, composting, recycling) in terms of long-term environmental impact and resource management.</p>	5	CO2