



# MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution)

(Approved by AICTE, New Delhi, Accredited by NAAC & Affiliated to Anna University)

Rasipuram - 637 408, Namakkal Dist., Tamil Nadu.

## Department of Mechanical Engineering Question Bank - Academic Year (2019-20)

Course Code & Course Name : 16CEE09 & Industrial Waste Management

Year/Sem/Sec : IV/VII/A

### Unit-I: Introduction

#### Part-A (2 Marks)

1. Write the effluent disposal standards for any four parameters.
2. Define population Equivalent
3. What are the characteristics of industrial waste water?
4. What is industrial waste?
5. Explain the term, stream standard and how it is monitored.
6. List the outcome diseases occur due to industrial pollution
7. State four prime merits of effluent treatment plants.
8. What are bioassay studies?
9. What are the chemical characteristics of waste water and mention their sources?
10. What are the environmental legislations enforced by the Tamil Nadu pollution control board?

#### Part-B (16 Marks)

1. Discuss the characteristics of waste generated from major polluting industries. (16)
2. What are the legislations for the prevention and control of industrial effluents? (16)
3. What is meant by bioassay studies? Explain the significance of bioassay tests in industrial waste management. (16)
4. Define effluent standards and enlist some important effluent standards for the disposal of industrial waste water into inland surface water. (16)
- 5.(i). Write short notes on population equivalent and its significance. (8)
- (ii). Explain the effects of industrial effluents on sewers, plants and animals. (8)

### Unit-II : Cleaner Production

#### Part-A (2 Marks)

1. What is waste audit and why do one?
2. Give some example for By-Product recovery in Industries.

3. Mention the responsibilities of waste audit firms in industry.
4. What are the challenges involved in waste audit?
5. What are the major components of waste audit
6. What is the significance of 3R's?
7. Why is wastewater audit necessary in an industry?
8. Bring out the difference between reuse and recycle.
9. What is the significance of cleaner production?
10. What is 4R concept?

**Part-B (16 Marks)**

1. Explain the waste management approaches in the recent technological developments. (16)
2. Discuss the scope and functions of recycle and reuse management in pollution management. (16)
3. With a neat flow diagram, explain how waste audit is conducted in a typical industry. (16)
4. Describe how volume and strength reduction of waste can be achieved in Industries. (16)
- 5.(i). Explain about the material modifications in industrial waste management approach. (8)
- (ii). Discuss the scope and functions of by product recovery in Industrial waste management. (8)

**Unit-III : Pollution from Major Industries**

**Part-A (2 Marks)**

1. List the sources of wastes in a dairy plant.
2. Write any four characteristics of sugar industrial waste water.
3. Specify the hazards occurs in electroplating industry
4. How phosphorous is hazardous to the human life?
5. What are the characteristics of waste water generated from textile industries?
6. Name any two air pollutants and their sources of origin.
7. What are the industries under red categories?
8. Define black liquor and brown liquor.
9. Write a short note on reclamation of waste water.
10. What are the main pollutants from textile mills?

**Part-B (16 Marks)**

1. Elaborate in detail the pollution control process among various industries with illustrations. (16)
2. Describe the origin, characteristics and treatment of pharmaceutical plant waste management. (16)
3. Briefly describe with flow diagram the sources and treatment process of textile dyeing wastewater. (16)

4. Briefly describe the sources and method of treating the wastewater from paper and pulp industry. (16)
- 5.(i). Explain the various process involved in a dairy plant. Give detailed note on due characteristics & treatment of dairy waste. (8)
- (ii). With the help of a flow diagram, explain the various sources, characteristic and treatment options for wastes from fertilizer industry. (8)

#### **Unit-IV : Treatment Technologies**

##### **Part-A (2 Marks)**

1. What is mean by adsorption?
2. Define chemical precipitation.
3. Difference between oxidation/reduction.
4. What is mean by ion exchange?
5. Brief explain the unit process chemical oxidation.
6. List the methods for residue management.
7. Define residue management.
8. When and where is residue management used.
9. What is the purpose of providing equalization tank.
10. What is chemisorptions.

##### **Part-B (16 Marks)**

1. Explain the different techniques used for the removal of suspended and dissolved organic solids from wastewater. (16)
2. Explain briefly the combined treatment of industrial and municipal wastes. (16)
3. Why suspended and dissolved organic solids are removed. How to remove dissolved solids in wastewater? (16)
4. Why combined treatment of industrial and municipal waste necessary? What are the advantages and disadvantages of these combined treatments? (16)
- 5.(i). Discuss the various methods of removal of dissolved inorganic solids. (8)
- (ii). Discuss the various methods for chemical oxidation and adsorption of industrial wastewater. (8)

#### **Unit-V : Hazardous Waste Management**

##### **Part-A (2 Marks)**

1. What are the physic-chemical treatments for hazardous wastes?
2. What is solidification/stabilization treatment?
3. Brief explain air/stream stripping
4. What is solidification?
5. What are the advantages of incineration method of disposal?
6. Differentiate effects of hazardous and non hazardous waste to direct human life.
7. Write any two characteristics hazardous waste.
8. Define hazardous waste

9. State which types of hazardous wastes are to be treated by incineration.
10. Illustrate the various methods of disposal of hazardous waste?

**Part-B (16 Marks)**

1. Explain in briefly the various physic-chemical treatment of industrial hazardous waste. (16)
2. Explain in detail the operations involved in the closure of secured Landfills. (16)
3. Explain the process of incineration and solidification of treatment of hazardous waste. (16)
4. With the help of a neat sketch, explain how secure landfills are used for the hazardous waste disposal. (16)
- 5.(i). "Hazardous waste management has become essential in today social life pattern betterment". Discuss with illustrations. (8)
- (ii). Explain the classification of hazardous waste. (8)