

Exam.Code:0006  
Sub. Code: 17581

2056  
B.A./B.Sc. (General) Sixth Semester  
Industrial Chemistry  
Paper - B: Waste Recycling

Time allowed: 3 Hours

Max. Marks: 75

**NOTE:** Attempt five questions in all, including Question No. IX (Unit-V) which is compulsory and selecting one question each from Unit I - IV. All questions carry 15 marks.

x-x-x

**UNIT-I**

- I.
  - a) Explain the principle and mechanism of coagulation in wastewater treatment.
  - b) Describe the role of binders and additives in pellet formation.
  - c) Explain sampling, segregation, and analysis of waste with suitable diagrams.
- II.
  - a) Describe the process of composting and its applications.
  - b) Explain chemical methods of wastewater treatment with examples.
  - c) Describe the screening and grit removal process.

**UNIT - II**

- III.
  - a) Describe water reuse practices in oil refineries.
  - b) Discuss the working of ion exchange process.
  - c) Explain the principle of adsorption using activated carbon.
- IV.
  - a) Explain how cooling water is reused in thermal power plants.
  - b) Describe the working principle of reverse osmosis.
  - c) Describe the generation of hydroxyl radicals in AOPs.

**UNIT - III**

- V.
  - a) Describe the role of bacteria in decomposition of organic matter in waste water.
  - b) Automobile exhaust contains CO and NO<sub>x</sub>. Explain how catalytic converters reduce pollution.
  - c) Discuss applications of freezing in water purification.

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- VI. a) Discuss the importance of recycling and recovery in dye industry.  
b) Write a note on working of Dry Grid Arrestors  
c) Explain the removal of particulate matter using ESPs.

#### UNIT - IV

- VII. a) What waste water treatments be suitable for Soap Industry? Explain.  
b) Describe the waste characteristics of tannery and electroplating industries.  
c) Explain the composition of effluents from oil and soap industries.
- VIII. a) How does heavy chemical industry pollute water? Briefly discuss the treatment of waste water produced in heavy chemical industry.  
b) What technique is best for treating waste water from slaughter houses?  
c) Explain how wastewater recycling leads to resource conservation.

#### UNIT - V

- IX. Answer any five of the following:-

- a) What are the primary raw materials used in paper manufacturing?  
b) Why is de-inking necessary in recycled paper processing?  
c) Name common coagulants used in wastewater treatment.  
d) Define Chemical Oxygen Demand?  
e) What is screening?  
f) What is meant by desalination?

x-x-x