



ANDHRA UNIVERSITY

TRANS-DISCIPLINARY RESEARCH HUB

SOLID AND HAZARDOUS WASTE MANAGEMENT

UNIT I

SOLID WASTE:

Definition of solid wastes – types of solid wastes – Sources - Industrial, mining, agricultural and domestic – Characteristics. Solid waste Problems - impact on environmental health – Concepts of waste reduction, recycling and reuse.

UNIT II

MUNICIPAL SOLID WASTE MANAGEMENT

Collection and storage of municipal solid wastes; analysis of Collection systems. Transfer stations . Solid waste processing technologies. Mechanical and thermal volume reduction. Biological and chemical techniques for energy and other resource recovery: composting, vermicomposting, termigradation, fermentation. Incineration of solid wastes. Disposal in landfills: site selection, design, and operation of sanitary landfills;

UNIT III

HAZARDOUS WASTE

Hazardous waste definition, sources and characterization categories and control. Sampling and analysis of hazardous wastes hazardous waste characterization – proximate analysis –

UNIT IV

HAZARDOUS WASTE MANAGEMENT

Sources and characteristics: handling, collection, storage and transport, Hazardous waste treatment technologies - Physical, chemical and thermal treatment of hazardous waste: solidification, chemical fixation, encapsulation, pyrolysis and incineration. Hazardous waste landfills – E-waste Waste characteristics, generation, collection, transport and disposal

UNIT V

BIOMEDICAL AND RADIOACTIVE WASTE MANAGEMENT:

Biomedical waste: Definition, sources, classification, collection, segregation Treatment and disposal. Radioactive waste: Definition, Sources, Low level and high level radioactive wastes and their management, Radiation standard by ICRP and AERB

BOOK RECOMMENDED

Hazardous waste management by Prof. Y. Anjaneyulu.

Hazardous waste management Charles A. Wentz. Second edition 1995. McGraw Hill International.

Integrated solid waste management George Tchobanoglous, Hilary Theisen & Samuel A. Vigil. Criteria for hazardous waste landfills – CPCB guidelines 2000.

Environmental Science by Daniel B. Botkin and Edward A. Keller, Wiley student, 6th edition-2009.



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MODEL QUESTION PAPER

SOLID AND HAZARDOUS WASTE MANAGEMENT

Time: 3 Hrs

Max. Marks 100

Answer any five questions.

5 x 20 = 100 Max. Marks

All questions carry equal marks.

- Explain in details about various sources of Solid waste
 - Briefly explain about characteristics of solid waste
- Describe the concept of waste Reduction, Recycling and Reuse
 - Explain about sanitary land fills
- Write a note on Incineration of solid waste process
 - What are the various solid waste processing technologies
- Explain about the preparation of Composting and Vermicomposting.
 - What is meant by Biomedical waste and write various sources of it
- Describe about proximate analysis in hazardous waste
 - what are the properties of Hazardous waste
- What is meant by biomedical waste and write in detail about its disposal methods
 - Write how the radioactive pollutants can be disposed off
- Write in detail about Radiation standards as per ICRP and AERB
 - What is meant by high level and low level radioactive waste
- What are the sources of Hazardous waste & explain about Incineration method?
 - Explain in detail about E-waste