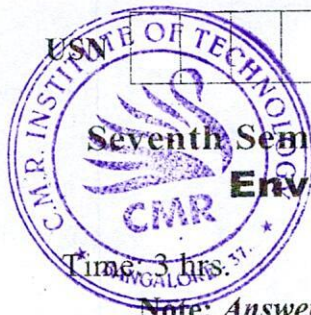




Seventh Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025
Environmental Protection and Management

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Enumerate the various environmental management principles. Explain any two principles. (10 Marks)
- b. Explain abatement of pollution. List out the major activities initiated under the various scheme on pollution Abatement. (10 Marks)

OR

- 2 a. Write a note on Environmental stewardship. (10 Marks)
- b. Write a brief about the organizational drivers to the implementation of environmental management systems. (10 Marks)

Module-2

- 3 a. List and explain the environmental quality objectives. (10 Marks)
- b. Briefly explain :
 - i) Clean production and clean technology
 - ii) Concentration and mass standards (10 Marks)

OR

- 4 a. Explain the factors of CPCB. (10 Marks)
- b. Explain environmental performance indicators for an organization. (10 Marks)

Module-3

- 5 a. Enumerate the benefit and barriers in implementing ISO 14001 in an organization. (10 Marks)
- b. Write a note on :
 - i) Initial Environmental Review (IER)
 - ii) Management Review (MR) (10 Marks)

OR

- 6 a. Write a note on environmental aspects and impact with an organization setup. (10 Marks)
- b. Define environmental policy and write a note on developing environmental policy. (10 Marks)

Module-4

- 7 a. With an example, explain of environmental due-Diligence Audit. (10 Marks)
- b. Enumerate the contents of environmental statement (Form V) (10 Marks)

OR

- 8 a. Write a note on waste minimization planning in an industry. (10 Marks)
- b. Explain briefly :
i) Non conformity
ii) Roles and qualification of Auditors (10 Marks)

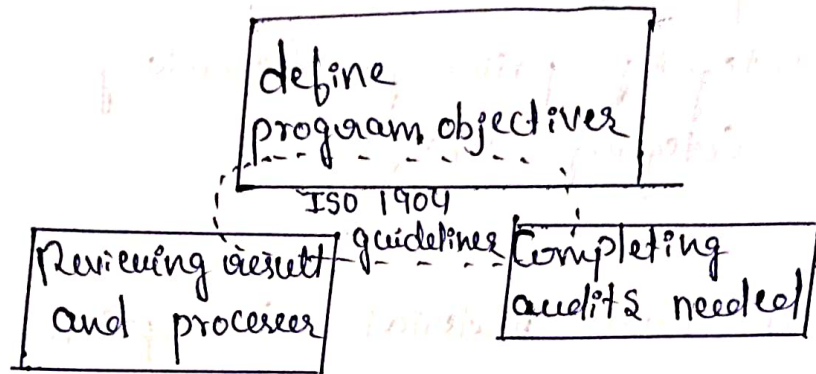
Module-5

- 9 a. Explain Transboundary movement of pollutant with an example. How to manage this problem. (10 Marks)
- b. Explain the pollution prevention methods adopted in an electroplating industry. (10 Marks)
- 10 a. Discuss pollution prevention opportunities in pulp paper and sugar mills. (10 Marks)
- b. Briefly discuss the application of EMS and waste Audit. (10 Marks)

Assignment - 02

Balaji K.N
ICP21EE022

1. Draw the process flow diagram for management of Environmental audit program



→ Defining program objectives

Ensuring you understand the specific objectives you hope to achieve

Making audit arrangements

Assigning roles and Responsibilities.

→ Completing audits needed

Planning and Reviewing internal documents

Collecting and Verifying audit evidence

Generating findings and preparing Reports

→ Reviewing the Results and process:-

Assessing Results and trends

Conforming with audit program procedures

Evolving needs and expectations of interested parties.

PART - ② Write the Contents of Environmental Statement form
 Pollution

PART A :-

- i) Name and address of the owner/occupier of the industry
 Operation or process
- a) water ii) industry Category primary - Secondary
 b) Air iii) production Category - units

part B :-

Water and Raw material Consumption:

- i) water Consumption in mld

process :-

Cooling :-

Domestic :-

Name of product	process water Consumption per unit of product	
	During previous financial year	During the current financial year
1		
2		
3		
4		
5		

pr ii) Raw material Consumption

Name of Raw material Name of product Consumption of Raw material per unit of output

During previous financial year During current financial year

③ "

PART - 1 Write the Contents of Environmental Statement form
 Pollution PART A:-

- i) Name and address of the owner/occupier of the industry
 Operation or process
- a) water ii) industry Category primary - Secondary
 b) Air iii) production Category - units

part B:-
 Water and Raw material Consumption:

- i) water Consumption in mld
 process :-
 cooling :-

Domestic :-

Name of product	process water Consumption per unit of product	
	During previous financial year	During the current financial year
1		
2		
3		
4		
5		

pr ii) Raw material Consumption

Name of Raw material	Name of product	Consumption of Raw material per unit of output	
		During previous financial year	During current financial year
③			

PART - C

pollution discharged to environment / unit of output
pollution's quantity of pollution discharged concentration pollution's percentage variations

a) water

b) Air

PART D

Hazardous waste

Total quantity
during previous
financial year

during Current
financial year

01) from process

02) from pollution
Control facilities

PART F

please specify the characteristics of hazardous or
well as solid wastes and indicate disposal
practices adopted for both categories of waste

③ Write a short Note on waste minimizing
planning in an industry.

→ The first optical separator make it possible to produce high quality monofractions. A downstream, secondary industry develops as the supply of inputs becomes reliable;

phase 4:-

Expanding The Recycling industry.

Modern sorting facilities produce high-quality monofractions from separated waste. There are prioritized for recycling process to separate plastic and sort by colour are used.

* Compost and/or biogas are produced from organic waste in composting and fermentation plants. Residual waste undergoes every recovery in incineration or is treated in mechanical biological treatment facilities.

5) phase of environment audit in an industry;

01) pre - Audit

02) Audit

03) post - Audit

* pre - Audit / phase 1 :-

- Create the Audit team, including a mixture of skills talents and perspectives.
- Create an Audit plan
- Request the Review documents, including
 - * production Records
 - * Reports

2) pre Audit :-

- Set the Ground Rules
- * Determine what happens with issues are Identified
 - policies
 - Compliance
 - Training
 - Air / water Monitoring and Records

* post - Audit :-

- preparing the Environmental Audit Report and disclosure of votes from
- List Confirmed issues and Areas of Concern.
- List Action items and Required follow up.

6) what is waste Audit? How do you plan waste audit in an organization?

5) Phases of Environment audit in an industry :

- 1) Pre - Audit
- 2) Audit
- 3) Post - Audit

Pre - Audit / phase 1 :-

- > Create the Audit team, including a mixture of skills, talents, and perspectives,
- > Create an Audit plan
- > Request the Reviewed documents, including
 - production Records
 - Reports

2) The Audit :-

- > Set the Ground Rules
- + Determine what happens which issues are identified
- + policies
- + Compliance
- + Training
- + Air / water . Monitoring and Records

3) Post - Audit :-

- > preparing the Environmental Audit Report and Disclosure of violation form.
- > list Confirmed issues and Areas of Concern
- > list Action items and Required follow up.

6) What is waste Audit? How do you plan waste audit in an organization?

A waste audit is a physical Analysis of waste Composition to provide a detailed Understanding of problems, identify potential opportunities and give you a detailed analysis of your waste Composition.

A waste audit will help you clearly identify your waste generation of

- > Establish baseline or benchmark data
- > characterise and quantify waste streams
- > verify waste pathways
- > Identify waste diversion opportunities
- > Identify Source reduction opportunities
- > Assess effectiveness and determine ways to improve efficiency of your current waste Management System.
- > obtain detailed data on waste generation.

7) Write a brief about the procedure of Conducting a waste audit in a electroplating industry,

Pollution prevention and Controls:-

plating involves different combinations of a wide variety of process, and there are many opportunities to improve on traditional practices on industry

01) changes in process,

- * Replace Cadmium with high quality, Corrosion Resistant zinc plating, Use Cyanide-free systems
 - * Use trivalent chrome instead of hexavalent chrome
- Acceptance of the change in finish needs to be promoted.
- * Regenerated acids and other process ingredients whenever feasible

#02) Reduction in Dragout and Wasteage

- * Allow dripping time of at least 10 to 20 seconds before rinsing
- * Use fog spraying parts while dripping
- * Maintain the density, viscosity, and temperature of the baths to minimize dragout.

ability

and honest

of
various
elements
the

03) Minimizing Water Consumption in Dyeing System

* Agitation of piece water or word piece
increase dyeing efficiency

+ Multiple Concentric rinses

+ Spray Rinses.

through
waste
pieces
are

04) Management of Process Solutions,

+ Recycle piece waters,

+ Regularly analyze and regenerate process solutions
to maximize useful life,

+ clean rack blow bath to minimize
Contamination

in
ch

05) Write in brief about air and water
pollution opportunities in textile industries.

Re Water pollution prevention.

* Effluent Treatment plants :- Ensure proper
Treatment of ^{waste} water before discharge

* Eco-friendly Dyes and Chemicals:

Use non toxic and biodegradable chemicals
in the dyeing process

Short Note on Environmental protection

- * Hazardous waste Landfills are specially built and are not intended for liquid wastes,
- * They are engineered and excavated. So that they are within the ground. Rather than piling upward.
- * These Landfills are lined with clay, HDPE or other non porous materials to prevent the waste from leaching into the ground. wind dispersal controls, leak protection systems and a double liner are additional protection so that humans and environment come into contact with as little of waste as possible.
- * Human health is generally not injured by hazardous waste landfills. However, it is possible for people near the landfill to be harmed if there is a leak.

10) Explain pollution prevention methods adopted in an electroplating industry?

- * Use - cyanide free systems
- * Avoid Cadmium plating

* a Short Note on charter on Corporate
responsibility for Environmental protection.

Water Recycling: Implement Systems to Recycle and
Reuse water in production process

process modifications: Adopt waterless dyeing
technologies or Reduce water Consumption
Through advanced machinery and practises.

Air pollution prevention:-

Efficient Machinery: Use energy-efficient
equipment and upgrade to advanced machinery
to reduce emissions.

Emission Control: Install scrubbers, filters,
and electrostatic precipitators to capture
particulate matter and gases.

* Switch to cleaner fuel: Replace coal with
cleaner alternatives like natural gas or
Renewable Energy Sources.

* a) Write in brief about disposal of hazardous
waste in Landfill?

* Dumpsites and landfills are the most
commonly used and oldest method of waste
disposal.

(6) Write a short note on charter on Corporate Responsibility for Environmental protection.

Ministry of Environment and forest launched The charter on Corporate Responsibility for Environmental protection in March 2003

With the purpose to go behind the Compliance of regulatory norms for prevention and control of pollution

Through various measures including waste minimization, in plant process and management of residues that are required to be disposed off in an environmentally sound manner.

01) Chrome Recovery

(i) All the chrome-tanning units in the country will have the chrome Recovery plant either on individual or on collative basis in form of common Chrome Recovery plant and use the Recovered chrome in the

about the different systems approach to
The tanning process December 2004

i) Recovered chromium is to be utilized in tanning process by December 2005

02) Waste Minimization measure:-

(i) waste minimization circle will be formed

In all the clusters of tanneries in the country to implement waste minimization measure and for adoption of clean technologies march 2004

03) Reduction of water consumption:-

(i) All the tanneries will install water meters & flow meters to measure actual consumption and waste water discharge, By December 2003,

(ii) water consumption rate will be brought to 28 m³/tonne of (wet) hide by taking the water conservation measures, by December 2003.

(7) Discuss about the different systems approach to Corporate Environment management.

A system approach is identifying, understanding and managing integrated and interdependent processes and their contribution to the organization's Environmental System effectiveness.

Reviewing the inputs and outputs of each process as only a section of the company as a whole contributes to understanding the effects on other processes within the organization, this approach helps managers avoid analyzing problems in isolation.

The most common system model used for Environmental Management is the ISO 14001. There have been other models, such as the European Eco-management and Audit (ENAS) and the Responsible Care model developed by the American Chemical Council (ACC).

Q. What is Environment Stewardship? what steps should government take to promote Environment Stewardship? Human Responsible Consumption, protection of the natural environment or corrective activities that could be achieved through conservation efforts and sustainable practices

* The Responsible use of management of natural Resources in a way that takes a full and balanced account of interests of society, future

Generations

* Reduce the Number of bags you use for shopping, use reusable bags.

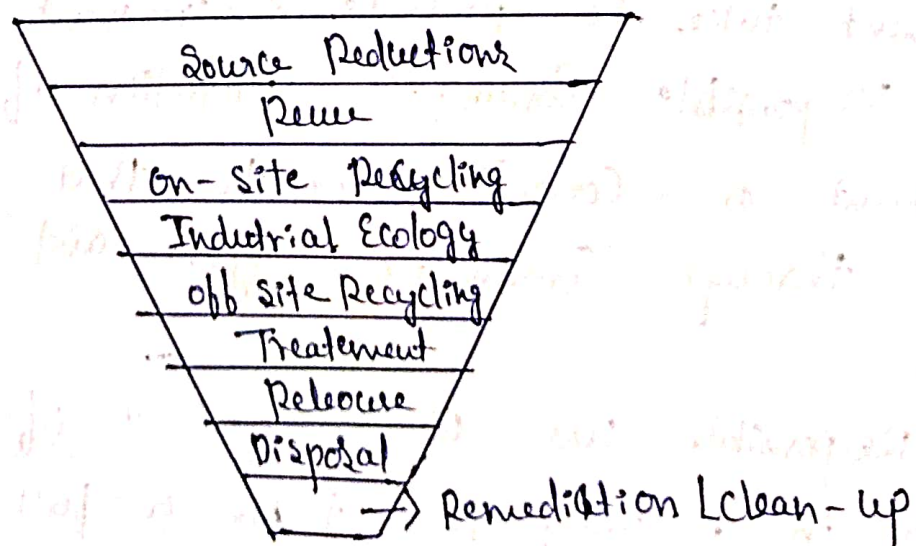
* Reduce water usage and waste by cleaning taps and lower the flow to the smallest needed to do the job in Reasonable time

* Reduce the amount of fuel you use by choosing smaller, lighter vehicles, carpool, live close to where you work, use public transport if you can

09) with a Neat Sketch of pollution prevention hierarchy

explain pollution prevention techniques?

pollution prevention is generally defined as the use of procedure, practices, materials, products or energy that avoid or minimize the creation of pollutants water at the source



Water pollution usually comes in one of two forms: point source pollution & non point source

Pollution prevention Techniques:-

- > Substance of Concern
- > Materials and feedstock substitution
- > operating efficiencies
- > on-site reuse and recycling
- > Training
- > purchasing practices
- > product design
- > Equipment Modifications
- > Clean production
- > Life-cycle assessment

10) Explain environment quality objective?

1) Reduced climate impact: In accordance with the UN Framework Convention on Climate Change. Concentrations of green house gases in the atmosphere must be stabilised at a level that will prevent dangerous anthropogenic interference with the climate system.

02) Clean air :- The air must be clean enough not to represent a risk to human health or to animals plants or cultural assets

03) Natural acidification only :- The acidifying effects of deposition and land use must not exceed the limits that can be tolerated by soil and water.

- 4) A Non toxic Environment :- The occurrence of man-made or extracted Compounds in the Environment must not represent a threat to human health or biological diversity.
- 05) A protective ozone layer :- The ozone layer must be replenished so as to provide long term protection against harmful UV Radiation.
- 06) A Safe Radiation Environment :- Human health and biological diversity must be protected against the harmful effects of Radiation.
- 07) Good quality ground water :- Ground water must provide a safe and sustainable supply of drinking water and contribute to viable habitats for flora and fauna in lakes and water courses.
- 08) Thriving wetlands :- The ecological and water conserving function of wetlands in the landscape must be maintained and valuable wetlands preserved for the future.