

UNIT – III: Engineering Systems for Resource and Energy Recovery

Multiple Choice Questions (MCQs) with Answers

1. The primary objective of resource recovery from solid waste is to:

- A) Increase waste generation
- B) Recover useful materials and energy
- C) Increase landfill usage
- D) Eliminate waste collection

Answer: B) Recover useful materials and energy

2. Composting is a process used for:

- A) Converting organic waste into stable humus-like material
- B) Melting plastics
- C) Producing metals from waste
- D) Storing hazardous waste

Answer: A) Converting organic waste into stable humus-like material

3. Which of the following is a biological conversion process?

- A) Gasification
- B) Pyrolysis
- C) Composting
- D) Incineration

Answer: C) Composting

4. The process carried out before composting to prepare waste materials is called:

- A) Post-processing
- B) Pre-processing
- C) Landfilling
- D) Disposal

Answer: B) Pre-processing

5. Which of the following is NOT a type of composting?

- A) Windrow composting
- B) In-vessel composting
- C) Aerated static pile composting
- D) Gasification composting

Answer: D) Gasification composting

6. Which parameter is most critical for efficient composting?

- A) Moisture content
- B) Road width
- C) Population density
- D) Groundwater level

Answer: A) Moisture content

7. Pyrolysis is the thermal decomposition of waste:

- A) In the presence of excess oxygen
- B) In the absence of oxygen
- C) Under water
- D) By biological action

Answer: B) In the absence of oxygen

8. Gasification converts carbonaceous materials into:

- A) Compost
- B) Leachate
- C) Syngas (producer gas)
- D) Sludge

Answer: C) Syngas (producer gas)

9. RDF stands for:

- A) Refuse Derived Fuel
- B) Recovered Disposal Facility
- C) Resource Development Factor
- D) Refined Domestic Fuel

Answer: A) Refuse Derived Fuel

10. Energy recovery from solid waste mainly aims to:

- A) Increase waste volume
- B) Produce useful heat and electricity
- C) Increase landfill requirements
- D) Eliminate recycling

Answer: B) Produce useful heat and electricity

Fill in the Blanks with Answers

1. The process of extracting useful materials from waste is called ____ recovery.

Answer: resource

2. Composting converts organic waste into a stable product called ____.

Answer: compost

3. Activities such as segregation and shredding before composting are called ____ processing.

Answer: pre

4. Screening and refining of compost after composting are known as ____ processing.

Answer: post

5. Windrow, aerated static pile, and in-vessel methods are types of ____.

Answer: composting

6. The ideal composting process requires adequate moisture and ____ supply.

Answer: oxygen

7. Pyrolysis occurs in the absence of ____.

Answer: oxygen

8. Gasification produces a combustible gas known as ____ gas.

Answer: synthesis (or syngas)

9. RDF stands for Refuse Derived ____.

Answer: Fuel

10. Materials and energy recovery systems help reduce the quantity of waste sent to ____.

Answer: landfills