Chapter 19. Waste Generation and Management

Exercise 1

Solution A.

1. (a) Old newspapers
2. (a) plastics

Solution B.1.

(a) Sludge
(b) Scrubber, Plate type electrostatic precipitator

Solution B.2.

(a) True
(b) True
(c) False. Electricity is one of the secondary needs of human society.

Solution B.3.

Column I	Column II
1. Cow dung	(iii) Manure (i) Sugarcane
2. Bagasse	(i) Sugarcane
3. Old newspapers	(ii) Raddiwalas (i) Sugarcane

Solution C.1.

DEGRADABLE WASTE	NON-DEGRADABLE WASTE
The waste that can be decomposed by micro-organisms is called degradable waste.	The waste that cannot be decomposed by micro-organisms is called non-degradable waste.
E.g. Vegetable peel, paper, cloth etc.	E.g. Plastic

Solution C.2.

(a) Broken glass utensils are a kind of non-degradable waste as they cannot be decomposed and broken down by living micro-organisms. These need to be disposed off in deep dug out pits so that they do not cause any harm. However, sometimes broken glass in large quantities can be used in glass industries after melting them.

(b) Landfills are coming up fast near large cities due to huge population growth and lack of using efficient and safe disposal method. As construction activities are very active, new colonies are being raised and construction units have become very active. These produce large quantities of waste stones, pebbles, broken bricks and wood waste. Mostly, these are used as landfills. One can see heaps of landfills in the suburbs.

(c) Municipal sewage is first separated into degradable and non-degradable wastes because degradable wastes can be broken down into non-toxic waste in septic tanks, while non-degradable waste needs to be dumped or buried at safe places to avoid any hazardous effects.

Solution D.1.

Electronic waste is the waste generated by discarded electrical appliances.

Items which come under the category of electronic waste:

1. Fluorescent tubes
2. Medicalinstruments
3. Toys
4. Lead acid batteries
5. Mobile phones
6. Radios

Solution D.2.

Common wastes produced in mining operation:

Coal, Dust, Iron, Copper, Zinc, etc.

Reusing of wastes produced in mining operation:

During operation of getting minerals, a large quantity of waste material is produced. This waste material is called mine tailing. It is the left over. The mine tailing can be mixed with materials to produce tiles and masonry cement.

Solution D.3.

The rotting and conversion of organic waste into manure is known as composting. The product formed after composting is called compost.

Method of preparing compost:

1. A trench of about 5 m long, 1.5 m wide and 1.5 m deep is dug.
2. A 30 cm thick layer of well-mixed refuse and waste is spread on it. This layer is completely wetted with a watery mixture of cow dung and some mud.

3. A second layer of mixed refuse is spread over the first layer, till the heap rises about half a metre.
4. The set-up is kept undisturbed for about 3 months, during which water is sprinkled over it at regular intervals.
5. A trench is then dug, its material is taken out and rearranged in conical heaps and covered with a layer of soil.
6. After 50-60 days, compost is ready for use in cultivation fields or in garden flower beds, etc.

Solution D.4.

Usefulness of incineration of wastes:

- It reduces the weight of the waste.
- It reduces the volume of the waste.
- It renders toxic wastes into less toxic or even non-toxic wastes.

Precautions required for incineration:

- It should be carried out at very high temperatures.
- It should be equipped with pollution control devices.
- It should be installed away from residential areas.