Science Class 7 Important Question Chapter 13 Waste Water Story

1. Why air is pumped into clarified water?

Answer: Air is pumped into the clarified water to help aerobic bacteria to grow. Bacteria consume human waste, food waste, soaps and other unwanted matter still remaining in clarified water.

2. Why should eucalyptus trees be planted along sewage ponds?

Answer: It has been suggested that we should plant eucalyptus trees all along sewage ponds. These trees absorb all surplus wastewater rapidly and release pure water vapour into the atmosphere.

3. Write two uses of ozone.

Answer: Two uses of ozone are:

It is used to disinfect water.
It absorbs ultraviolet rays.

4. Why are bacteria important in sewage treatment?

Answer: Bacteria are important in sewage treatment because it consume human waste, food waste, soaps and other unwanted matter still remaining in clarified water.

5. What is cleaning of water?

Answer: Cleaning of water is a process of removing pollutants before it enters a water body or is reused. This process of wastewater treatment is commonly known as “Sewage Treatment”.

6. Why should oils and fats be not released in the drain? Explain.

Answer: Oils and fats should not be released in the drain because they can harden and block the pipes. In an open drain the fats clog the soil pores reducing its effectiveness in filtering water.

7. How can we contribute in maintaining sanitation at public places?

Answer: All of us can contribute in maintaining sanitation at public places. We should not scatter litter anywhere. If there is no dustbin in sight, we should carry the litter home and throw it in the dustbin.

8. What is sewage treatment?

Answer: Cleaning of water is a process of removing pollutants before it enters a water body or is reused. This process of wastewater treatment is commonly known as “Sewage Treatment”. It takes place in several stages.

9. Explain the function of bar screens in a wastewater treatment plant.

Answer: A bar screen is a mechanical filter used to remove large objects, such as rags and plastics, from wastewater. Wastewater is passed through bar screens. Large objects like rags, sticks, cans, plastic packets, napkins present in waste water are removed.

10. Outline your role as an active citizen in relation to sanitation.

Answer: As an enlightened citizen we should approach the municipality or the gram panchayat if we see open drains and insist that the open drains be covered. If the sewage of any particular house makes the neighbourhood dirty, we should request them to be more considerate about others’ health.

Long Extra Questions and Answers

1. What is sludge? Explain how it is treated.

Answer: Solids like faeces settle at the bottom of the tank during sewage water treatment is called sludge. The sludge is transferred to a separate tank where it is decomposed by the anaerobic bacteria. The biogas produced in the process can be used as fuel or can be used to produce electricity. Dried sludge is used as manure, returning organic matter and nutrients to the soil.

2. Untreated human excreta is a health hazard. Explain.

Answer: Untreated human excreta is a health hazard. It may cause water pollution and soil pollution. Both the surface water and groundwater get polluted. Groundwater is a source of water for wells, tubewells, springs and many rivers. Thus, it becomes the most common route for water borne diseases. They include cholera, typhoid, polio, meningitis, hepatitis and dysentery.

3. What is sewage? Explain why it is harmful to discharge untreated sewage into rivers or seas.

Answer: Sewage is wastewater released by homes, industries, hospitals, offices and other users. It also includes rainwater that has run down the street during a storm or heavy rain. The water that washes off roads and rooftops carries harmful substances with it. Sewage is a liquid waste. It is harmful to discharge untreated sewage into rivers or seas because it contains suspended solids, organic and inorganic impurities, nutrients, saprotrophic and disease causing bacteria and other microbes.

4. Suggest some alternative arrangement for sewage disposal.

Answer: To improve sanitation, low cost onsite sewage disposal systems are being encouraged. Examples are septic tanks, chemical toilets, composting pits. Septic tanks are suitable for places where there is no sewerage system, for hospitals, isolated buildings or a cluster of 4 to 5 houses. Some organisations offer hygienic on-site human waste disposal technology. These toilets do not require scavenging. Excreta from the toilet seats flow through covered drains into a biogas plant. The biogas produced is used as a source of energy.

5. Explain the relationship between sanitation and disease.

Or

State the effects of poor sanitation.

Answer: Poor sanitation and contaminated drinking water is the cause of a large number of diseases. A vast number of our people are still without sewerage facilities. A very large fraction of our people defecates in the open, on dry riverbeds, on railway tracks, near fields and many a time directly in water. Untreated human excreta is a health hazard. It may cause water pollution and soil pollution. Both the surface water and groundwater get polluted. Groundwater is a source of water for wells, tubewells, springs and many rivers. Thus, it becomes the most common route for water borne diseases. They include cholera, typhoid, polio, meningitis, hepatitis and dysentery.

6. List some ways to minimise or eliminate waste and pollutants at their source.

Answer: One of the ways to minimise or eliminate waste and pollutants at their source is to see what you are releasing down the drain.

- Cooking oil and fats should not be thrown down the drain. They can harden and block the pipes. In an open drain the fats clog the soil pores reducing its effectiveness in filtering water. Throw oil and fats in the dustbin.
- Chemicals like paints, solvents, insecticides, motor oil, medicines may kill microbes that help purify water. So we should not throw them down the drain.
- Used tealeaves, solid food remains, soft toys, cotton, sanitary towels, etc. should also be thrown in the dustbin. These wastes choke the drains. They do not allow free flow of oxygen. This hampers the degradation process.

7. Describe the steps involved in getting clarified water from wastewater.

Answer: Steps involved in getting clarified water from wastewater are:

- Wastewater is passed through bar screens. Large objects like rags, sticks, cans, plastic packets, napkins are removed.
- Water then goes to a grit and sand removal tank. The speed of the incoming wastewater is decreased to allow sand, grit and pebbles to settle down.
- The water is then allowed to settle in a large tank which is sloped towards the middle. Solids like faeces settle at the bottom and are removed with a scraper. This is the sludge. A skimmer removes the floatable solids like oil and grease. Water so cleared is called clarified water.
- Air is pumped into the clarified water to help aerobic bacteria to grow. Bacteria consume human waste, food waste, soaps and other unwanted matter still remaining in clarified water.