



CHAPTER – 18

Wastewater Story

SOLUTIONS:

EXERCISES

Q1 Fill in the blanks:

- a) Cleaning of water is a process of removing _____.
- b) Wastewater released by houses is called _____.
- c) Dried _____ is used as manure.
- d) Drains get blocked by _____ and _____.

Ans:-

- a) Sewage
- b) Sludge
- c) Kitchen waste and solid waste

Q2 What is sewage? Explain why it is harmful to discharge untreated sewage into rivers or sea.

Ans:- The wastewater released by homes, industries, hospitals, agricultural activities etc. is called sewage. It is harmful to discharge untreated sewage into a rivers or sea because untreated water contains harmful chemicals and disease causing bacteria and microbes that can pollute the whole body of the water.

Q3 Why should oils and fats be not released in the drain? Explain.

Ans:- Oils and fats should not be released in the drain because they harden and block the pipes. Fats clog the soil pores reducing its effectiveness in filtering water.

Q4 Describe the steps involved in getting clarified water from wastewater.

Ans:- The steps involve in wastewater treatment to get clarified water are:

1. Firstly the water is passed through bar screens to remove large objects like rag, cans, plastic packets, napkins etc.
2. Then the water is taken to grit and sand removing tank and allow to settle sand, grit and pebbles by decreasing the speed of the incoming wastewater.
3. The water is allowed to settle in a large tank and remove solid impurities like faeces from the bottom called sludge with a scraper. A skimmer removes oil and grease from it. Water is so cleared is called clarified water.

Q5 What is sludge? Explain how it is treated.

Ans:- Solid substances like faeces that settle down at the bottom of the tank during wastewater treatment is called sludge.

The sludge is decomposed by anaerobic bacteria in a separated tank to produce biogas. The activated sludge is used as manure.

Q6 Untreated human excreta is a health hazard. Explain.

Ans:- Untreated human excreta can cause health related problem. It may cause water pollution, soil pollution and air pollution. Polluted water contains disease causing bacteria which can spread diseases like cholera, typhoid etc.

Q7 Name two chemicals used to disinfect water.

Ans:- They are chlorine and ozone.

Q8 Explain the function of bar screens in a wastewater treatment plant.

Ans:- The function of bar screens in wastewater treatment plant is to remove all the large substances or impurities like rags, sticks, cans, plastic packets etc. from wastewater.

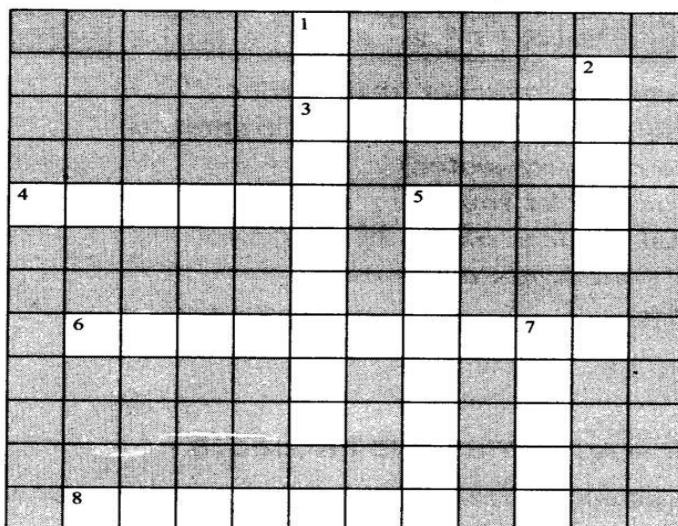
Q9 Explain the relationship between sanitation and disease.

Ans:- Sanitation and disease are very much related to each other. Sanitation means maintaining of cleanliness and proper disposal of sewage. If sanitation is there, no disease will occur. But poor sanitation will cause various types of diseases. So sanitation should be kept to avoid disease.

Q10 Outline your role as an active citizen in relation to sanitation.

- Ans:-
1. We should maintain our personal environmental sanitation.
 2. We should make people aware of benefits of sanitation.
 3. We should not scatter litter everywhere.
 4. We should help Municipal Corporation to remove disease causing substance thrown in open drains.

Q11 Here is a crossword puzzle. Good luck!



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Across:

3. Liquid waste products
4. Solid waste extracted in sewage treatment
6. A word related to hygiene
8. Waste matter discharged from human body

Down:

1. Used water
2. A pipe carrying sewage
5. Micro-organisms which cause cholera
7. A chemical to disinfect water

Ans:-

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					A															² S
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Q12 Study the following statements about ozone:

- (a) It is essential for breathing of living organisms.
- (b) It is used to disinfect water.
- (c) It absorbs ultraviolet rays.
- (d) Its proportion in air is about 3%.

Which of these statements are correct?

- (i) (a), (b) and (c)
- (ii) (b) and (c)
- (iii) (a) and (d)
- (iv) All four

Ans:- (ii) (b) and (c)



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EXTRA QUESTIONS AND ANSWERS

Q1 How does water become a wastewater?

Ans:- The dirty water rich in lather, mixed with oil, black brown colour goes down the drain from kitchen, toilets, laundries, industries etc. is called wastewater.

Q2 What is cleaning of water?

Ans:- The process of removing pollutants before it enters a water body or for reused is called cleaning of water.

Q3 What is sewage treatment plant?

Ans:- A sewage treatment plant is a place where sewage is purified to remove the pollutants to obtain clean water.

Q4 What is sewer?

Ans:- The network of big and small pipes that brings clean water and another pipes takes away wastewater is called sewer.

Q5 What components of the sewage found in a drain?

Ans:- The components of the sewage found in a drain are:

Organic impurities	Human faeces, vegetables, animal waste etc.
Inorganic impurities	Nitrates, phosphates, metals etc.
Nutrients	Phosphorus and Nitrogen.
Bacteria	Vibrio cholera, SalmonellaParatyphi
Other microbes	Protozoans.

Q6 What is sewage?

Ans:- Sewage is like a transport system that carries sewage from a point of being produced to the point of disposal i.e. treatment plant.

Q7 What is manhole?

Ans:- Manhole is a hole with a detachable cover that lead down to a sewer or drain.

Q8 What is aeration?

Ans:- Aeration is the process of circulating air through, to mix with or dissolve in liquid or substance.

Q9 What is the full form of WWTP?

Ans:- The full form of WWTP is wastewater treatment plant.

Q10 What is activated sludge?

Ans:- The suspended microbes settle at the bottom of the tank after air is pumped into the clarified water is called activated sludge.

Q11 What are the by-product of wastewater treatment?

Ans:- Sludge and biogas are the by-product of wastewater treatment.

Q12 Give some steps to minimise waste and pollutants at their source?

Ans:- To minimise waste and pollutants at their source is:

- i. Oils and fats should not be thrown down the drain as it can harden and block the pipe. It should be thrown in dustbin.
- ii. Chemicals like paints, insecticides, solvents etc. should not be thrown down the drain as it kill microbes that purify water.
- iii. Used solids like tealeaves, solid food remains, cotton, sanitary towels etc. should not be thrown down to drain as it can choke the drain. It should be thrown to dustbin.

Q13 Is vermi-processing toilet hygienic?

Ans:- Yes vermi-processing toilet is hygienic. Vermi-processing toilet is a design of a toilet in which humans excreta is treated by earthworm. In this process, human excreta is completely converted to a vermi cake. It reduces diseases and increase in soil fertility.

Q14 What is mean by sanitation?

Ans:- Sanitation means maintaining cleanliness and dealing sewage.

Q15 Give an alternative arrangement for sewage disposal with example.

Ans:- Another alternative arrangement for sewage disposal to improve sanitation is to encourage low cost onsite sewage. Examples septic tanks, chemical toilets, composting pits.



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Q16 Write down the summery steps of wastewater treatment.

Ans:-

