

Exercises

1. Fill in the blanks and give reasons.

(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) Pollutants

b) Domestic sewage

c) Dung

d) Plastic and oils.

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

ANS: Sewage is the wastewater containing solid and liquid wastes which are produced from homes, industries, hospitals, etc. It consists of contaminants that are very harmful to nature and us. If the wastewater is discharged into rivers or seas without treating it may lead to heavy damage to aquatic life, plants and cause a number of diseases like cholera, dysentery in human beings.

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

ANS: Oils and fats should not be released in the drain because they are insoluble in water and float on the water. When released in the drain it may cause hardening and blocking of

the sewage pipes. They clog the drains and make it difficult for filtering. It also disturbs the aquatic life.

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

ANS: Treatment of wastewater involves physical, chemical and biological processes.

- ✓ Wastewater is passed through bar screens to remove objects like plastic, cloth pieces, sticks, etc.
- ✓ Water then goes through the grit and sand removal tank to remove the sand, grit, pebbles, etc., by settling down at the bottom.
- ✓ Water is then allowed to enter a tank where solids like feces or suspended solids which settle at the bottom are removed with a scraper. This sludge is now collected in digesters to produce biogas.
- ✓ Clarified water is then passed through an aerator tank where the aerobic bacteria grows and decomposes the organic matter like a human and animal waste. Now the suspended microbes settle at the bottom as activated sludge and this is used as manure. The treated water is collected and disinfected.
- ✓ The treated water is disinfected with chemicals like chlorine and ozone if necessary before discharging it into water bodies.

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

ANS: Sludge is one of the by-products during wastewater treatment. It helps to remove the organic matter away during sewage treatment.

- ✓ In the sedimentation tank when the sludge settles down at the bottom, it is collected with the scraper and transferred to digesters to use to produce biogas.
- ✓ Dried sludge is used as manure which returns the nutrients to the soil.

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

ANS: Untreated human excreta is home to many pathogens and may cause severe diseases in humans. It may pollute ground water and lead to many water borne diseases.

7. Name two chemicals used to disinfect the water.

ANS: Chlorine and Ozone are two commonly used chemicals to disinfect the water.

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

ANS: In wastewater treatment plants bar screens are used to remove the large objects like plastic, sticks, napkins, rags, etc. It is the part of primary treatment.

9. Explain the relationship between sanitation and disease.

ANS: Sanitation and diseases are related. Poor sanitation may lead to a number of diseases. Contaminated drinking water is the cause of many water-related diseases. So proper sanitation can reduce the risk of diseases.

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

ANS: As an active citizen in relation to sanitation, I follow the steps like:

- Keep the surroundings clean and neat inside and outside of my home.
- Proper disposal of wastes like oils, fats, plastic, and other solids in the dustbin instead of draining.
- Inform the municipalities about the open drains, uncovered manholes, leaking pipes, etc.

11. What would you do to motivate people in your street to utilize toilets?

ANS: I would try to gather the people to spread awareness about the need and importance of building toilets. I will make them understand the effects of open defecation on people and their kids.

12. What would happen if there were no microbes that break down wastes in sewage?

ANS: If there aren't microbes to break down wastes in sewage, all this stuff builds up. The accumulation of wastes disturbs the aquatic life and also becomes the site for many mosquitoes which causes a number of diseases. Thanks to these microbes because it is due to these microbes all the waste is digested and returned back to the environment in a nutritious form.

13. What point would you like to address in the letter for your panchayat officer about drainage system in your village / town?

ANS: In the letter for our Panchayat officer, I would like to address the problem of poor drainage system in our locality.

Due to this, it became the site for mosquitoes and creating many health related issues to adults and kids.

14. Go to a nearby railway station/bus station / hospital / industry.

What type of sewage is released? List out where and how.

ANS:

Place	Type of sewage	From where and how
Railway station	Plastic bottles, food item packets and half eaten edibles	People throw these wastes.
Bus station	Food items, water bottles	Passengers throw these wastes.
Hospitals	Used cotton, syringes, disposable masks etc	Staff dispose these wastes used during the treatment.
Industries	Ash, chemical wastes etc	Effluents are released.

15. Fresh water is scarce. What is your contribution to make your family members aware of the need to save water?

ANS: I shall suggest my family members to use water wisely and I too follow the same.

- Water used for cleaning rice and vegetables can be used to water the plants in garden.
- Inform them to repair the leaky taps immediately.

- The left over water in glass or water bottles is collected and used for birds to fulfill their thirst.

16. Prepare at least 5 slogans on “Don’t waste water”.

ANS: Preserve water, preserve life.

Conserve water. Save million lives.

Think before you let it drip.

Save the Blue, so you don’t go blue. Save water.

Save water. Save Earth.

17. Make a write up for your project on preservation of rain water.

ANS: In every village, villagers should do the activity of sludge removal in tanks. Governments should renovate the lakes, tanks from time to time.

The rain water which flows from rooftops can be diverted to pit or a big tank and can be stored and used for few days.

18. Is there a check dam or any other water conservation unit in your village? Write a note on it.

ANS: We have a big tank in the center of our village. From the tank the water is released to the houses, school and small offices in the village.

19. Have you got any doubt about diseases caused by un treated water? List them out.

ANS: I got the following doubts about diseases caused by untreated water.

- What are water borne diseases?

- What are the steps involved in treating the contaminated water?
- Is there any possibility to treat the water at domestic level?

20. If you see water running off from a public tap, what would you do about it?

ANS: If I notice water running off from a public tap, I would try to stop the flow of water by turning it off. If it is not possible I would inform it to the authorities.

21. Prepare a logo for International Water Day.

ANS:

