



DPM CLASSES & COMPUTERS

Special for Math's & Science

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SCIENCE -7 (CH-18- WASTE WATER STORY)

Question 1:

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 _____.

Answer 1:

- (a) Cleaning of water is a process of removing pollutants.
- (b) Wastewater released by houses is called sewage.
- (c) Dried sludge is used as manure.
- (d) Drains get blocked by cooking oil and fats.

Question 2:

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

Answer 2:

Sewage is the wastewater containing both liquid and solid wastes produced by human activities from homes, industries, hospitals, offices, etc.

Sewage contains various contaminants including disease-causing bacteria and other microbes. If untreated sewage is discharged into rivers or seas, then the water in the rivers or seas would also get contaminated. If this contaminated water is used for drinking, then it can cause diseases such as cholera, typhoid, dysentery, etc. which may lead to death. That is why it is harmful to discharge untreated sewage into rivers or seas.

Question 3:

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

Answer 3:

Oils and fats harden and block the sewage pipes. In an open drain also, fats block porosity of soil which affects its water filtering efficiency. That is why oils and fats should not be released in the drain.



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Question 4:

Describe the steps involved in getting clarified water from wastewater.

Answer 4:

The steps involved in getting clarified water from wastewater are as follows:

- (i) Use an aerator to bubble air through the wastewater. A mechanical stirrer or a mixer can also be used in place of the aerator. This helps in reducing bad odour of the wastewater.
- (ii) Then, the water is filtered through the layers of sand, fine gravel, and medium gravel. Filtration makes the wastewater clean from various types of pollutants. The water is filtered continuously until it becomes clear.
- (iii) Then any disinfectant such as chlorine tablet is added to the filtrate and stirred to obtain completely clear water.

Question 5:

What is sludge? Explain how it is treated.

Answer 5:

Semi-solids such as faeces that settle down during wastewater treatment are called sludge. This sludge is removed using a scraper and then transferred to a tank where it is decomposed by anaerobic bacteria to produce biogas. This biogas is used as a low-cost fuel for heating, cooking, etc. It is also used to produce electricity.

Question 6:

Untreated human excreta is a health hazard. Explain.

Answer 6:

Untreated human excretions are a health hazard. It causes pollution of soil and water including the underground water. Thus, it contaminates the sources of water from which people collect water for drinking and household purposes. When this contaminated water is used for drinking, it can cause diseases such as cholera, typhoid, hepatitis, dysentery, etc., which may even lead to death.

Question 7:

Name two chemicals used to disinfect water.

Answer 7:

Two chemicals used to disinfect water are chlorine and ozone.

Question 8:

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

Answer 8:



Bar screen

In a wastewater treatment plant, bar screen removes large solid objects from water. The wastewater is allowed to pass through bar screen so that large solid objects such as rags, napkins, sticks, cans, plastic bags, polythene, etc. present in wastewater can be removed.



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Question 9:

Explain the relationship between sanitation and disease.

Answer 9:

Sanitation and disease are related to each other as lack of sanitation can cause diseases. In our country, a large number of people even today do not have sewerage facilities and thus defecate in open fields, railway tracks, etc. The untreated human excreta thus pollute soil and water sources including the underground water. When this contaminated water is used for drinking, it can cause diseases such as cholera, typhoid, hepatitis, dysentery, etc. which may even lead to death.

Therefore, lack of sanitation resulting in drinking of contaminated water can cause health problems.

Question 10:

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

Answer 10:

A citizen has many responsibilities regarding sanitation. Among other things, an active citizen should do the following with regard to maintaining proper sanitation:

- (i) Ensure that his surroundings (both inside and outside home) are clean.
- (ii) Ensure that the sewerage system in his house is properly managed.
- (iii) If he notices some leakage or other problem in the sewerage system, he should report it to the municipality.



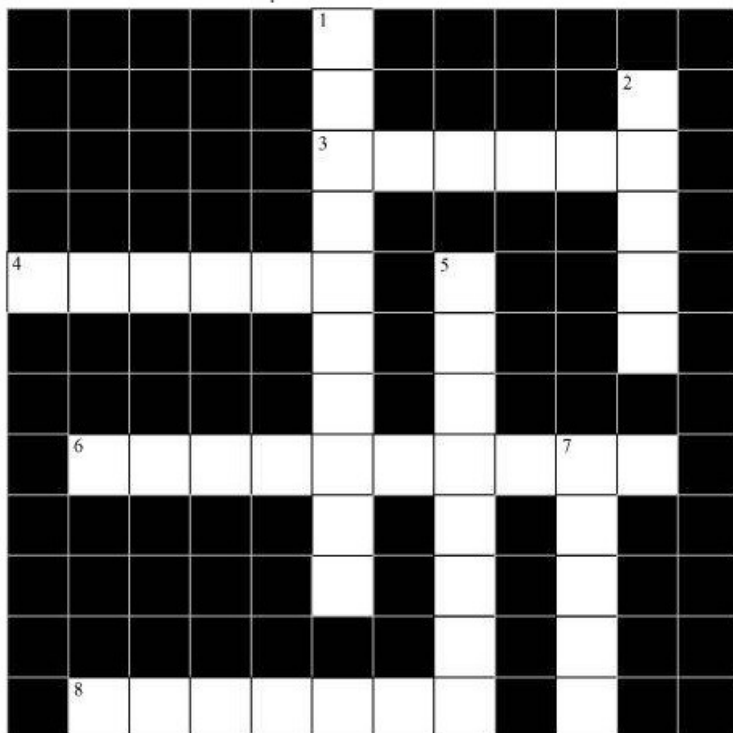
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Question 11:

Here is a crossword puzzle: Good luck!



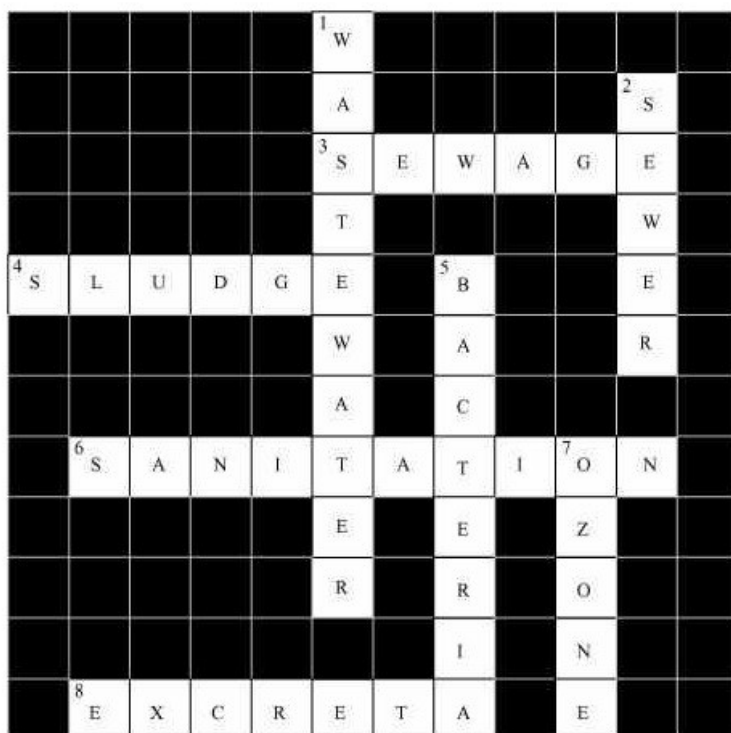
Across

- 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-organism which causes cholera
- 7. A chemical to disinfect water

Answer 11:



Question 12:

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

Answer 12:

- (ii) (b) and (c)