

SCIENCE

CHAPTER 18: WASTEWATER STORY



Question 1. Water that is not fit for use is called

- (a) clean water
- (b) wastewater
- (c) both (a) and (b)
- (d) none of these

Question 2. Which of the following is not a source of wastewater?

- (a) Sewers
- (b) Homes
- (c) Industries
- (d) Hospitals

Question 3. The period of International Decade for action on 'Water for Life' is

- (a) 2000 – 2010
- (b) 2005 – 2015
- (c) 2010 – 2020
- (d) 2003 – 2013

Question 4. The process of removing pollutants in water before it enter a water body is called

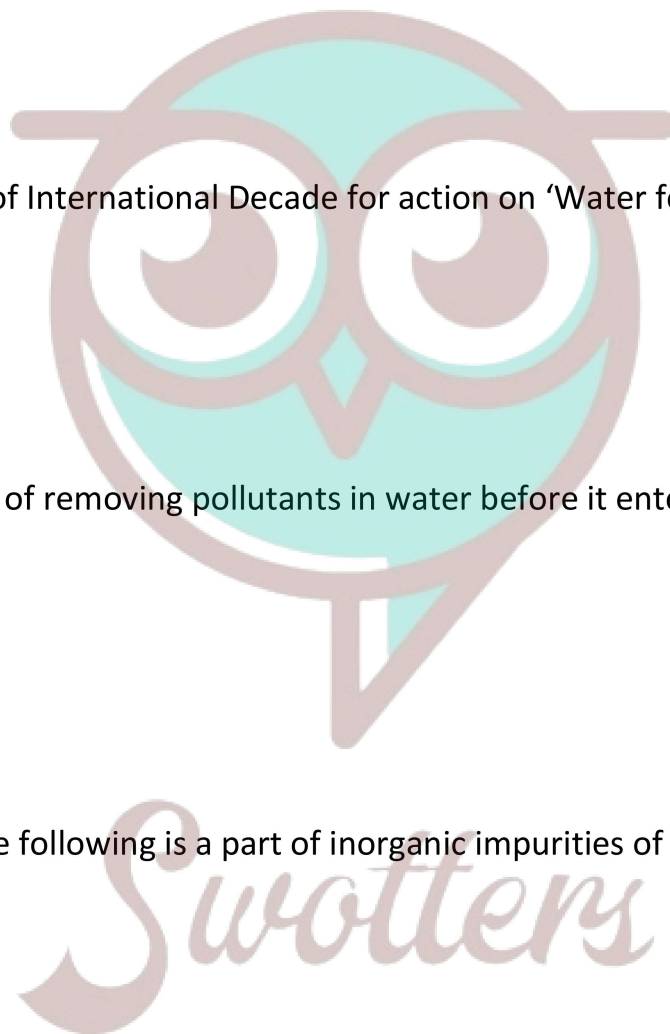
- (a) cleaning of water
- (b) refining
- (c) filtering of water
- (d) none of these

Question 5. Which of the following is a part of inorganic impurities of the sewage?

- (a) Pesticides
- (b) Urea
- (c) Phosphates
- (d) Vegetable waste

Question 6. Wastewater released by homes, factories, industries and other users is known as

- (a) polluted water
- (b) sewage
- (c) both (a) and (b)
- (d) none of these



Question 7. Suspended impurities contained by sewage are called

- (a) contaminants
- (b) sludge
- (c) grey water
- (d) none of these

Question 8. A network of big and small pipes under the ground for wastewater management is known as

- (a) sewage
- (b) sewerage
- (c) manhole
- (d) channel

Question 9. Solid waste extracted during sewage treatment is known as

- (a) sewage
- (b) sludge
- (c) biogas
- (d) contaminants

Question 10. Which portion of WWTP retains large objects like rags, sticks, etc.?

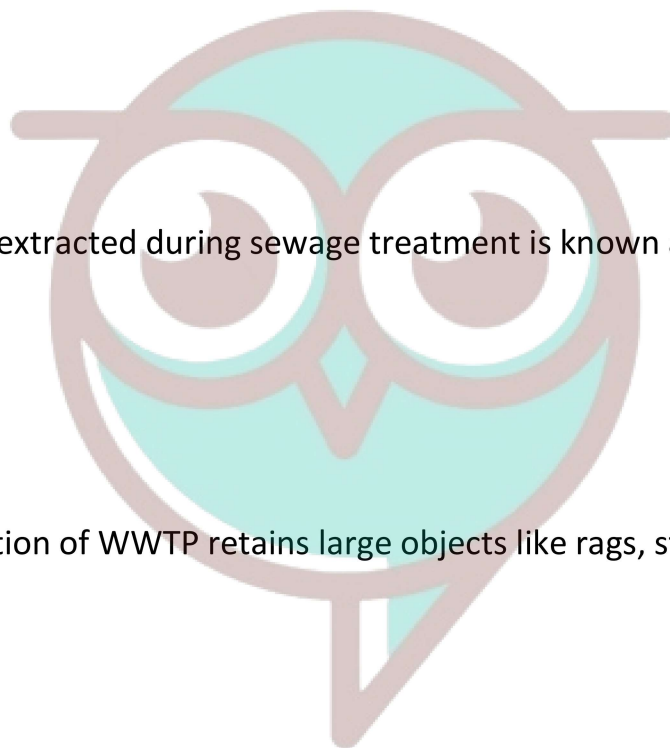
- (a) Bar screen
- (b) Sludge
- (c) Sedimentation tank
- (d) Sewerage

➤ **Fill In the Blanks:**

1. Wastewater should be cleaned up by removing
2. Some factors responsible for the increasing scarcity of freshwater are , and
3. The General Assembly of the proclaimed the period 2005-2015 as the International Decade for action on 'Water for Life'.
4. Sewage is a waste.
5. Sewage contains some organic impurities like oil, , and
6. Air is pumped into the clarified water to help bacteria to grow.

➤ **True or False:**

1. Wastewater is suitable for drinking purpose.



Swotters

2. Wastewater can be revised.
3. Clean water is available for every person.
4. Pollution is one of the factors of the increasing scarcity of freshwater.
5. World Water Day is celebrated on 22 March every year.
6. Cleaning of water is also known as sewage treatment.

➤ **Very Short Question:**

1. What is sewage?
2. What per cent of earth's water is fresh?
3. What constitutes waste water?
4. State one of the reasons for increasing scarcity of fresh water.
5. Which day is celebrated as World Water Day?
6. What is cleaning of water?
7. What are the adverse effects of drinking contaminated water?
8. What is sewage treatment?
9. What is the purpose of filtering waste water?
10. What is a clarifier?

➤ **Short Questions:**

1. What do you mean by waste water?
2. Enlist the various causes of water pollution.
3. What is sludge and how is it treated?
4. What is sewage and sewage treatment?
5. Explain why is it harmful to discharge untreated sewage into Water bodies?
6. Untreated human excreta are a health hazard. Justify the statement.
7. What do you understand by the term "sewerage"?
8. List few ways to control sewage generation.

➤ **Long Questions:**

1. What is sewage? Explain why it is harmful to discharge untreated sewage into rivers or seas?
2. Oils and fats should not release in the drain. Explain why?
3. Explain the various steps involved in water treatment plant.

✓ **Answer Key-**

➤ **Multiple Choice Answers:**

1. (b) wastewater
2. (a) Sewers
3. (b) 2005 – 2015
4. (a) cleaning of water
5. (c) Phosphates
6. (b) sewage
7. (a) contaminants
8. (b) sewerage
9. (b) sludge
10. (a) Bar screen

➤ **Fill In the Blanks:**

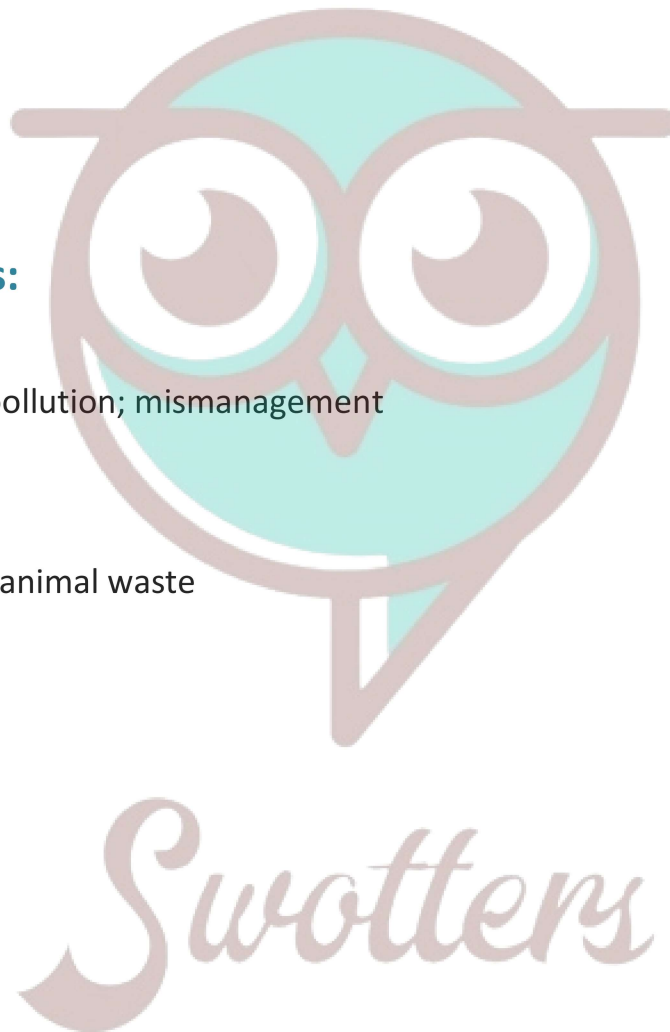
1. pollutants
2. population growth; pollution; mismanagement
3. United Nation
4. liquid
5. urea; human faeces; animal waste
6. aerobic

➤ **True or False:**

1. False
2. True
3. False
4. True
5. True
6. True

➤ **Very Short Answers:**

1. Answer: Waste water released by houses is called sewage.
2. Answer: 3 per cent.
3. Answer: It can include human waste, food scraps and chemicals.
4. Answer: Population growth.
5. Answer: 22 March



6. Answer: Cleaning of water is the process of removing pollutants before it enters a water body or is reused.
7. Answer: Drinking contaminated water results in diseases such as cholera, typhoid and diarrhoea. Polluted water can also prove fatal.
8. Answer: Pollutants in waste water can be removed in several stages, and this process is called "sewage treatment.
9. Answer: To remove large impurities.
10. Answer: A clarifier is a tank with its central part inclined downwards so as to allow faeces to settle down. The inclined waste is then removed using a scraper.

➤ Short Answers:

1. Answer: The dirty water which contains various impurities like dust, polythene bags, Vegetable peels, kitchen waste, oil & water that goes down the drains from sinks, showers, toilets, laundries etc. is waste water. Waste water cannot be used further.
2. Answer: Water is polluted by various factors like:
 - Bathing of cattle in river bodies.
 - Washing of clothes & utensils by people in rivers.
 - Discharging wastes from factories, industries in nearby river bodies & ponds.
3. Answer: Solid Faecal matter which is generated after the water treatment plant is known as sludge. The sludge is transferred to a separate tank where it is decomposed by anaerobic bacteria. The biogas produced can be used as a fuel & the dried sludge is used as manure for replenishing the nutrients of the soil.
4. Answer: The waste water that is being generated at homes, industries, agricultural activities, human activities etc. is called sewage. And sewage treatment is a process of removing pollutants before it enters a water body or is refused.
5. Answer: It is harmful to discharge the untreated sewage into the water bodies as it contains harmful substances. Most of it is water which has dissolved & suspended impurities which may pollute the water bodies & also harm the aquatic plants & animals.
6. Answer: An untreated human excreta is a health hazard as it may cause water pollution. It pollutes both Surface water as well as ground water. Since ground water is a source of water for wells, tube wells etc. therefore it leads to waterborne diseases like cholera, jaundice, typhoid etc.
7. Answer: Sewerage is like a transport system that carries sewage from the point where it is being generated to the point of disposal i.e. treatment plant.
8. Answer: Following are the ways to control sewage generation are:
 - Leakage in sewer lines should be checked & repaired regularly.

- Do not defecate, spit or scatter litter in public places.
- Used tea leaves, solid food remains, toys, towels etc. should not be thrown in water pipe because these materials may choke the pipe.

➤ Long Answers:

1. Answer: Sewage is waste water 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 which has dissolved and suspended impurities as contaminants or pollutants. If this untreated sewage is discharged into rivers or seas, It may cause water pollution and soil pollution in which both the surface water and groundwater get polluted. Groundwater is a source of water for wells, tube wells, springs and many rivers. Therefore if it gets polluted, it becomes the most common route for water borne diseases. They include cholera, typhoid, polio, meningitis, hepatitis and dysentery.
2. Answer: 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. Also they may kill microbes that help purify water. Therefore oil and fats should be always discharged after taking due care in the dustbin or if possible in some suitable dumping place.
3. Answer: There are various steps involved in the water treatment plant which involves physical, chemical & biological processes:
 - Waste water is passed through bar screens to remove big objects like cans, sticks, rags etc.
 - The liquid material is then passed through sedimentation tank where solid waste like faecal matter, sand, grit settles down.
 - This solid matter is then removed with the help of a scrapper. This is the sludge.
 - A skimmer removes the floatable solids like oil, grease etc.
 - The clear water so obtained is called clarified water.
 - Air is pumped into clarified water to help aerobic bacteria to grow. The bacteria then consume the unwanted matter still present in clarified water.
 - The suspended microbes settle at the bottom & the water is removed from the top