

Chapter 5

WATER

REVIEW EXERCISES

Q.1 Fill in the blanks:

- The process of water seepage in the land is called Streams.
- In water cleaning plants, sand particles and pesticides are stuck together by using Flocculates.
- Water is boiled for 15 to 20 minutes to use it for drinking purpose.
- Seaweed is one of the important source of proteins, minerals of Fertilizer and vitamins.

Q.2 Match the statement of column A with column B.

Column A	Column B
Potash Alum	Is used to remove dissolved physical and chemical substance
Liquid Chlorine	Is used to kill harmful microorganisms.
Distillation	Is used to clean water by sticking physical impurities together to form large particles.

Q.3 Explain the factors responsible for:

a) Depleting freshwater source in Pakistan.

Ans: Water is one of the most crucial natural substance for the existence of any form of life on earth. Clean water is the basic requirement of human beings and most of the animals and plants. Worryingly, according to the Pakistan Water Situational Analysis Report (2014), Pakistan's freshwater sources are not safe for irrigation, household and

industrial activities. Although, since 1990 access to improved water has been raised from 85% to 92%, still 64% rural population does not have access to drinkable water. In Pakistan to ensure supply of safe water to the rural and urban population several water cleaning plants are placed at different locations. These plants use multiple methods of water cleaning to remove physical, chemical and biological impurities from the water but it is not fulfill the requirement of Pakistani population.

b) *Deteriorating water quality of clean water sources in Pakistan.*

Ans: Pakistan is blessed with both the natural and artificial sources of water. The main natural sources are rivers, lakes, streams, rain water oceans, glaciers and wells whereas artificial sources are water reservoirs, dams and tube wells. Water gets impure by the addition of untreated sewage water from domestic use, untreated water that contains harmful chemicals from our industries and water run-off fertilizers. These impurities in water have severed impact on the health of Pakistani citizens, plants and animals. These impurities include undissolved and dissolved substances such as sand, clay, peat, animal mass, decomposed vegetation, crop cuttings, microorganisms that cause diseases, chemicals from industries and domestic use, metal traces, Dichloro-diphenyl, Trichloro ethane (DDT) and agricultural run-off.

These impurities in water cause waterborne diseases such as hepatitis A, B and C, amoebic and other dysenteries, diarrhoea, typhoid and naegleria worryingly, according to Pakistan Water Situational

Analysis Report (2016), Pakistan fresh water sources are not safe for irrigation, household and industrial activities. Although since 1990 access to improved water has been raised from 85% to 92% still 64% rural population does not have access to drinkable water.

In order to ensure the constant availability of clean water, the conservation of fresh water sources and preservation of physical properties of saltwater sources is important.

Q.4 Describe the ways in which water is vital for the life of animals and plants.

Ans: Water is essential for animals and plants. Clean water is also one of the six basic food components of human beings. Green plants need water for photosynthesis. Can we imagine a life without green plants? It is not possible to survive without green plants, which are the direct or indirect source of food for animals and human beings.

Water is one of the most crucial natural substances for the existence of any form of life on earth. Clean water is the basic requirement of human beings and most of the animals and plants. It is estimated that approximately 70% of freshwater is used for crop irrigation and livestock production. Industrial use is of 20% of the freshwater, while domestic use makes up the remaining 10%.

Saltwater or marine (sea) water also contributes in important ways in the existence of life on earth. There are thousands of the animals and plant species that live in oceans and seas. These species play a crucial role in meeting the dietary needs of human beings and other animals. For instance, seaweeds are the healthy food source for human beings and also used in the making of fertilizers. Fishes such as Pomfret, Palla, Rahu and prawns are the most popular seafoods that

are great source of protein, minerals like iodine and vitamins.

Q.5 Explain, why:

a) Boiled water is safe for drinking and cooking.

Ans: Boiled water is safe for drink and cooking because boiling kill the microbes. Water is boiled for 15 to 20 minutes to kill disease causing microbes bacteria and viruses to make water drinkable and safe for cooking.

b) Saltwater is desalinated.

Ans: As 97% of water on earth is saltwater. Therefore water recycling is regulated through seas and oceans. Reverse Osmosis (RO) is water purification technology that uses a semipermeable membrane to remove ions, molecules and layer particles for drinking water.

Q.6 Suggest five ways to reduce the wastage of water in daily life.

Ans: Ways to Reduce Wastage of Water:

Following are some effective ways to reduce wastage of water in our daily lives.

- (i) Make sure, there is no leakage of water storage tanks, utensils and pipe lines.
- (ii) Do not leave the water running while doing ablution or washing face and hands.
- (iii) Use water carefully in bathing. If we have a shower, then take short showers. Do not leave the shower on while applying soap on your body.
- (iv) Do not leave the water running while we are washing the dishes or clothes or cleaning vegetables and fruits. It would be wise to take water in a bucket to clean vegetables and fruits.

- (v) If using the washing machine, use it for only full loads.

Q.7 Explain the processes of cleaning water in water treatment plants.

Ans: Water Treatment Plant

Water treatment plant use multiple methods to remove hazardous chemicals, microorganisms, suspended particles of soil, peat, pesticides and many such contaminants. At first fresh water from a lake or reservoir is introduced to flocculation plant where flocculates are added to this water. These flocculates cause dust and pesticides to stick together.

Then, this water is transferred to the sedimentation tank and allows water to sit for 24 hours. This process helps in settling the particles down in the tank and clears the turbidity of freshwater along with flocculated pesticides. Now water is introduced into filter plant that has layers of charcoal, gravel and sand. When water seeps through these filters, all small particles are removed. At the last stage, water is transferred to the disinfectant tank to kill pathogenic microorganisms. Sometimes, minerals such as fluoride and sodium salts are added to the water to make it healthy and palatable.

Q.8 Describe the uses of water in Pakistan.

Ans: In Pakistan, usage of water can be divided into four broad categories:

- (i) **Agricultural Use:** Approximately 93% of water is used in agricultural activities including irrigation of land, cattle farming and production of dairy food.
- (ii) **Industrial or Commercial Use:** Approximately 5% of water is used in industry including food, pharmaceutical, textile, chemical industries and watering of public parks, sports complexes,

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wetland and amusement parks.

Water is the most efficient and economical coolant, used in heavy mechanical industries and nuclear reactors.

(iii) Domestic Use: Approximately 2% of water is available for the domestic use including drinking, cooking, cleaning, washing, bathing and other household activities.

(iv) Hydroelectric Use: Water stored in reservoirs (such as dams) is used for the electric power production.

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