

## Assignment , Chapter – 14 ( Water )

1. Oceans are the biggest sources of water, yet they are not fit for human consumption. Why?

The ocean water contains high concentration of different salts rendering the water salty making it unfit for use.

2. What is the main purpose of rainwater harvesting?

The main purpose of rainwater harvesting is not to hold rainwater on the surface of the earth but to make it percolate underground, so as to recharge the level of groundwater.

3. Water cycle makes freshwater available to living organisms. How?

Rainwater is pure water formed from sea water by evaporation through water cycle which can be utilised by animals and plants.

4. In an area , if there is continuous rain, what will happen?

Continuous rain will lead to rise in the level of water that cause flood.

5. What is the percentage of water which is usually available to use for us?

Only a tiny fraction about 0.01% of total water is used by human beings.

6. Why do wet clothes dry after some time?

Wet clothes dry after some time because water present in wet clothes is converted into water vapour and released in atmosphere due to evaporation which leaves them dry.

7. How does water kept under the shade of a tree gets evaporated?

Water kept under the shade of a tree gets evaporated because moving air gets heated from sunlight. This warm air provide heat for evaporation of water kept in the shade.

8. Why is there a need for conserving water?

There is a need for conserving water because of the following reasons.

a. Increasing population is creating more demand for usable water.

b. Availability of freshwater is decreasing day-by-day.

9. How do the areas covered with concrete affect the availability of groundwater?

Areas covered with concrete affect the availability of groundwater because concrete reduces the seepage of rainwater into the ground which leads to reduction in the availability of groundwater.

10. What is the percentage of water in human body?

Upto 70 % of our body is made by water.

11. Water acts as a coolant in our body. How?

Water helps in regulating the temperature of the body.

Sweat forms during summer , so evaporation of sweat helps in cooling of body.

**12. What makes the fresh rainwater become saline after reaching earth's surface?**

Water is a universal solvent because it dissolves a large number of substances. When rain falls, it dissolves common salts and many other substances and minerals present on the earth. The rainwater passes through different layers of the earth, rocks, dissolving a large amount of salt and other minerals. Thus, it becomes salty.

**13. Groundwater should be used judiciously. Why?**

Groundwater should be used judiciously because if we use water extensively for various purposes, the level of water table goes down which will result in shortage of water in future.

**14. Explain the process of cloud formation.**

The climate close to the earth's surface is warm. It gets cooled as one goes up in the atmosphere. Water vapour being lighter, rises up in the atmosphere. At the upper layer of atmosphere, where the temperature is lower, the vapour gets condensed into tiny water droplets and forms clouds.

**15. Most of the water that falls on the land as rain and snow, sooner or later goes back to a sea or an ocean. Explain how it happens?**

The process by which land water returns back to a sea or an ocean is as follows:

- a. Snow/rain falling on the mountains melts into water that flows down in the form of streams and rivers.
- b. A part of the rainwater gets absorbed into the ground and rest also flows in the form of streams or rivers.
- c. The river water after passing through various regions ultimately reaches into a sea or an ocean.

**16. How are small water bodies (lakes and ponds) formed?**

The rainwater runs on the surface of the earth and gets collected at the low-lying areas. This results in the formation of lakes and ponds.

**17. Animals like fish in shallow ponds die in certain conditions, What are these conditions?**

The water in shallow ponds evaporates in summer. This process is fast in hot areas leading to shortage of water in the pond and sometimes no water in ponds leads to the death of aquatic animals like fish.

**18. State some of the problems faced by people living in drought-affected areas.**

Some of the problems faced by people living in drought-affected areas are :-

- a. In drought conditions, the soil does not have sufficient moisture to grow crops well. Since the crop plants do not grow well, drought leads to severe shortage of food for the people in that region.
- b. Due to shortage of food and fodder, many people, many people living in drought-affected areas migrate to other places.
- c. Soil starts to dry as more water is lost because of transpiration and evaporation.

**d. The level of ground water lowers drastically.**

**19. State some of the problems faced by people living in flood affected areas.**

Some of the problems faced by people living in flood affected areas are :-

- a. Heavy rain creates water logged roads , streets and disrupted traffic.**
- b. Flood water damage crops fields, forests, cause damage to property, domestic animals, etc.**

**20. Enlist some of the uses of water which makes it necessary for us.**

- a. Water is essential for all living beings, i.e. plants, animals and microbes.**
- b. Water is used in agriculture for irrigation purposes.**
- c. Water is used in industries for producing almost all the things that we use.**
- d. We need water for drinking , cooking, bathing, washing , cooling and gardening.**
- e. Water participates in life process in three ways.**
  - i. By taking part in biochemical reactions.**
  - ii. By acting as a coolant**
  - iii. By acting as a medium.**

## **Assignment , Chapter – 15 ( Air Around Us)**

**1. State one biological importance of air dissolved in water.**

**Dissolved air helps aquatic animals for breathing.**

**2. Oxygen is released by plants. How?**

**Plants release oxygen during the process of photosynthesis.**

**3. Name the sources of carbon dioxide in air.**

**Sources of carbon dioxide in air :-**

**a. Respiration by animals and plants.**

**b. Burning of fuels.**

**4. Identify the major components of air present in the inhaled and exhaled air.**

**Major components of air present in the inhaled air is oxygen and exhaled air is carbon dioxide.**

**5. What is the relative proportions of nitrogen and oxygen in air?**

**The relative proportions of nitrogen and oxygen in air is 4:1.**

**6. Oxygen occupies how much part of the air?**

**Oxygen occupies  $\frac{1}{5}$ <sup>th</sup> part of the air.**

**7. Name the major part of air that does not support burning.**

**The major part of air that does not support burning is nitrogen gas.**

**8. Traffic policemen use the masks for what reason?**

**Traffic policemen often use the masks to prevent inhalation of smoke and harmful gases given out by vehicles.**

**9. Why do factories have tall chimneys?**

**Tall chimneys take the smoke produced by factories high up in air to reduce harmful effects on ground.**

**10. Carbon dioxide gas is used to extinguish fire, Why?**

**Carbon dioxide gas is used to extinguish fire because it does not support combustion. When sprayed on burning object, it stops the supply of oxygen and extinguishes fire.**

**11. Why do mountaineers carry oxygen cylinders with them?**

**Mountaineers carry oxygen cylinders with them because as we go up above the sea-level, the atmospheric pressure goes on decreasing and the amount of oxygen also decreases at higher altitude.**

**12. Mention some uses of air.**

**Some uses of air are:-**

- a. For respiration , all living organisms need air.**
- b. For burning of any substance , air is needed.**
- c. For photosynthesis , plants need air.**

**13. Nitrogen in air is important for living organisms . Specify.**

**. Nitrogen in air is used for manufacturing food by the plants produced by nitrogen fixation of atmospheric nitrogen into nitrates which mix with the soil. The plants absorb these as their food , so it is necessary and important for living organisms.**

**14. A transparent glass window appears hazy when not wiped off regularly , Why?**

**Air is present everywhere and it contains some gases , water vapours and dust particles that stick to the window surface and are visible due to the transparency of windows.**

**These particles attract outdoor elements like pollen which collect on glass window and together form a layer. That is why transparent glass window appears hazy when not wiped off regularly.**

**15. When an empty glass bottle is inverted and inserted into a trough filled with water, water does not enter the bottle. Specify.**

**Water does not enter into an inverted glass bottle because even when the bottle appears empty , it is not . Air is present inside the bottle . This air prevents the water from entering inside the bottle. As we tilt the bottle , air present inside moves out. As air comes out , the space becomes empty allowing the entry of water.**

**16. Explain what makes the carbon dioxide gas present in air necessary for all in the atmosphere.**

The presence of small amount of carbon dioxide gas in the atmosphere is essential for the growth and existence of living beings. The desirable proportion of carbon dioxide in the atmosphere is 0.03% . The importance of carbon dioxide in atmosphere is as follows:-

- a. It causes greenhouse effect , leading to the heating of the earth and its atmosphere which is essential for our survival.
- b. It takes part in the photosynthesis process carried out by green plants to prepare food for plants and animals.

**17. Living beings use oxygen for respiration and plants require carbon dioxide for photosynthesis. How are these two processes related?**

Living beings use oxygen for respiration present in the environment and release carbon dioxide as a by- product of this process.

Plants perform photosynthesis by using this carbon dioxide present in the atmosphere accumulated due to the activities of humans and animals. They release oxygen as their by product .

Thus these two processes ( respiration and photosynthesis maintain a unique balance between oxygen and carbon dioxide concentration in our environment.

**18. What will happen if any of the following gases disappear from the atmosphere,**

- a. Oxygen
- b. Nitrogen
- c. Carbon dioxide

a) If oxygen gas disappear from the atmosphere, there will be no life on the earth. Oxygen is vital for life. It helps in burning , respiration , photosynthesis etc. Oxygen is basic need of all living beings.

b) Nitrogen does not support burning. If nitrogen gas disappear from the atmosphere , things will burn very fast. It controls burning. It required by plants for their growth. Nitrogen gas is converted into nitrate , then plants absorb it from soil.

c) The presence of small amount of carbon dioxide gas in the atmosphere is essential for the growth and existence of living beings. The desirable proportion of carbon dioxide in the atmosphere is 0.03% . The importance of carbon dioxide in atmosphere is as follows:-

i. It causes greenhouse effect , leading to the heating of the earth and its atmosphere which is essential for our survival.

ii. It takes part in the photosynthesis process carried out by green plants to prepare food for plants and animals.

**19. How can you prove that air is dissolved in water?**

Take a beaker filled with water and keep it on a tripod stand . Heat the water slowly by using a burner. Before the water begins to boil , watch carefully at the inner surface of the beaker. Tiny bubbles appear on the inner surface of the beaker. These bubbles are of the air which was dissolved in water.

**20. During any fire incident , it is advised to**

a. wrap a towel or woolen blanket over the burning object .

b. Use a fire extinguisher to stop the fire. Give reasons.

a) During any fire incident , it is advised to wrap a towel or woolen blanket over the burning object , because the towel or woolen blanket , cuts off the supply of air(oxygen), which supports burning. As the supply is cut out , fire eventually stops.

b) A fire extinguisher contains carbon dioxide gas , which does not support burning. So , when fire extinguisher is used over the area , carbon dioxide gas , cuts off the supply of air(oxygen), which supports burning. As the supply is cut out , fire eventually stops.

## **Assignment , Chapter – 16 ( Garbage In , Garbage Out)**

**1. Name the worms used for vermicomposting.**

**Earthworms and Redworms used for vermicomposting.**

**2. Enlist some waste materials which cannot be used for vermicomposting.**

**Polybags , broken glasses , aluminium wrappers , old shoes etc. cannot be used for vermicomposting.**

**3. What is paper mash?**

**Paper mash is a thick paste made up of clay , paper pieces and some rice husk.**

**4. Plastic bags are said to be harmful for stray animals , Why?**

**Plastic bags are said to be harmful for stray animals , because stray animals feed on the content of these bags and end up eating plastic. Plastic cannot be digested hence , lead to death.**

**5. Burning of plastics is not recommended . Why?**

**Burning of plastics is not recommended because on burning plastic produce dangerous toxic gases, which causes air pollution.**

**6. Dumping kitchen waste in a pit is considered a good practice for waste disposal . Why?**

**Dumping kitchen waste in a pit is considered a good practice for waste disposal because kitchen waste commonly consists of biodegradable components which convert into manure/compost , beneficial for plant growth after action of microbes when dumped in a pit.**

**7. It is important to dispose the garbage produced from day-to-day activities . Why?**

**It is important to dispose the garbage produced from day-to-day activities because accumulation of garbage will attract insects, flies and other animals like pigs , cows in search of food. It will spread dirtiness and diseases in surrounding areas.**

**8. Is there a method where biodegradable wastes can be burned with less harmful consequences.**

**Yes, we can incinerate these wastes in incinerators at high temperature. The ashes produced can be easily disposed.**

**9. If we burn the waste materials in the open . what consequences will be faced by us.**

**Burning of waste materials releases harmful gases and other toxic compounds in the environment which can cause health issues in living organisms , e.g. asthma and cancer.**

**10. What is waste?**

**Any material which cannot be used in the form in which it is produced is called waste.**

**11. Why should we always carry a bag while shopping?**

**If we are in habit of carrying a shopping bag , then we will not depend on shopkeeper to give you items bought in polybags. This will reduce the use of polythene bags.**

**12. Name a kind of fuel which is made by decomposition of organic wastes.**

**We get biogas which is made from animal waste. We have to set up such plants to generate biogas. It is ecofriendly and best way to manage animal waste.**

**13. Waste of which material is more polluting , a polythene bag or paper? Give reasons.**

**Polythene is more polluting than paper because it cannot be decomposed naturally by worms and microbes. So , these polythenes create problem and causes environmental threat , on the other hand, papers are easily decomposed.**

**14. Which is the eco-friendly way to dispose the dry leaves?**

**The eco-friendly way to dispose the dry leaves is to convert them into manure.**

**15. Differentiate between composting and vermicomposting.**

**Composting – It is a natural process by which biodegradable waste like leaves can be turned into manures by the use of microbes only.**

**Vermicomposting – In this process , manure is formed from the waste by use of redworms along with the microbes.**

**16. Why should containers used for storing poisonous substances be recycled separately?**

**Containers used for storing poisonous substances contain residues of chemicals in them. These containers will contaminate other recycling substances thereby , making every product recycled in them harmful.**

**17. Suggest any two ways to minimize the harmful effects of plastics.**

**Two ways to minimize the harmful effects of plastics are:-**

- a. Reuse of plastic bags and containers will minimise the number of plastic bags.**
- b. Avoid burning of plastics as they release harmful gases in the atmosphere.**

**18. Recently , a ban on plastic bags has been imposed in many places . Is the ban justified? Give reasons.**

**The recent ban on plastic bags is justified as due to this :-**

- a. Local people had started taking proper care of plastic disposal.**
- b. Ban on plastic bags had made people shift to paper bags for their day-to-day routine use.**
- c. Disposal of plastic bags had come under control due to this ban.**

**19. Precautions should be taken while storing cooked food items in plastic bags. Why?**

**Plastic bags are not considered suitable for storing cooked food because :-**

- a. these bags may have been used earlier for some other purposes. The residue left behind can be harmful.**
- b. Sometimes bags collected by rag pickers are washed and used which is not a healthy practice.**
- c. Food items can mix with chemicals present in plastic bags.**
- d. Plastic bags are not recommended for recycle and reuse .**

**20. We should prefer to use paper bags rather than polythene bags. Why?**

**We should prefer to use paper bags rather than polythene bags as paper can be decomposed whereas polythene bags do not degrade.**

**21. Enlist some ways to reduce plastic wastes.**

**Some ways to reduce plastic wastes are :-**

- a. We should make minimum use of plastic bags.**
- b. We should reuse the bags whenever it is possible to do so without any adverse effects.**

**c. We should carry a jute bag or cloth bag when we go out for shopping.**

**22. Our government has provided us with two types of dustbins for waste disposal. Why is there a need to separate the two types of wastes.**

**Our government has provided us with two types of dustbins for disposal of two types of wastes, i.e. biodegradable and non- biodegradable wastes. Non- biodegradable wastes cannot be treated by methods used to dispose biodegradable wastes. Thus, our government has provided green bins for biodegradable wastes and blue bins for non- biodegradable wastes.**

**23. What will happen if tea leaves , cotton swabs are thrown into the drain?**

**If tea leaves , cotton swabs are thrown into the drain , they can choke the drains and block the water supply of the area.**

**24. What is meant by three R's in terms of waste disposal?**

**Three R's in terms of waste disposal means reduce the waste generation , reuse the substances which can be used again and recycle the materials which are non-biodegradable and cannot be reused.**