Air and Water

Ques 1: What is the atmosphere?
Ans: Air is a layer around the earth. This layer is called the earth's atmosphere.

Ques 2: Name the various layers of the atmosphere.
Ans: The various layers of the atmosphere are:

1. Troposhere
2. Stratosphere
3. Mesosphere
4. Thermosphere
5. Exosphere

Ques 3: How does the atmosphere protect us from meteoroid hits
Ans: The atmosphere protects us from meteoroid hits by burning them up in the mesosphere before they can hit the surface of the earth.

Ques 4: What is air pressure.
Ans: The weight of air pushes everything around it in all directions is called air pressure.

Ques 5: Name any three impurities that make unfit for use.
Ans: The three impurities that make unfit for use are:

1. Sand
2. Mud
3. Dirt

Ques 6: The two types of impurities in water? Give examples.
Ans: The two types of impurities in water are:

1. Impurities that dissolve in water are called soluble impurities.
2. Eg: salt, sugar.
3. Impurities that do not dissolve in water are called insoluble impurities.
4. Eg: sand, mud.

Ques 7: Differentiate between sedimentation and decantation.
Ans: Sedimentation: If the mixture of insoluble impurities. For e.g. mud and water is allowed to stand undisturbed in a beaker. After some time, the mud settles down at the bottom of the container as sediments. This process is called sedimentation.

Decantation: Clean water obtained from the process of sedimentation can then be poured out into a separate container without disturbing the sediments. this process is called decantation.

Ques 8: What is loading?
Ans: The rate of sedimentation can be increased by adding special chemicals like alum. This process is called loading.

Ques 9: Differentiate between boiling and distillation.
Ans:

Boiling:

1. In this process a liquid vaporized by heating it to its boiling point.
2. In this process the vapor is released into the atmosphere.
3. It is a simple process and can be easily carried at home.
4. Boiling can take place in a short time (for eg 10 mins).
5. Boiling kills all the germs like bacteria, virus.
6. Boiled water can be used for drinking.

Distillation:

1. In this process soluble impurities are removed from a solution by evaporation and condensation.
2. In this process the vapour is collected to cool it down and form a pure liquid.
3. It is a complex process and cannot be carried at home.
4. Distillation will occur in a long period of time. (for eg 1-3 hrs).
5. Distillation not only kill the germs but also kill all the minerals in water.
6. Distilled water cannot be used for drinking as it has no muscles.

Ques 10: Describe with examples how air pressure helps in our everyday life.
Ans: Air pressure helps us in our everyday life. We would not be able to do many things if there is no air pressure. some examples are:-

1. Filling up fountain pens.
2. Filling up a syringe.
3. Drinking through a straw.
4. Using droppers.

For example if we try to open a juice can and we make a small slit on one side, the juice will flow out slowly. But if we make another slit the juice will flow out rapidly. This happens because air enters the juice can from the second slit and air pressure pushes the juice out of the can.

Ques 11: Describe the different ways by which insoluble impurities can be removed from water.

Ans: the different ways by which insoluble impurities can be removed from water are the following:

1. Filtration
2. Sedimentation and Decantation
3. Loading

Floating: In this process insoluble impurities are removed from water by passing the impure water through a filter paper. A circular piece of filter paper is taken and folded twice to make a cone and this is kept inside a funnel. A flask is kept below the funnel and the mixture is houred into the flask through the funnel. Sand is retained on the filter paper and clean water is obtained in the flask.

Sedimentation and Decantation:

1. The mixture of insoluble impurities for example, (mud) and water is allowed to stand undisturbed in a beakker.
2. After some time the mud settles down at the bottom of the container as sediments. This process is called sedimentation.
3. Clean water can then be poured out into a seperate container without disturbing the sediments. This process is called decantation.

Ques 12: Describe the different ways by which soluble impurities can be removed from water.

Ans: The different ways by which soluble impurities can be removed from water are:

1. **Evaporation:** In this process a solution containing soluble impurities like common salt or sugar is heated. After some time water will change into steam and the soluble impurity will be left behind in the container.

2. **Distillation:** This process involves the following steps:
   (i) Impure water is taken in a round bottomed flask and heated.
   (ii) On heating, water changes into steam and the impurities are left behind. When the steam through the condenser, it cools and turns into water

(liquid).
(iii)Pure water is collected in a flask.

Ques 13: Describe the different ways by which water can be purified.
Ans: The different ways by which water can be purified are:

1. Boiling
2. Sedimentation and decantation
3. Distillation
4. Filtration
5. Chlorination

Chlorination: In this method chlorine is added to kill the germs in water. Chlorine tablets are also available in the market which can be used for this process.

Purification Of Water

1. Large impurities are removed by sedimentation and decantation. Alum is added to increase the rate of sedimentation (loading).
2. Finer impurities are removed by filtration.
3. Chlorine is added to kill germs (chlorination).
4. Water is stored in big storage tanks to supply to users.
5. Clean water is supplied to users.

Ques 14: Describe the layers of atmosphere.

Ans: The different layers of atmosphere are:

Troposphere:

1. This is the first layer of atmosphere.
2. The weather phenomenon like rain, cloud formation and wind happens in this layer.
3. Living things can survive in this layer.

Stratosphere:

1. This is the second layer of atmosphere.
2. Ozone layer is present in stratosphere which protect us from harmful UV rays radiations that can cause health problems like skin cancer
3. Many jet air plains fly in this layer.

Mesosphere:

1. This is the third layer of atmosphere.
2. It protect us from meteoroids by burning them before they can reach the surface of the earth.

Thermosphere:

1. It is the fourth layer of atmosphere.
2. Space shuttles can revolve in this layer.

Exosphere:

1. It is the last layer of atmosphere.