**ASSIGNMENT**

1. **Explain six major non-domestic use of water.**

**Domestic Purposes**

* cooking
* drinking
* bathing
* washing

**Agricultural Purposes**

* farming gardening fisheries

**Industrial Purposes**

* manufacturing
* Recreation
* swimming
* rafting
* boating

1. **Briefly describe the important roles that water plays in the human body.**

**Maintaining blood volume, nutrient transportation, and waste removal**

Water is the main component of blood and essential for the transportation of nutrients and removal of waste in the body. Blood delivers nutrients such as glucose, sodium, potassium and amino acids to our tissues for cell life and function. Blood also carries toxins and waste products away from our cells to our kidneys and liver for filtration and removal. The kidneys regulate how much water we excrete or conserve to maintain blood volume and concentration.

**Chemical and metabolic reactions**

Water participates in hundreds of important metabolic reactions that occur in the body known as ‘hydrolysis reactions.' These reactions break down the carbohydrates, fats, and proteins in our food so that our body can use them for energy and create the building blocks of life.

**Protects tissues and joints**

Water helps keep sensitive tissues such as your eyes, nose, mouth, and brain moist. It also functions like a lubricant and cushions joints like your spine and knee so they can easily move against each other.

**Temperature regulation**

Water has a large heat capacity which helps control body temperature and allows us to adapt to changes in environmental temperatures. If the environmental temperature increases above body temperature, the body begins to sweat. Sweat evaporates off the skin surface which releases heat and cools the body down efficiently.

**Stay hydrated**

Consuming water regularly throughout the day is important to prevent dehydration. We lose water through sweat and breathing (insensible losses) and of course, urine. The insensible losses account for ~50% of the total water turnover.

The average adult requires roughly 2-3L of water per day to maintain water balance and keep the body systems functioning efficiently. This will, of course, vary with different environmental conditions, physical activity, and your metabolism.

1. **List the types of people who are most vulnerable to waterborne diseases. Explain your answers why and how to overcome the diseases**

**The most vulnerable groups to water-borne diseases include the following.**

**Young children-**because they have not learned a lot of hygienic ways of staying safe from waterborne diseases and at the same time they are not even aware in the first place the diseases that contaminated water might cause to them.

**Those living in desert areas**-this group have little or no access to safe and treated water and therefore suffer more water-related diseases.

**Elderly**-the elderly have poor or weak immune systems due to old age, and therefore they become more vulnerable to water diseases just in case they drink contaminated water.

**Sick people**-More so those suffering from water infection related sickness like malaria are more prone and vulnerable to similar infections once they drink contaminated water.

**How to overcome water diseases**

**Groundwater:** all groundwater sources should be identified and protection zones introduced.

**Surface water:** identify and characterize all polluting sources. Where appropriate and possible, introduce zoning.

**Pollutants and polluters:** Those that may affect water bodies or water supply systems should be identified.

**Distribution systems:** Quantity and quality aspects, including continuity of supply. ·

**Leakage control measures: Abstraction** control measures. · Ensuring the performance of the systems to maintain quality and quantity.

1. **Suppose that inhabitants of a village obtain water from a spring. What advice would you give to the users about the prevention of contaminants entering the spring?**

All groundwater sources should be identified and protection zones introduced.

1. **The following are pollution sources. Give two specific pollutants for each source.**
2. A residential area:

Sewerage

-Domestic and commercial solid waste

1. A metal plating plant:

-Emissions from vehicles

-Industrial sources

-Vehicle wear

1. Agricultural activities:

-Domestic discharges (e.g., from car washing),

-Paints

-Insecticides

1. An uncontrolled landfill site:

-Pharmaceutical Waste

-Garbage

1. Urban surface water run-off

-Plumbing

- Paint

- Leaded petrol