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SUBJECT : WATER SUPPLY

Question 1:

What are the different water distribution system, which one you have observed or suggest for your area if there.

ANSWER :

The aim of a distribution network is to supply a community with the appropriate quantity and quality of water. There are four network types: **dead end**, **gridiron**, **circular** and **radial systems**.

For our area RADIAL system is the best.

Radial System:

The area is divided into different zones. The water is pumped into the distribution reservoir kept in the middle of each zone and the supply pipes are laid radially ending towards the periphery.

Advantages:

1. It gives quick service.
2. Calculation of pipe sizes is easy

Question 2:

What are the physical and biological tests for checking the quality of water.

ANSWER :

Physical checking For checking quality of water :

Water quality testing is an important part of environmental monitoring Physical properties of water quality include temperature and turbidity. Chemical characteristics involve parameters such as pH and dissolved oxygen.

Biological tests for checking the quality of water:

Biological indicators of water quality include algae and phytoplankton.

Question 3:

What are the various methods for water treatment, explain each one in detail.

ANSWER:

Water treatment is any process that improves the quality of water to make it more acceptable for a specific end-use. The end use may be drinking, industrial water supply, irrigation, river flow maintenance, water recreation or many other uses, including being safely returned to the environment. Water treatment removes contaminants and undesirable components, or reduces their concentration so that the water becomes fit for its desired end-use. This treatment is crucial to human health and allows humans to benefit from both drinking and irrigation use.

Different types of water treatment are as follow:

- **Coagulation / Flocculation**
- **Sedimentation**
- **Filtration**
- **Disinfection**
- **Sludge Drying**
- **Fluoridation**
- **pH Correction**

Filtration :

In filtration, water passes through a filter, which is made to take away particles from the water. Such filters are composed of gravel and sand or sometimes crushed anthracite. Filtration gathers together impurities that float on water and boosts the effectiveness of disinfection. Filters are regularly cleaned by means of backwashing.

Question 4:

Explain sewerage appurtenances, what are the different methods of sanitation which one you have observed in your area

ANSWER:

Sewerage appurtenances:

Sewer appurtenances are those structures and devices of a sewerage system which are constructed at suitable intervals along a sewer line to assist in the efficient operation and maintenance of the system.

Following are the important sewer appurtenances:

- Inlets
- Catch Basins or Catch Pits
- Clean-Outs
- Manholes
- Drop Manholes

- Lamp-Holes
- Flushing Devices
- Grease and Oil Traps
- Inverted Siphons
- Storm Water Regulators.

Different types of sanitaion are as follow:

- Basic sanitation.
- Container-based sanitation.
- Community-led total sanitation.
- Dry sanitation.
- Ecological sanitation.
- Emergency sanitation.
- Environmental sanitation.
- Improved and unimproved sanitation.

BASIC SANITATION:

This is defined as the use of improved sanitation facilities that are not shared with other households. A lower level of service is now called "limited sanitation service" which refers to use of improved sanitation facilities that are shared between two or more households

Question 5:

Define the following terms

Infiltration

Hardness

Soft water

Sewage

Infiltration

Dry waste

Storm and combined sewage

ANSWER:

INFILTRITION OF WATER:

Infiltration is the process by which water on the ground surface enters the soil.

Infiltration rate in soil science is a measure of the rate at which a particular soil is able to absorb rainfall or irrigation. It is measured in inches per hour or millimeters per hour.

HARDNESS OF WASTER :

water hardness is the amount of dissolved calcium and magnesium in the water. Hard water is high in dissolved minerals, largely calcium and magnesium.

When hard water is heated, such as in a home water heater, solid deposits of calcium carbonate can form.

SOFT WATER:

Soft water is surface water that contains low concentrations of ions and in particular is low in ions of calcium and magnesium.

Soft water naturally occurs where rainfall and the drainage basin of rivers are formed of hard, impervious and calcium-poor rocks.

SEWAGE:

Sewage is a type of wastewater that is produced by a community of people. It is characterized by volume or rate of flow, physical condition, chemical and toxic constituents, and its bacteriologic status.

DRY WASTE:

DRY WASTE is non-biodegradable wastes and includes paper, plastic, glass, metal, thermocole, cloth, and wood

EX-FILTRATION:

The leakage of sewage from the sewer into soil sourrinding the water is called Ex-filtration

STORM AND COMBINED SEWAGE:

Combined sewer systems are sewers that are designed to collect rainwater runoff, domestic sewage, and industrial wastewater in the same pipe.

These overflows, called combined sewer overflows ,contain not only storm water but also untreated human and industrial waste, toxic materials, and debris