Name :- Nayeeb ullah

ID :- 14668

Paper :- Waste Water management

Water supply:

(Q1) What are the diff event water distribution system.

A water distribution system is part of water supply network with components that carry potable water from a centralized treatment plant or different wells to water consumers in order to adequately deliver water to satisfy residential, commercial, industrial and fire fighting requirements. and use the term water distribution system for a network of pipes that generally has a loop structure to supply water form the service reservoirs and balancing reservoirs to water consumers.

* Which one you have observed or suggest for your area if there.

(*) Grid plan:-

The grid plan, grid street plan, or gridiron plan is a type of city plan in which streets run at right angles to each other, forming a grid. The infrastructure cost for regular grid patterns is generally higher than for patterns with discontinous streets. it is the best observed suggest for our area because we Lives in city.

(Q2) What is the physical and biological test for checking the quality of water.

(Ans) • As the quality of source water varies daily in every season it is necessary that the water samples for analysis should be collected frequently.

• According to the quality of water it should be treated thee following test.

① Physical test
② Biological test.

① Physical test:-

The temperature of water is measured by means of ordinary thermoters.

• From the temperature the mass density ($\rho = m/v$) viscosity, vapour pressure

and surface tension of water can be determined.

- The teamperature of surface water is generally same to the atmospheric temperature, while ~~not~~ that of the ground water may be more less than atmospheric temperature.

- The most desivable temperature for public supply is b/w 4.4 C° to 10C°.

- Temperature above 28C° are un desirable above 35 C° are unfit for Public supply, because it is not Palatable (not Accectable to test)

(2) Biological Test:-

- in a biological test the following two tests are done.

(9) Total Count of Bacteria:- in this method total number of bacteria present in millimeter of water is counted. the sample of water is taken, 1ml of sample water is diluted in 99ml of sterilized water.

(1) Sterillized water (absence of any bacteria in the water)

(2) Distilled water ~~(absence of any bacteria in the water)~~ (that has many of its impurities removed through distillation. Distillation involves boiling the water and than condensing the steam into a clean container).

- This mixture is kept in incubator at 37C for 24 hrs.
- After it the sample will be taken out from incubator and counted by means of microscope.

(Q3) What are the various method for water, treatment. explain each one in detail.

(Ans) Zero net deforestation is recent method of water conservation implemented in African countries due to lack of water zero net deforestion refers to no deforestion any where including restoring the forest area, because it also chanves of destroying forest fields.

- Drip irrigation.
- Rain water harvesting.
- plant vegetation.
- Roof top haresting.
- Zero net deforestion.

(Q4) Explain Sewerage appurtenances.

(Ans) Sewerage appurtenances are those structure 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 the important sewer appurtenances.

(1) inlets, (2) Catch Basins or catch pits. (3) Clean - outs (4) manholes, (5) Drop manholes. (6) Lamp- Holes, (7) Flushing Devices. (8) Grease and oil Traps. (9) inverted Siphons. (10) Storm water Regulators.

(4)

* What are the different methods of sanitation which you have observed in your area:

(1) Enviromental Sanitation:-

Enviramental sanitation encompasses the control of enviramental factors that are connected to disease transmission. Subsets of this category are solid ~~water~~ waste water management, and waste water treatment, industrial waste water treatment and naise pollution control.

(2) ecological sanitation:

Commonly abbreviated as ecosan (also spelled eco-san or ecosan) is an approach to sanitation provision which aims to safely reuse excreta in agriculture.

(3) basic Sanitation :-

basic sanitation is improved sanitation facilities that ensure hygienic separation of human excreta from human Contact, The inculde, flush or pour flush toilet / latrine to a piped sewer system, a septic tank or a pit latrine.

(4) Emergency Sanitation:

(1) water sanitation.
(2) basic Health, care
(3) Referral hospital facilities.
(4) Relief
(5) Logistics
(6) Telecommunication and IT.

(Q5) define the following:-

① Ex- filtration:-

Exfiltration, an antonym for infiltration may stand for. the same as extraction (military) (also exfil) A method for managing storm water run off. An air escape from a building. see ventilation (Architecture.)

(2) Hardness:-

Hardness of water is a measure of its capacity to precipitate soap and is caused mainly by the presence of divalent cations of calcium (Ca^{2+}) cations also ~~some~~ cause water hardness such as Fe^{3+}, Sr^{2+}, Mn^{2+}.

(3) Soft Water:-

Soft water is surface water that contains low concentrations of ions and in particalar is low in ions of Calcium and megnesium. soft water naturally occurs where rainfalls and drainage basin of rivers. are formed of hard, impervious and Calcium-poor rock, Example in UK (united kingdom) inculde Snowdonia, in wales and the wastern Highlands, in Scotland.

(4) Sewage:-

> Sewage in the waste water of community.
> It also Consists of:.
> ~~Domestic~~ industrial water borne wastes, acid, oils,
> Ground surface and atmospheric water that enter the seweage system.
> Domestic water born wates, human excrement wash waters.

(5) Infiltration :-

It is defined as the downward movement of water from soil surface into the soil mass through the pores of soil.

(6) Dry Waste :-

Dry mixed waste consists of waste that doesn't decay, it is free of organic material such as food it is also known as non-biodegradable waste, Dry mixed recycling helps materials find second Live.

(7) Storm and combined Sewage :-

A combined sewer system is a sewer that accepts storm water, sanitary water, (sewage, and most likely industrial waste water which ideally is treated by a sewage/ public owned treatment works (POTW)