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Question (1) Answer

Waste Water Treatment :-

Waste water treatment is process used to remove contaminents from waste water or sewage and convert it into an effluent that can be returned to the water cycle with minimum impact on the environment or directly reused

OR

Waste water treatment is a process that converts waste water from un-usable state into an effluent that can be either returned to the water cycle with minimal Enviromental issues or reused for another purpose.

→ Waste water treatment also called sewage treatment.

→ The Removal of Impurities from a waste water, or sewage before they reach aquifer or natural bodies of water such as rivers, lake and oceans. Since pure water is not found in nature (i-e outside chemical laboratories), any distinction between clean water and putted water depend on the type.

Importance of WASTE WATER TREATMENT :-

Waste water treatment Importance is to be remove as much of the Suspended Solids as possible before the Remaining water called effluent is discharged back to the Environment. As Solid material decays its use up Oxygen, which is needed by the plant and animals living in the water.

Essential for life Clean water is one of the most Important resources on the planet, waste water which is basically used water is also valuable resource, especially with remaining droughts and water shortage in many area of the WORLD however wastewater Contain many harmfull substances and cannot be released back into the Environment until it is treated. thus, the Importance of wastewater treatment is twofold: to restore the water supply and to protect from toxins.

The purpose of Using Rectangular Sediment Tank:

Use proper rectangular tank become of following

- Easy to operate and low maintance cost.
- Easy adaption to high-rate filters and tolerant to shock load.
- Commonly used in municipal and Industrial applications.
- Suited to large capacity plants.

Answer to Q2

AEROBIC Waste Water Treatment

- Aerobic process use bacteria that require oxygen, so air circulated throughout the treatment tank.
- These aerobic bacteria then breakdown the waste within the waste water
- Some System Utilize a pretreatment stage prior to the main treatment to reduce the chance of clogging the System.
- Electricity is required for System operation.

ANAEROBIC Waste water Treatment

- Anaerobic bacteria transform organic matter in the wastewater into biogas that contain large amount of methane gas and carbon dioxide.
- Energy efficient process.
- often Used to treat Industrial waste water that contain high level of organic matter in warm temperatures.
- It can be Used as a pretreated prior to aerobic municipal waste water treatment.

ACTIVATED SLUDGE Process :

Process for treating Sewage or Industrial waste water using aeration and biological flor / composed of bacteria and protozoa.

→ A biological process that can be used for oxidizing carbonaceous, biological matter, oxidizing nitrogenous matter (NH_3 and N_2) removal of nutrients (N and P).

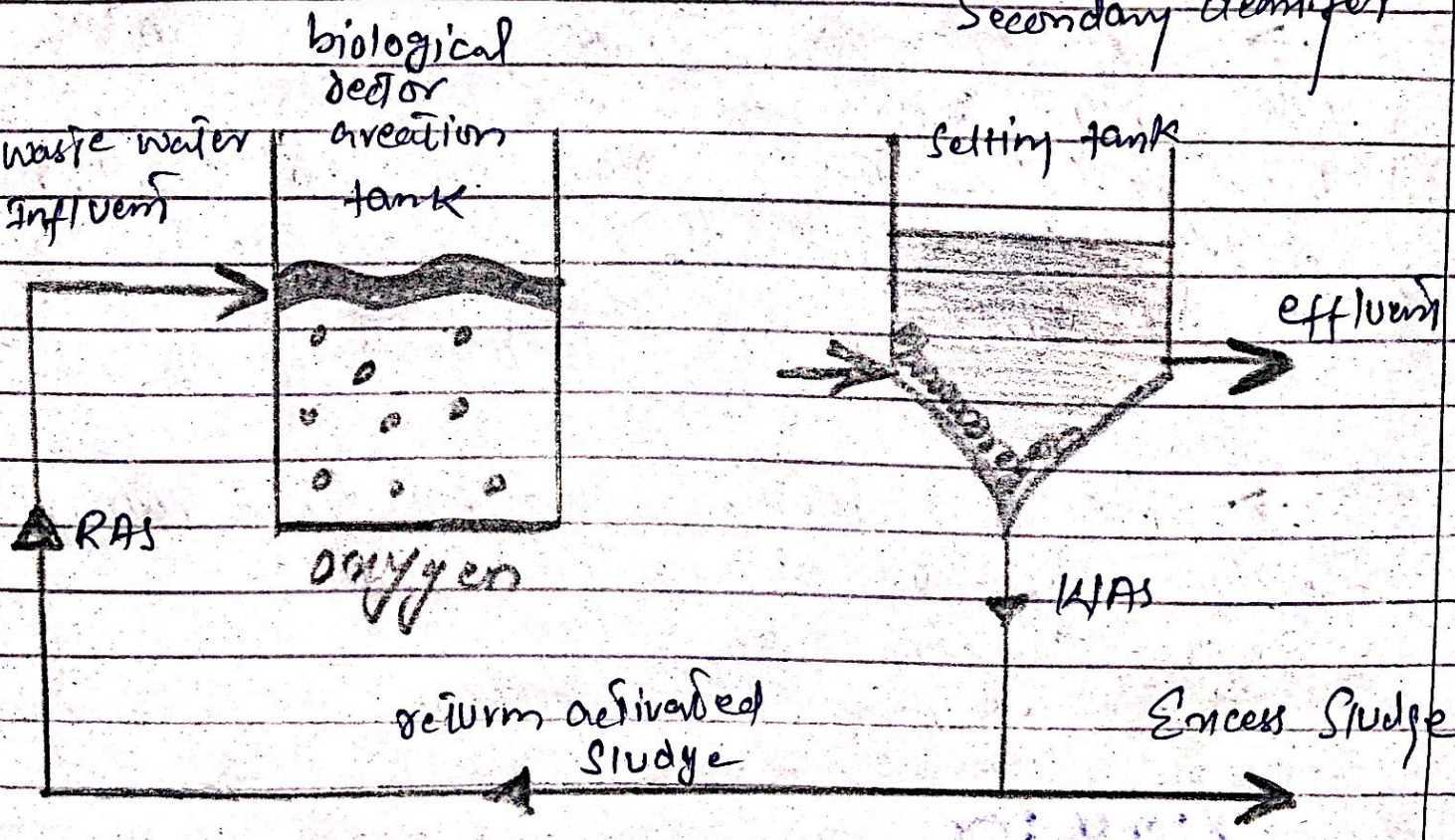
→ Aeration method - diffused aeration Surface aeration (cone) and pure oxygen aeration.

Process :-

→ Pre-Treatment Stage to remove large solid and other undesirable substances.

→ Aeration Stage - where aerobic bacteria digest biological wastes. Settling Stage allows undesired solid to settle form a sludge that must be periodically removed from the system.

Distinfecting Stage, Where Chlorine or Similar disinfection is mixed with Wastter to produce an antiseptic out.



Question (3) Answer

"Assimilative Capacity of Receiving water bodies :"

→ The ability of a body of water to cleanse itself, it capacity to receive wastewater without deleterious effect and without causing damage to aquatic life or humans who consume the water. It is level to which water body or nature control the toxicity without effecting the aquatic life.

→ Although waste water is properly treated before it is disposed of the natural water streams still it has impurities pollutants that need to remove or make them less effective so that the receiving water bodies may not become unstable for use of cause damage to the aquatic live.

Assulative Capacity HELPS in Wastewater Treatment ARE :

Following are the factor which helps in assumulative water capacity

- Sunlight
- dispersion
- Dilution
- Temperature
- depth of flowing water.

Sunlight :- Sunlight facilities biological decomposition of pollutants and kill pathogens by UV.

Dispersion :- Dispersion is the distribution of pollutants in relatively large area of water. Dilution and dispersion are inter related

TEMPERATURE :- Temperature play Important role in assulative Capacity of receiving water temperature increases the organics decomposes.

Question (4) Answer

SLUDGE MANAGEMENT :-

Sludge management is the most different and challenging task of waste water treatments plant due to its high water contents and poor dewatering and strick regulation for sludge reuse or disposal.

→ One of the recent goal, of wastewater treatements plants is to develop more environmentally friendly process to reduce the volume of sludge for disposed and convert sludge into bio energy.

→ Energy recovery of the sludge into biogas, Syngas and bio-oil which can be further converted in to electricity mechanical energy and heat.

→ Sludge refers to the Residual material left from municipal waste water.

SLUDGE MANAGMENT :- Sustainable sludge handling/managing may be defined as " a socially acceptable

Cost-effective method that meets the requirements of efficient recycling of sources while ensuring their harmful substances are not transfered to humans or environment.

ADVANTAGES :-

→ As Environment Engineering directly related to Environment Sludge management is approch toward a better environment.

→ Residual waste from Industries hospitals, research facilities can be Hazardous to Our health and environment these should be manage properly because it spread diseases.

→ Sewage Sludge Incineration reduce volume and weight and break down harmful

Substances

⇒ Due to Excess of these problems in Sludge management every year new techniques and properties are emerges in waste Engineering Industries to face the challenges and finding the solution.

Question (5) Answer

EIA :- An Environmental Study comprising collection of data, prediction of qualitative and quantitative impact, comparison of alternatives evaluation of preventive mitigatory and management and training plans and monitoring arrangement and framing of recommendation and such other component as may be prescribed.

⇒ A formal process to predict the Environmental consequences of human development activities and to plane appropriate measures to eliminate or reduced adverse effect and to enhance positive effects.

⇒ The following are the consideration should keep in mind while conducting "EIA" for newly proposed waste water treatment plant.

⇒ Environmental danger should be minimum such as donot effect water body, greenery and energy consuption which effect enviroment should be controlled.

→ Environmental benefit should be maximum and life should be controlled.

→ Ensure that development is according to (NEGs.)

→ The project should be not conflict with Government policies.

→ International obligations. Should be strictly followed

→ Most of treatment plant have primary treatment and secondary treatment some other treatment option the purpose of tertiary treatment!