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SECTION : A

Subject Wastewater Engg

Q NO # 01

Wastewater Engineering :-

Wastewater Engineering or Sanitary engineering is also known as public health engineering is the application of engineering methods To improve Sanitation of human Communities, primarily by providing the removal and disposal of human waste, Treatment and reuse application for various purposes

Application :-

The main application of Wastewater Engineering is to bring wastewater which is no longer needed or nor Suitable To use baek in use without Concerning human health and enivronment by the The Treatment of wastewater.

By disposing off treated wastewater in order To reduce ground water Contimination and Protect

P T O

Wastewater engineering deals with the manag of wastewater & its treatement to reuse it for various purposes.

Primary objective of wastewater engineering is To provide a good Sanitary enviromental Condition in a city.

Application in Safeguarding The enviroment :-

1) Ground water protection :-

Water is a Source. So we need to protect it. primary source of wastewater are Sewage, industry, agricultural runott and Urban runott etc.

Treatment of wastewater is essential to prevent Contamination of drinking water from pollutants.

2) Natural Bodies OF Water :-

Natural Fresh water bodies are polluted every day by untreated wastewater, which is harmful for both humans and animals.

P.T.O

3) Helping The environment :-

Wastewater engineering reduce deforestation and soil Salinity:-

4) Irrigation purposes :-

Wastewater can be useful in the irrigation field after proper treatment :-

QNO # 02 :-

Wastewater generation has a direct relation with the water supply of a locality, for instance if the field measurement of the wastewater flow rates are not possible and actual wastewater data is not available water Supply records can often be used as an aid To estimate wastewater flows rate and The Same if we cannot measure The flow of fresh water we can get it Through wastewater flow rates.

QNO # 3

Answer :-

The importance of wastewater Characterization is to know physical Chemical and biological characterization of wastewater After knowing the characteristics of wastewater we can use wastewater in many fields the use of wastewater for a variety purposes is gaining increased popularity as a means of preserving scare freshwater resources. wastewater & grey water use is increasingly considered a method combining water & nutrient recycling increased household food Security & improved nutrition for poor households Economics & enviromental pressures & the Conservation ethic have led to widespreach and growing applications for recycling of wastewater including irrigation of food and non-food crops green Spaces fire system.

PTO

industrial cooling or industrial processing Sanitation and even as indirect and possibly direct Sources of drinking water The beneficial use of wastewater also help to decrease the impact of environment of disposal of Sewage or industrial effluent. The end use of wastewater determines the required quality of the water and management procedures required to ensure Safety. WHO and Several countries have developed guideline and Standards for the Safe use of wastewater in agriculture and other Setting.

Q NO# 04

Answer :-

There are Three main characteristics of wastewater which are classified below

1) Physical Characteristics

1) Turbidity
2) Colour
3) Odor
4) Total Solid
5) Temperature

These are the physical characteristics of wastewater.

2) Chemical Characteristics

Chemical Oxygen demand (COD)
Total organic Carbon (TOC)
nitrogen, phosphorous, chlorides
Sulphates, alkalinity, PH
heavy metals, trace elements
and priority pollutants.

3) Biological Characteristics:

Biological oxygen demond (BOD) oxygen required for nitrification and microbial pollution

Q NO# 05

Answer:

Advantages & disadvantage of Combined Sewerage system.

Advantage:

* Both domestic Sewage & Storm water are carried in a Single Sewer so Construction cost is less
* The Stength of domestic Sewage is reduced because of dillution of Storm water
* The Sewers are of Large Size, and therefore the chances of their Chocking are fare. It is easy to clean them
* In towns with narrow streets this system is prefered.

Disadvantage:

* Initial cost is high because of large dimension of sewers.
* Because of large size sewer their handling and transportation is difficult.
* Due to the inclusion of storm water the load on the treatment plant increases and ultimately increases treatment costs.
* During heavy rain the sewer may be over flow and may thus create unhygienic conditions.
* If the whole sewage is to be disposed off by pumping it is uneconomical.

Advantages & Disadvantages Separate Sewerage System

Advantage :-

* Size of sewers is generally less.
* Since the Sanitary sewage and storm water flows in a separate pipes the ~~quality~~ quantity of sewage to be treated is less
* As the sewers are smalled in section they can be easily ventilated
* Rain water can be discharged into the streams or can be reused without any treatement

Disadvatages :-

* Since the sewers are of smaller size it is difficult to clean them
* They are likely to get chocked / blocked.
* Intial cost is high when two separate sets are used
* Maintenance cost of system is high

We are going to use Separate sewerage System for a new Town.
Because if we use The Combined Sewerage System. Which are mostly used in pakistan. It is going to over flow during heavy rain time which mostly take place in monsoon System.
Combined Sewerage System is not Suitable for a town of population more than 10000. Looking at the rapid growth rate of the population in town As in pakistan many people are moving towards towns from village This System seem quite unhealthy In combined when overflows happens it is dispatched to river and lake etc which is not environment friendly. Only in US 32 States with 40 million population having Combined Sewer overflows have become the focus of a debate regarding the best technique to manage growing sewerage water problems the resulting CSO dumping raw sewage into lakes rivers and coastal waters potentially harming public health and the environment

In April 1994 the US Environment protechon Agency (EPA) issued the CSO control policy. the national framework for control of CSOs

CSOs annually results in an estimated 850 billon gallons of Untreated wastewater and Stormwater being discharged into US waterways according to the EPA repost Thanks to the CSO Control policy this is an improvement over figures in the agency's 2001 report on the same topic which put the figure at 1.3 trillon gallons per year.

SO Combined Sewerage System is having Some Serious environment issues if it is not having problem now it will have in the near future.

So Separate Sewerage System is the future of the world and I am going to use it in my new town