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①

Q No 1: What is wastewater Engineering? And application in safeguarding the environment. Wastewater engineering is the branch of environmental engineering in which the basic principles of science & engineering are applied to solving the issues associated with treatment & reuse of wastewater. Treatment of wastewater is a process used to remove contaminants from wastewater. Sewage. Application & safeguarding the environment.

(1) Water resources assessment and development to augment & enhance availability water (ground water, surface water) -

(2) Water resources allocation to the competing group of water user in the society (municipal, commercial, industrial, agricultural) -

(3) Water utilization by various groups of water user which comprises the delivery, consumptive use & waste water generation (the water could be conserved & wastewater generation reduced).

(4) Environmental protection & pollution control to stop the consumption of fresh water by pollution & to return wastewater to the water cycle as beneficial sources of water -

(2)

(5) Supplying more water to match the demand focusing mainly on the assessment & development of new water resource -

(6) Environmental protection, pollution control & recovery of wastewater the main application of wastewater engineering & safeguarding of living thing in the environment.

QNO3.

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What is The Importance of wastewater Characterization.

Because the changing wastewater characteristic and the imposition of stricter limits is being placed on wastewater characterization. Because process modeling is widely used in the design and optimization of biological treatment process (e.g. activated sludge), through characterization of wastewater particularly wastewater containing industrial waste is very important process modeling for activated sludge as it is currently conventional required experimental assessment of kinetic and stoichiometric constant.

With characterization of wastewater we determine the nature of contaminant (physical, biological & chemical) & thus design waste water treatment plant according to the nature of contaminants.

XXX ~~~~~ XXX

Q1

Q1

Q4:

Physical, chemical & biological
Characteristic of wastewater.

Characteristic of wastewater.

Physical
Characteristic

→ Odor

→ temperature

→ Density

→ Specific gravity.

→ turbidity.

→ Color.

Chemical Characteristic:

→ pH value

→ CDO

→ Organic matter

→ Nitrogen content.

→ Chloride content.

→ Fats, oil, & grease

→ Sulphide, Sulphate & hydrogen gas.

Biological Characteristic.

→ Biochemical oxygen demand (BOD) oxygen required for nitrification & microbial population.

→ Most of bacteria are helpful in oxidation & decomposition of sewage.

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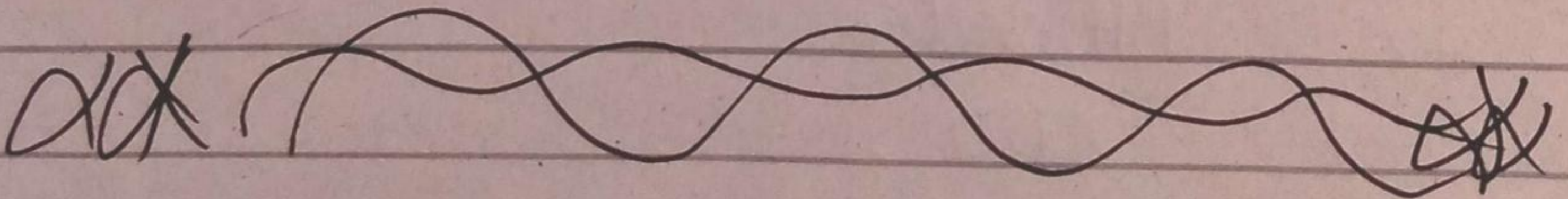
Q2:

Briefly describe the relationship of wastewater generation with water supply of a locality?

Ans:

The relationship of wastewater generation with water supply of a locality is that,

→ If field measurement of waste water flow rates are not ~~possil~~ possible and actual wastewater flow rate data are not available, water supply records can often be used as an estimate waste water flow rate.



(6)

(8)

(1)

(3)

QOS :-

Advantage & disadvantage of combine & separate sewerage system?

Separate sewerage system.

Advantages:-

- Size of sewer is generally less.
- Since the sanitary sewage & storm water flows in a separate pipes, the quantity of sewage to be treated is less.
- As the sewer are smaller in section, they can be easily ventilated.
- Rain water can be discharged in to the streams or can be reused/recycled without any treatment.

Disadvantages:-

- Since the sewers are of smaller size, it is difficult to clean them.
- They are likely to get choked/blocked.
- Initial cost is high, when two separate sets are used.
- Maintenance cost of system is also high.

Combined Sewerage System-

Advantage:

- Both domestic sewage & storm water are carried in a single sewer, so construction cost is less.
- The strength of domestic sewage is reduced because of dilution of storm water.
- The sewer are of large size, & therefore the chances of their chocking are rare. It is easy to clean them.
- In towns with narrow streets, this system is preferred.

Disadvantage:

- Initial cost is high because of large dimension of sewers.
- Because of large size of sewer, their handling & transportation is difficult.
- ~~Due to~~ Due to the inclusion of storm water, the load on the treatment plant increase & ultimately increase treatment costs.

(8)

→ During heavy rain the sewer may be overflow & may thus create unhygienic condition.

→ If the whole sewage is to be disposed off by pumping it is uneconomical.

Which sewage system will you recommend for a new proposed township support your answer with justification.

→ I will suggest combined sewage system because both domestic sewage & storm water are carried in a single sewer so construction cost is less & sewers are of large size so they are easy to clean.