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ID 7279
SECTION "A"
MODULE
SUBJECT: WASTEWATER ENGINEERING
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Q1 What is wastewater engineering? Briefly describe its application in safeguarding the environment?

Ans Wastewater is the combination of liquid and water - transported wastes from homes, commercial buildings, industrial facilities and institutions along with any ground water infiltration and surface water and storm water inflow may enter the sewer system.
APPLICATIONS:

1. By disposing off treated wastewater in order to reduce ground water contamination and protect aquatic life.

2. Wastewater Engineering deals with the management of wastewater and its treatment to reuse it for various purposes.

3. The recovery of sewage is an effective means of saving water resources and promoting the reuse of water resources.

It is an important measure to reduce the pollution of sewage and protect the environment.

4. Primary objective of wastewater engineering

(2)

us to provide a good sanitary environmental condition in a city.

Q2 Briefly describe the relation of wastewater generation with water supply of a locality.

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

- In situations where wastewater flow rate data are limited or unavailable wastewater flow rate estimates have to be developed from water consumption records or other information.

- About 60-85% of supplied water per capita becomes wastewater.

- Simply wastewater generated is dependent on supplied water.

As increase the waste water will be more.

Q3 What is the importance of wastewater characterization?

Ans A characterization of wastewater provide a wide variety of information regarding the type and concentration of contamination present.

with characterization of wastewaters we determine the nature of

contaminants physical chemical and then design wastewater treatment plant according to the nature of contaminants.

(3)

Q4 Enlist physical, chemical and biological characteristics of wastewater?

Ans CHARACTERISTICS OF WASTEWATER ARE AS FOLLOW:

- 1 Physical Characteristics:- Turbidity, Color, Odor, Total Solids and Temperature.
- 2 Chemical Characteristics:- Chemical Oxygen Demand (COD), Total Organic Carbon (TOC), Nitrogen, phosphorus, chlorides, Sulphates, Alkalinity, pH, Heavy metals, Trace Elements and Priority Pollutants.
- 3 Biological Characteristics:- Biological Oxygen Demand (BOD), Oxygen required for nitrification and Microbial population.

Q5 What are advantages and disadvantages of combine and separate sewerage system? Which sewerage system will you recommend for a new proposed township. Support your answer with justification?

Ans Combine Sewerage System
ADVANTAGES:

- 1 Both domestic sewage and storm water are carried in a single sewer so construction cost is less.
- 2 The strength of domestic sewage is reduced because of dilution of storm water.
- 3 The sewers are large size and therefore the chances of their clogging are less. It is easy to clean them.

(4)

4 In cities with narrow streets this system is preferred.

Disadvantages:

- 1 Initial Cost is high because of large dimensions of sewers
- 2 Because of large size of sewer their handling and transportation is difficult
- 3 Due to inclusion of storm water the load on the treatment plant increases and ultimately increases treatment costs.
- 4 During heavy rain the sewer may be overflow and may thus create unhygienic conditions.
- 5 If the whole sewage is to be disposed off by pumping it is uneconomical.

Separate Sewerage System:

Advantages:

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

DISADVANTAGES:

- 1 Since the sewers are of smaller size it is difficult to clean them
- 2 They are likely to get checked / blocked.

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- 3) Initial cost is high when two separate sets are used.
- 4) Maintenance cost of system is also high.

JUSTIFICATION:

I will propose Combined sewage system for a new township because both domestic sewage and sewage water are carried in a single sewer so construction cost is less and sewer are large size so they are easy to clean.