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I.D 7701

Section B

Subject waste water

Exam mid-term

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Q1 Waste water:- Waste water contain 99.9% water & 0.1% Solid

→ Waste water Engineering:-

Waste water is the application of engineering method to improve Sanitation of human communities primarily by providing the removal and disposal of human waste.

* Application:-

① Consitituent present in waste water.

② impact of the constituent when waste water is disposed into environment.

③ Treatment method that can be used to remove or modify the consitituent.

④ wast water engineering deal with the mangement of waste water and it treatment to reuse it for various purpose.

★ The recovery of sewage is an effective meaning of save water resource and promoting the reuse of water source. It is an important measure to reduce the pollution of sewage & protect the environment.

→ In order to reduce ground water contamination and protect aquatic life.

→ The objective of waste water engineering is to provide a good sanitary environmental condition in a city.

→ primarily by providing the removal and disposal of human waste communities of human canget better environment.

Q No/2

Redation ship b/w waste water generation.

→ waste water maybe defined from stand point of source of genration as the combination of liquid or water-carried wastes removed from ~~decomposition~~ institution- commercial and industrial establishment.

→ About 60-80 of supplied water per capta become

waste water.

→ Simply- waste water generated is depedent on supplied water as the supplied water increase the waste water will be more.

→ In Situation where waste water flow rate data are limited or un available.

→ Average daily per capta consumption various from 130 to 200 litre depend on:-

① **Characteristic of population:-** The use of water usually range from 50 to 380 lit/capita/day/ The Quantity of waste water is directly proportional to the characteristics of population.

② **Quality of water:-** water which have poor Quality will be used less then water which is satisfactory to consume

③ **pressure:-** high pressure maintained in the system result is greater use, In addition it increase losses in the leaks.

④ **Maintenances:-** The progress of maintenance will reduce and waste in the water

⑤ **Size of the city:-**

Small communities tend to have more limited use of water unsevered usually less than 40 l/cap/ day

Q3 Important of waste water characteristics (5)

→ It is the characterization by high concentration of nutrients & organic & in organic content.

→ Waste water may contain acids, alkali with ano of active ingredients and disinfectants as well a significant microbiological load, virus & bacteria.

→ A characterization of waste water provide a wide variety of information regarding the pipe and concentration of contaminats present.

→ with characterization of waste water we determine the natue of contaminant (physical, biological, chemical) and then design waste water treatment plant according to the nature of contaminants.

⇒ process modling is widely used in the design of optimization of biological treatment process.

The performance of both existing & proposed new biological treatment plant design to achieve nutrients removal techniques from microbiological science such as RNA & DNA to achieve most of biological treatment process.

Q4 Enlist physical, chemical, biological characteristics of waste water.

→ Physical characteristics;

① odor ② temperature.

③ Density ④ Specfic gravity.

⑤ colour ⑥ Turbidity.

Chemical characteristics

① PH value ② Total organic carbon

③ Organic matter ④ Nitrogen content

⑤ Chloride contact ⑥ fat & oils.

Sulphate & hydrogen.

Biological characteristics

→ Biochemical oxygen demend (BOD) oxygen required for nutrification microbial population.

→ most of the bacteria are helpful in oxidation and decomposition of sewage.

uneconomical.

Q5 Combined System: A combined Sewer is a Sewage collection system of pipes & tunnel.

Advantages:

(1) Both domestic Sewage and Storm water are carried in a single sewer, so the construction cost is less.

(2) The Strength of the domestic Sewage is reduced because of dilution of storm water

(3) The Sewer are of large size and therefore the chance of their cocking are rare. It is easy to cleam them.

(4) In town with narrow street, this system is Preferred

Disadvantages:

(1) initial cost is high because of large dimension of Sewer.

(2) Because of large size of Sewer their handling & tranportation is difficult.

(3) During heavy rain the Sewer may be overflow and may thus create unhygienic conditions.

(5) if the whole Sewage is to be diposed off by pumping it is an uneconomical.

Separate System:

In this system two seperate sets of sewer are installed one for collection, and other for storm water.
↳ and conveyance of sanitary sewage.

Advantage:

* It combines the good features of both system
* The silting is ~~cover~~ avoided due to entry of storm water.
* less size of sewer is required.
* Sanitary and storm water flow in seperate pipe the Quantity of sewage is to be treated is less.
* If the sewerage is to pumped. the seperate system is cheaper.

Dis advantage:

* Since the sewer are ~~sizeitor~~ smaller size, it is difficult to clean them.
* They are likely to get chocked.
* cost is high when two seperated set are used
* maintenance cost of sewer is also high.

I will suggest combined sewerage system because both domestic sewage & storm water are carried in single sewer. So construction cost is less and sewer are of large size so they are easily to clean. combined sewers have moderate operation and maintanance cost.