

" MUDASIR "

7755

Section "B"

Waste Water Engineering

MID / ASSIGNMENT

Be (c)

Q1: ~ Waste Water Engineering :-

It is the application of engineering methods to improve sanitation of human communities, primarily by providing the removal and disposal of human waste, and in addition to the supply of safe potable water.

Waste water Engineering is directly related to improving environment by disposing off treated waste water and reducing the risk of ground water contamination and safe guarding the aquatic life.

→ Application in the safe Guarding

the Environment :-

To protect the health and environment it is necessary to have a knowledge of

- (i) Constituents present in waste water.
- (ii) Impact of these constituents when waste water is disposed into environment.
- (iii) Treatment methods that can be used to remove or modify the constituents.
- (iv) The main objective of waste water is to treat it and reuse it for various purposes.



Q2

Briefly describe the relationship of Wastewater generation and With Water Supply of a Locality :-

→ Waste water may defined from Stand point of Source of generation as The combination of liquid or water - Carried waste removed from institutions Commercial and Industrial establishment.

→ About 60-80% of Supplied water per Capta become waste water.

→ Simply waste water generated is dependent 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 unavilable.

→ Average daily per Capta Consumption varies from 130 to 200 litre depend on :-

① Characteristic Of Pollution :- The Use

of water usually range from 50 to 380 lit/capita/day The quantity of waste water is directly proportional to the characteristic of population.

② Quality OF WATER :- Water which

have poor Quality will be Used less than water which is satisfactory to consume. ~~pressure~~

③ Pressure :- high pressure maintained

in system result is greater use, In addition it increase losses in the leaks.

④ Maintenance :- The progress of

maintenance will reduce and waste in the water.

⑤ Size of the City :- Small Community

tend to have more limited use of water uncovered usually less than 40 lit/capita/day.

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Q3:-

"Importance of Waste Water Characterization"

★ It is the characterization by high concentration of nutrients & organic & inorganic content.

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

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

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

★ Process modeling is widely use in the design of optimization of biological treatment process. The performance of both existing & proposed a new biological treatment plant design to achieve nutrients removal techniques from microbiological science such as RNA & RNA to achieve most of biological treatment.



Q4:-

" Physical Characteristics of Waste Water "

- 1:- Temperature
- 2:- Color
- 3:- Odor
- 4:- Solid
- 5:- Turbidity
- 6:- Specific gravity

" CHEMICAL Characteristics of Waste Water "

- 1:- PH
- 2:- Dissolved Oxygen
- 3:- Nutrients
- 4:- Heavy metals
- 5:- pollutants
- 6:- Organic matter.

" Biological Characteristics of Waste Water "

- 1:- Viruses
- 2:- parasites
- 3:- BOD (Biological Oxygen demand)



Q5:- COMBINED SYSTEM:-

In Combined System along with domestic Sewage, the runoff resulting from Storms is carried through the same Conduit of Sewage System. In Pakistan the rainy days are few but they still can face the problems.

ADVANTAGES:-

- Both domestic Sewage and 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.
- In town with narrow street, this system is preferred.

DISADVANTAGES:-

- Initial cost is high because of large dimension of sewers.
- Because of large size of sewer, their handling and transportation is difficult.
- Due to the inclusion of Storm water, the load on the treatment plant increase.
- During heavy rain the sewer may overflow and may thus create unhygienic conditions.

Separate System :- In Separate System, Separate Conduits are used, one carrying Sewage and other carrying Storm water runoff. The Storm water collected can be directly discharged into the water body since the runoff is not as foul as Sewage and no treatment is generally provided. Separate System is advantageous and economical for big towns.

→ Advantages :-

- Less size of Sewer required.
- Sanitary and Storm water flows in separate pipes, the quantity of Sewage to be treated is less.
- In the Sewage is to be pumped, the Separate System is cheaper.
- Rainwater can be discharged into streams without any treatment.

DISADVANTAGES :-

- Since the Sewer are small size, it is difficult to clean them.
- They are likely to get choked.
- Initial Cost is high, when two separate set are used.
- Maintenance Cost of Sewer is also high.

⇒ Which System proposed for New township :

→ From the above discussion of advantages and disadvantages of both sewerage system, so I will proposed

Combined Sewerage System, because the size of sewerage is large and that it can be clean easily and cannot choked.

→ due to the storm water the domestic sewerage become diluted. the initial cost of both sewerage system are approximately same and the combined sewerage system that why I will suggest.

