

NAME : MasHal Raheem

ID # ~~7707~~ 7707

SECTION # B

SUBJECT # Waste Water Engg

Submitted To # Engg Madam scribe.

Waste Water Engineering :-

Q No 1:- Waste Water Engineering :-

It is that branch of engineering in which the basic principles of science and engineering are applied to solve the issue associated with the treatment and reuse of waste water.

⇒ Applications :-

- 1:- Waste water engineering deals with the management of waste water and its treatment to reuse it for various purposes.
- 2:- The recovery of sewage is an effective means of saving water resources and promoting the cause of water resources. It is an important measure to reduce the pollution of sewage protect the environment.
- 3:- primary objective of waste water engineering is to provide a good sanitary environment condition in a city.

Q2:- Relationship b/w wastewater generation and water supply :-

Average daily per capita consumption varies from 130 to 200 liters local use depend on.

- 1:- Economic level of the population determines the use of water which usually varies from

50 to 380 litera capita per days In The slum districts it usually varies from 50 to 100 litera capita per day. The quantity of waste water is directly proportional to the characteristic of population.

28- Quality of water :-

Waste water is poor quality will be used less The water which is satisfactory to consume.

38- pressure :-

High pressure maintained in The system results is greater use. In condition it increases losses in The leaks.

Q38- Importance of waste water characterization :

⇒ A characterization of waste water provides a wide variety of information regarding the type and concentration of contaminants present. With characterization of waste water we determine the nature of contaminant (physical, biological, chemical) and then design waste water treatment plant according to the nature contaminants.

Q48 Characteristics of waste water.

Physical Characteristics

⇒ Turbidity

⇒ colour

⇒ Odour

→ Total Solids

→ Temperature.

⇒ Chemical Characteristics :-

→ Chemical Oxygen demand (COD)

→ Total Organic Carbon (TOC)

→ Nitrogen

→ Phosphorus

→ Chlorides

→ Sulfates

→ Alkalinity

→ PH heavy metals.

→ Biological Characteristics

1: Biochemical Oxygen demand [BOD].

2: Oxygen required for nitrification.

3: Microbial population.

Q5: COMBINE Sewage system :-

Advantageous :-

- 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 checking are rare. It is easy to clean them.
- 4) In town narrow streets their system is preferred.

- Disadvantageous :-

- 1) Initial cost is high because of large dimension of sources.
- 2) Because of large size of sewers their handling and transporting is difficult.
- 3) During heavy rain the sewer may be overflow and may thus create problems.
- 4) The whole sewage is to be disposed off by pumping it is uneconomical.

Advantages of Separate System :-

- 1) The load on treatment plant is less as only sewage is carried to the plant.
- 2) The size of sewer is small thus economical.
- 3) When pumping is required the system proves to be economical.
- 4) Natural / storm water is not unnecessarily polluted by sewage.

Disadvantages of Separate System :-

- cleaning of sewer is difficult due to their small size.
- The self cleaning velocity is not easily obtained.
- Maintenance is cost High.
- Sewage sewers are provided below storm sewer which causes greater depth and pumping at water treatment plant (WWTTP).

⇒ I will suggest combined sewerage system because domestic sewage & storm water are carried in a single sewer.

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