Waste water Engineering

NAME :- Junaid Ichan

ID No :- 7766

Section :- "C"

Semester :- 8th

Instructor :- Eng - Nadeem ullah

Scanned with CamScanner

Date:
Day:

Q:1 What is wast water engineering ? Briefly describe its application in safeguarding the environment ?

Ans: "Wast Water Engineering :"

Wast water engineering is also known as; (Sanitary engineering) OR (Public Health engineering)

"The application engineering methods to improve & engineering Sanitation of human Communities,

Scanned with CamScanner

primarily by providing the removal and disposal of human waste, Treatment and reuse application for various purposes And is condition to addition to the supply of safe potable water.

Applications:

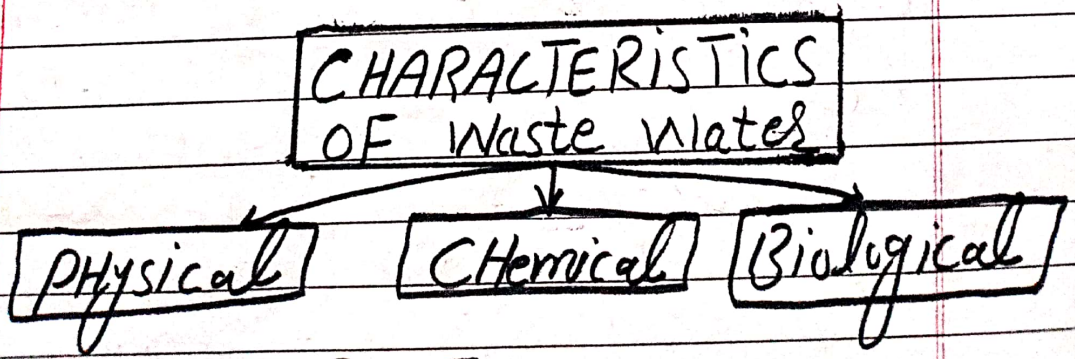
Directly related to improving environmental by disposing off treated wast water and thus reducing the risk of ground water contrimation and safe guarding aquatic life. protect natures benificial ecosystem.

4

Q. Enlist physical, chemical & and biological characteristics of waste water.?

4

Ans



P.T.O

Scanned with CamScanner

(3)

Date:
Day: M T W T F S S

(a) Physical characterstices ;

* Colour
* Temperature
* Density
* Taste and colour
* Turbidity
* Specific gravity

(b) CHemical characterstices ;

* Hardness
* organic matter
* Toxies
* Chloride content
* Hydrogen gas
* Dissolved oxygen
* Fats, oils, Greases.
* pH value
* Nitrogen content
* Sulphides
* Sulphates

(C) Biological characterstics ;

* Bacteria
* Algae
* viruses
* pathogenic
* Fungi
* protozoa

micro-organic Group

Scanned with CamScanner

5

Q What are the advantages and disadvantages of Combine and seperate sewerage system?. Which sewerage system will you recommended for a new proposed town ship support your answer with justification.?

5

Ans "Combined Sewerage system:.

Advantages:.

★ Both domestic sewerage 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.

★ The sewers are of large size and there are the chances of their choking are rare. it is easy to clean them.

★ In town with narrow streets This system is preferred.

Scanned with CamScanner

Date:
Day: M T W T F S S

Disadvantages :-

- ★ initial Coast is high because of large dimension of sewers.
- ★ Because of large size of sewers, their handling and Tran pertation is difficult.
- ★ Due to the inclusion of storm water the load on the treatment plant increased and ultimatly increase treament coasts.
- ★ During heavy rain the sewers may be over flow and may thus create unhygienic conditions.
- ★ if the whole sewage is to be disposed off by pumping it is uneconomical.

Scanned with CamScanner

Date:
Day: M T W T F S S

Seperate Sewerage System:

Advantages:

- ★ Size of sewer requires less.
- ★ Less Treatment coast because of exclusion of storm waters.
- ★ As the sewer are similar in section they can be easy ventillated.
- ★ Rain waters can be discharge into streams without any treatment.

Dis advantages;

- ★ The system requires laying two sets of pipe which may be difficult in congested Area.
- ★ initial coast is high because two seperate sets are used.
- ★ Maintenance coast of sewer is also high.

Scanned with CamScanner

Date:

Day: M T W T F S S

- They are literaly to get blocked.

Recomendation of sewerage system for new proposed Area

I will recomend seperate sewerage system for a new town ship Area Because of the fallowing Reasons;

- Rain water can be discharge in to stream or can be reused / recycled with out any treatment.
- As sewer are smaller in section they can be easily ventilated.
- Since the sanitary sewerage and storm water flow in a seperate pipe the quantity of sewage to be treated is less.
- During heavy rain the sewer can't offer flow because the storm water and sanitary sewage seperate pipe.

Scanned with CamScanner

★ Their pipe size in seperate sewage system are so they can be easily handle and Transpasted.

3

What is the importance of waste water charactrization.?

Ans:

Importance of Wast water charactrization:.

The charactrization of the waste water which provides a wide variety of information regarding the type of land condition of the contaminates present must be carried out to determine the type of contamination Concerned.

With charactrization of waste water we determine the nature of contament (physical, chemical and biological) and then design wast water treatment plant

Scanned with CamScanner

(9)

Date:

Day: M T W T F S S

According to the nature of contaminations.

It will have an important role in waste water treatment plant because it will provide a physical chemical and biological resources for treatment of waste water in plant.

2

Q. Briefly describe the relationship of waste water generation with water supply of a locality.?

2

Ans Relation ship of waste water with water supply:- There are main two Areas in which waste is generated from water supply.

(1) Domestic Area:-

(2) Industrial Area:-

* Domestic Area are divided into four 4 classes:-

Scanned with CamScanner

Date:
Day: M T W T F S S

(10)

★ Domestic Area:
★ Residential Area
★ Commercial Facilities
★ institutional Facilities
★ Recreational Facilities

★ The water which is supplied to such type of Areas 60-80% of that water is waste and 20% is used.

★ So waste water have deep relation with water supply.

★ If we want to calculate waste water we should know the supply of water Quantity.

★ For Calculation of water first we calculate population of Area from given below method.

(1) Arthematic increase method

(2) Geometric increase method

(1) Arthematic increase method:

$P_n = P + n.C$

Scanned with CamScanner

Date:
Day: M T W T F S S

Pn = Population of upcoming
P = present population
C = Rate of change of population with respect to Time.
n = is number of Year.

(2) Geometric Increase method:

$$Pn = P(1 + Ig/100)^n$$

Ig = geometric mean
P = present population
N = no of decade of Year.

Through these formulaes we calculate population then calculate fresh water.

Waste water is calculated from fresh water.

Waste water is totally depend on fresh water.

If water supply is not Available then there will be no waste water.

So waste water is great relation with water supply.

end