

Course title wastewater engineering

course code ce:421

ASSIGNMENT no#01

semester 8th

Id# 7722

section c

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mid exam

Iqra national university

- Q no # 01 :
Answer.

- Wastewater engineering:

Wastewater: is any water that has been effected directly or indirectly by human. Its *combination of the liquid or water -carried water wastes.*

- Application in safeguarding the environment: its the application of engineering method to improve sanitation of human communities ,Primarily by providing the removal and disposal of human wastes, treatment and reuse application for various purposes.
- Wastewater engineering is directly related to improving environment by disposing off treated wastewater and thus reducing the risk of ground water combination and safeguarding aquatic life.
- Wastewater normally contain 99.9% water and 0.1% of solids. The main concern about wastewater treatment is simply to reduce all or most part of this 0.1% of solids

- Major source of wastewater are residential areas, commercial activities, industrial and educational institute , etc.....
- Qno#02 :
- Relationship of wastewater generation with water supply if a locality.

Answer.

If field data measured of waste water flow rate not possible and actual wastewater flows rate data are not available , water supply records can often Be used as an aid to estimated wastewater flows rate. Such relationship of wastewater and water supply of a locality which have use many purpose such is agricultural, and industrial purpose .

- relationship.
- Agricultural.
- Industrial.
- Arable land.
- Etc.....

- Qno#03:
- Answer.
- Importance of wastewater characterization:

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characterization of the wastewater, which provides a wide variety of information regarding the type and concentration of the contamination present, must be carried out to the determination of the types of contamination concern. In addition General parameter such as ph and conductivity. Biological oxygen demand has been widely used to the characterization of wastewater although this parameter is somewhat imprecise acclimatisation of the micrograms to the wastewater effects measurement at least 5days .are required for each measurement.

- In chemical oxygen demand is an accurate parameter that is readily determined and measures all the organic meter present in water .
- (Both biodegradable and non biodegradable.) as such it is therefore the most widely used.
- Radially biodegradable coD:
- This fraction, which is equivalent to the water – soluble COD is the

fraction consume most rapidly by the biomass (in the space of a few minutes) generation a rapid and high oxygen demand. The compounds found in this friction are soluble substance with a low molecular weight , such as sugar, alcohol, and fatty acids .

- Slow biodegradable COD:

This fraction is related to the insoluble biodegradable or particulate. COD and is typically the largest biodegradable friction.

- Particulate no biodegradable COD:

Although non consumes by the biomass,

- As a large proportion of this fraction settle out the sludge .thereby reducing its out flow concentration with respect to the inflow concentration. This technique is measure the oxygen consumption by The biomass .

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Qno#04?

Answer:

Physical characteristics;

- Turbidity ,
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- colour,

- total solids, and temperature.

Chemical characteristics due to chemical impurities :

- Chemical oxygen demand (COD).

- Total organic carbon (TOC)

- Phosphorus

- Chlorides.

- Sulfates.
- Alkalinity.
- Ph.
- Heavy metals.
- Trace *elements*.
- And priority pollutants.

Biological characteristics due to contaminates.

- Biological oxygen demand.
- BoD.
- Oxygen required for nitrification.
- And microbial populations.



Qno#05?

Answer.

Advantage of combined sewerage:

- 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.
- The sewers are larger size, and therefore the chances of their choking are reduced. It is easy to clean them.
- In towns with narrow streets, this system is preferred.
- Disadvantages :
- Initial costs are high because of large dimensions 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 increases and ultimately treatment costs.

- If the whole sewage is to be disposed off by pumping it is uneconomical .
- Advantages of separate sewerage system:
- Size of sewers is generally less.
- Since the sanitary sewage and storm water flows in a separate pipes , the quantity of sewage to be treated is less
- As the sewer are smaller in section, they can be easily ventilated.
- Rain water can be discharged in to the streams or can be reused / recycled without any treatment.
- Disadvantages :
- Since the sewer are smaller size, it is difficult to clean them.
- They are likely to get checked/ blocked .
- Initial costs is high, when to separate sets are used
- Maintenance costs is also high.
- Own justification:
- As engineer When a new proposal about new town ship with own justification i will recommended the combine system because less is costs and easily to clean also in town with narrow streets is prefered due to the combine system is also modern recommended system

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