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Paper : Waste water Engineering
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Q #01:

Answer: Waste Water engineering: It is the application of engineering methods to improve Sanitation of human Communities, Primary by providing the removal and disposal of human waste, treatment and reuse application for various purposes

Applications:

- (1) By disposing off treated wastewater in order to reduce ground water Contamination and protect aquatic life
- (2) Waste water engineering deals with the management of waste water and its treatment to reuse it for various purposes
- (3) The recovery of sewage is an effective means of saving water resources and promoting the reuse of water resources. It is an important measure to reduce the pollution of sewage & protect the environment
- (4) Primary objective of wastewater engineering is to provide a good sanitary environmental condition in a city

Q#02:-

Answer:- In Situation where waste water flow rate data are limited or unavailable wastewater flow rate estimated have to be developed from water consumption records in other information

About 60-85% of Supplied water per Capita become waste water

Simply wastewater generated is dependent on Supplied water as the Supplied water increases the rate of waste water will be more

Q#03:-

Answer: The importance of waste water characterization is to know about physical, chemical & biological characteristics of waste water because due to this we know that it will be in hard form and suspended solids are present in it. Due to chemical characterization we know that chemical present in waste water which mostly come out from industries and to treat that as they are. Due to biological characterization we know that water has bacteria present in it

Q#04:->

Answer:- Characteristics of Waste Water

(1) Physical characteristics

- (a) Turbidity
- (b) Colour
- (c) Odor
- (d) Total Solids
- (e) temperature

(2) Chemical characteristics

- (a) Chemical oxygen demand (COD)
- (b) Total organic Carbon (TOC)
- (c) nitrogen
- (d) Phosphorous, chlorides
- (e) PH
- (f) Heavy metals
- (g) Trace elements
- (h) Priority pollutants

(3) Biological characteristics

- (a) Biological oxygen Demand (BOD)
- (b) oxygen required for nitrification
- (c) Microbial population (bacteria, pathogens)

Q#05:-

Answer:-

COMBINED SEWERAGE SYSTEM.

ADVANTAGES	DISADVANTAGES
1) Both domestic Sewage & Storm water are carried in a single Sewer so Construction Cost is low	1) initial cost is high because of large dimensions of sewers
2) The strength of domestic Sewage is reduced because of dilution of Storm water	(2) Because of large size of sewer their handling and transportation is difficult
3) The Sewers are of large size, and therefore the chances of their chocking are rare. It is easy to clean	(3) due to their inclusion of storm water the load on treatment plant increases and cost increase
4) In towns with narrow street this system is preferred	(4) Due to heavy Rain the sewer maybe overflow and thus create unhygienic condition

SEPARATE SEWERAGE SYSTEM.

ADVANTAGES	DISADVANTAGES
1) size of sewers is generally less	1) Since the sewer are of small size it is difficult to clean
2) Since the sanitary sewage & storm water flow in a separate pipes the quantity treated is less	2) They are likely to blocked
3) As sewer are smaller in section they can be easily ventilated	3) Initial cost is high when 2 separate sets are used
4) Rain water can be discharge into streams and can be reuse	4) Maintenance cost is also high.

Q#05: Part B:-

Answer:- Storm water is carried in a single sewer so construction cost is less and sewers are of large size so they are easy to clean.

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