MiD Exam

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ID NO : 7695

SECTION : B

SUBJECT : Waste water Engineering

PROGRAM : BE(c)

SUBMITTED TO : Engr. Nadeem

SEMESTER : 8th

QNO(1):

Ans:

Waste water Engineering:

Waste water engineering or sanitary engineering also known as public health engineering, is the application of engineering methods to improve sanitation of human communities, primarily by providing the removal and disposal of human waste, treatment and reuse application for various purposes.

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

Applications in Safe guarding the enviroment:

* **Waste water treatment:-**

It is the process of converting waste water that is no longer needed or no longer suitable for use. So the waste water are treated in waste water treatment tank to produce a fresh water and remove the solid percentage from the waste-water.

* Sewage Sludge treatment:-

Sludge treatment describes the processes used to manage and dispose of sewage sludge produced during sewage treatment. Sludge is mostly water with lesser amount of solid material removed from liquid sewage.

* Primary objective of waste water engineering is to provide a good sanitary environmental condition in a city.

Q No 2:-

Ans:- In situation where waste water flow rate data are limited or unavailable waste water flow rate estimate have to be developed from water consumption records in other information.

→ About 60-85% of supplied water per capita becomes waste water.

→ Simply waste water generated is dependent an supplied water as the supplied water increases, the waste water will be more.

Q No 3 :-

Ans: 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 than design waste water treatment plant according to the nature of contaminants.

Q No (4):-

Ans:-

Physical characteristics of waste water:-

- Tempreture.
- Density.
- Specific gravity.
- Turbidity.
- Color.
- Solids.
- Settleable solids.
- Total solids (TS)
- Total suspended solids (TSS)
- Total dissolved solids (TDS)
- Volatile solids (VS)
- Fixed solids (FS)

* Chemical characteristics:-

- PH value
- Organic Matter (OM).
- Nitrogen contents.
- Chlorides contents.
- Fats, oil and greases.
- Sulphides, sulphates and
- hydrogen gas.
- Toxics
- Dissolved oxygen (DO)

* Biological characteristics:-

The environmental engineer must have considerable knowledge of the biological of waste water because it is very important characteristics.

→ The engineer should know;

① : The principal groups of micro-organism found in waste water.
② : The pathogenic organisms.
③ : Indicator organism (indicate the presence of pathogens)
④ : The methods used to amount the micro-organism.
⑤ : The methods to evaluate the toxicity of treated waste water.

Q No (5):-

Ans:

Combined Sewerage System:-

* ADVANTAGES:-

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 sewer are of large size, and therefore the chances of their chocking are rare. It is easy to clean them.

④ : In towns with narrow streets, this system is preffered.

* DISADVANTAGES:-

① : Initial cost high because of large dimensions of sewers.

② : Because of large size of sewer their handling and transportation is difficult.

③ : Due to inclusion of storm water the load on the treatment plant increases and ultimately increases treatment costs.

④: During heavy rain the sewer may be overflow and may thus create unhygeinic conditions.

⑤: If the whole sewage is to be disposed off by pumping it uneconomical.

→ Separate Sewerage System :~

* ADVANTAGES :-

①: Size of sewer is generally less.

②: Since the sanitary sewage and storm water flows in a separate pipes, the quantity of sewage to be treated is less.

③: As the sewer are smaller in section, they can be easily ventilated.

④: Rain water can be discharged in to the streams or can be reused / recycled without any treatment.

★ DISADVANTAGES :-

① : Since the sewers are smaller in size, it is difficult to clean them.

② : They are likely to get chocked / blocked.

③ : Initial cost is high, when two separate sets are used.

④ :- Maintenance cost of system is to high.

⇒ Which system proposed for new township :-

From the above discusion of advantages and disadvantages of both sewerage system, I will proposed combined sewerage system because the size of sewerage are large, it can be cleans easily and cannot chocked/ blocked and due to storm water the domestic sewage become diluted. The initial cost of both sewerage system are approximately same and the combined sewerage system thats why I will suggest.