

Assignment / Quiz:

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Question NO: 1 Suggest waste water collection system for your Area and also justify with the help of merits and demerits of the suggested system?

* Waste Water Collection System:-

A collection system that carries waste water from homes and businesses through underground pipe, to a treatment facility.

• We need combine sewer system for our area:-

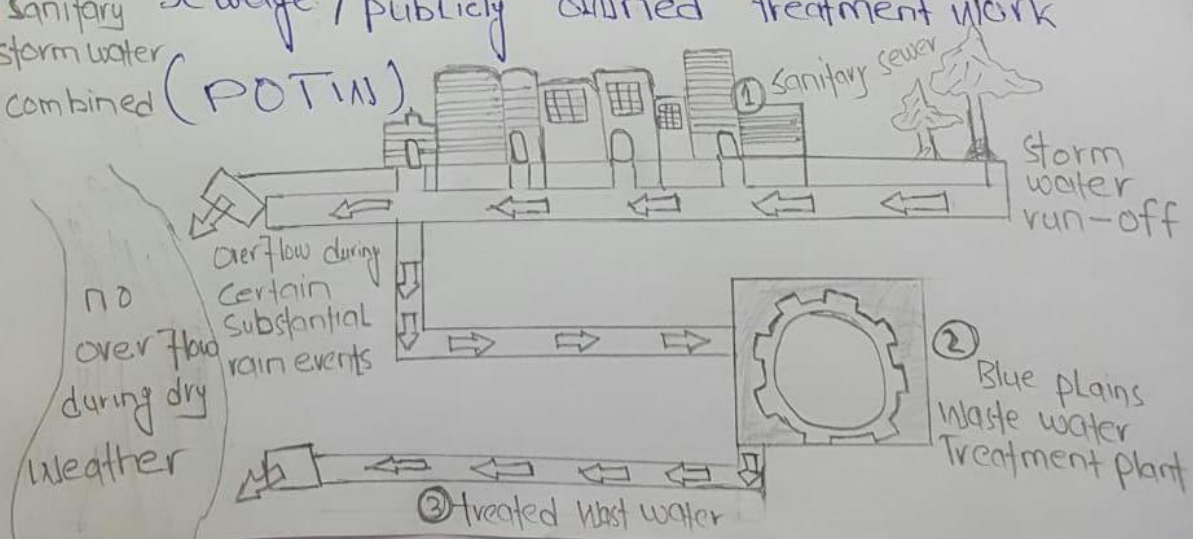
* Combine Sewer System:-

A combined sewer system is a sewer that accepts storm water, sanitary water/sewage, and most likely industrial waste water which ideally is treated by a

Sanitary Sewage / publicly owned treatment work

storm water

combined (POTWS)



Question NO: 1

Advantages :-

- (1):- Size of sewer requires 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):- during disposal if the sewage is to be pumped, the separate system is cheaper.
- (5):- Rain water can be discharge into streams without any treatment.

disadvantages :-

- (1):- Since the sewer are smaller size, it is difficult to clean them.
- (2):- They are likely to get choked.
- (3):- initial cost of high, when two separate set are used.
- (4):- Maintenance cost of sewer is also high.
- (5):- Generally self cleaning velocity is not available due to small quantity of sewage therefore flushing is required at various point.

Question NO: 2 Explain WHO/EU standard for drinking water in detail. What are the different impurities in natural water?

WHO (World Health Organization)

The Guidelines for drinking water quality (GDWQ) promote the protection of public health by advocating for the development of locally relevant standards.

WHO/EU drinking water standards 1993, WHO's

Guidelines for drinking-water quality, Setup in Geneva 1993, are the international reference point of standard.

*Some Example are:-

- Bromate (Br): not mentioned by WHO. 0.01 mg/l guideline in the EU standard.
- Manganese (Mn): Guideline reduced from 0.5 to 0.05 mg/l.
- Cyanide (Cn): Guideline reduced from 0.7 to 0.005 mg/l.
- Cadmium (Cd): Guideline rised from 0.03 to 0.005 mg/l.

Here is a comparative table of both

WHO and EU standards

	WHO standard (1993)	EU standard (1998)
Suspended solid	No guideline	Not mentioned
Cod	No guideline	Not mentioned
Oxidisability		5.0 mg/lO ₂
Grease/oil	No guideline	Not mentioned
Turbidity	No guideline	Not mentioned
pH	No guideline	Not mentioned
Conductivity	250 micro S/cm	250 micro S/cm
Color	No guideline	Not mentioned
Dissolved oxygen	No guideline	Not mentioned
Hardness	No guideline	Not mentioned
TDS	Not mentioned	20/ml
Colony count 37 °C	Not mentioned	0.0001 mg/l
Acrylamide	Not mentioned	0.001 mg/l
Ben Zene (C ₆ H ₆)	Not mentioned	0.0001 mg/l
Benzo (a) (Pyrene)	Not mentioned	0.0001 mg/l
Chlorine dioxide (ClO ₂)	0.4 mg/l	

(B) There are some impurities in natural water.

(1) Heavy metals

A heavy metal has a high atomic weight with a specific gravity that exceeds the specific gravity of water by five or more times at 4°C.

(2) Chemicals - Chlorine

Is of course along established chemical found in our water system having been used a disinfectant since the 19th century. This can cause mild sickness or an unpleasant taste to drinking water if/when variation or found. but this is quite rare.

(3) Pesticide and insecticides

Pesticides are chemicals that may be used to kill fungus, bacteria, insects, plant diseases, snails, slugs, or weeds, among others. Insecticides are a type of pesticides that used to specifically target and kill insects.

Question No : 3

How do you understand the term of waste water? Explain the scope and applications in civil engineering. of the subject water supply and waste water management with help of proper examples?

* Waste water :-

Waste water when used for different purpose like domestic commercial, industrial etc. surface or run off storm water, and any sewer inflow or sewer infiltration.

* Source of Waste water :-

Waste water comes in three main types namely Blackwater, Gray water, and yellow water. This is wastewater that originates from toilet fixtures, dishwashers, and food preparation sinks.

* Application of Waste Water management in Civil engineering :-

* Civil engineering Wastewater Investigations

Waste water investigation :- play a key role in waste water management, especially where waste-water treatment plants need more information than standard survey can provide. In this role, Civil Engineer may conduct research to uncover why a plant is not meeting regulatory compliance standard, or why plant producing un acceptable contaminants such as high copper level when waste contamination occurs. A civil engineer investigate to find the source and then devise a plan to correct problem. In this role, a plant may call on a civil engineer to investigate air quality complaints that originate within facility. At some waste water facilities, Civil engineer are also responsible for investigation health and safety violations.

★ Waste Water Treatment Engineering design

A more familiar job is design of the waste water civil engineering and city sewage systems. In the water treatment plant.

Civil engineer can take a various role, including creating the layout for the engine systems used by municipalities to transport and treat discarded water. Restructuring outdoor sewage systems, and overseeing the process for water treatment companies to obtain needed licenses and permits. Civil engineer also play important role.

Civil Engineering Certification and Licensure

In addition to the proper education, waste water engineers may need to possess certification and licensing in their respective state. Each state has its own board of civil engineering that issues licenses.

