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INU

Department of civil engineering

MID TERM EXAMINATIONS

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Subject

∴ water supply and
waste water

Instructor

∴ Engr. M. Hasnain

Date

∴ 19/08/2020

Paper time: 9:00 - 1:00

Pm

B-Tech Civil, Summer.

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Q No. 01
(A(1))

What is meant by wastewater?

Ans

It is the water which is discharge from buildings, houses etc which is unfit for consumption. Wastewater is any water that has been contaminated by human use. Wastewater is used water from any combination of domestic, industrial, commercial or agricultural activities, surface runoff or stormwater, any sewer inflow or sewer infiltration. Domestic wastewater from households, municipal wastewater from communities. Wastewater can contain physical, chemical and biological pollutants.

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Q No 07

(B)

(ii) Write down the compositions of wastewater.

Ans

∴ Composition of waste water:

Most wastewater from a building is Sanitary wastewater which includes human waste, cleaning solutions, oil and grease from cooking, food particles, and soil from cleaning clothes and floors.

A typical Solids analysis of wastewater of the total solids 50% is dissolved, 50% suspended. Of the suspended ~~solid~~ solids, 50% will settle. The industrial activity changes the composition of wastewater, often introducing ~~and~~ toxic substances such as Chromium and Cadmium from plating operations.

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No. 02
(1)

What are the problems caused by the waste water

Ans =

If not treated properly causes water pollution. Can lead to various ~~health~~ health hazards, can cause soil pollution. What makes wastewater so dangerous? Faces and urine from both humans and animals carry many disease-causing organisms. Wastewater also may contain harmful chemicals and heavy metals known to cause a variety of environmental and health problems.

Qn. 02
(B) what are the needs for wastewater Reuse?

Ans

Needs for wastewater Reuse

- => **Agricultural Production** :
Irrigation: The largest water user (70-80% of total)
- => 50% of food requirements are imported
- => 30% of cultivated area is irrigated but it accounts for 75% of total agricultural production
- => **Capacity to sustain Domestic Food production**
750 m³/inhabitant year necessary
- = 1990: 5 Countries (Algeria, Israel, Jordan, Malta, Tunisia)
- = 2050: 4 more Countries (Egypt, Libya, Morocco, Syria)
- => **Water Availability** :
Temporal and spatial Asymmetries.
Misguided "Agricultural paradises"

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No. 02
B(ii)

Needs For wastewater Reuse

Reclaimed or recycled water also called wastewater reuse or water Reclamation, is the process of converting wastewater into water that can be reused for other purposes. Reused may include irrigation of gardens and ~~and~~ agricultural fields are Replenishing surface water and ground water.

(Example: Ground water Recharge.)

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No 03
(a)(i)

Why we use wastewater in Agricultural Irrigation?

Ans

Freshwater resources can be reserved for other uses

Chemical fertilizer usage can be minimized

Discharge of reclaimed water to water bodies can be prevented.

• **Agro-Irrigation** = Largest Current user of Reclaimed water

Main uses (in order of "Preference")

Non-food Crops,

Commercial nurseries: Timber,

Animal fodder

Food Crops: Fruit-tree orchards, Cereals, vegetables,

Potato irrigation from maturation pond.

As a key alternative water resource, wastewater can be used in agriculture to compensate for water shortages. Wastewater irrigation has a long development history and has undergone different phases in developing and developed countries. Untreated wastewater irrigation can come with numerous environmental problems.

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Q No. 3
(B)(ii)

What are the Sustainability Issue in
waste water Reclamation:

Ans

Sustainability of treatment method:

ww reclamation and reuse a sustainable
practice.

Are the treatment technologies sustainable.

Natural treatment systems.

Constructed Wetlands, Duckweed ponds

How much treatment is enough?
what is the source of wastewater,

Greywater and blackwater

Who is ~~not~~ the end user?

Agriculture, Industry, Communities

Example: 3000BC - Crete (Minoan culture)

Collection of rainwater and sand filtration
for reuse

1890 - Mexico, Agricultural irrigation

1912: Europe and US: Landscape irrigation

1976: industrial user: Cooling processes and
Boilers.

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03
(B)iii

Sustainable Solution to the wastewater treatment technology can reduce the carbon footprint and the use of chemical and save energy and operational cost. The sustainability of activated ~~sludge~~ sludge processes dependence upon efficient nutrient and organic carbon removal and efficient sludge biomass handling and processing.

end)

A
(A Student is nothing
without Teacher.)