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Name final : Assignment / Quiz.

Dep : BS Civil Engineering.

Subject : Waste Water Engineering.

Course code : CE-421

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Sec : "C"

Q No # 01

\* Wastewater treatment :- process of removing organic and inorganic matter from wastewater. ~~water~~ waste water treatment consists of applying known

technology to improve or upgrade the quality of waste water.

OR.  
waste water treatment is a process used to remove contaminants from wastewater or sewage and convert it into an effluent that can

be returned to the water cycle with minimum impact on the environment or directly reused. the latter is called water reclamation because treated waste water can be used for other purpose.

importance

the major aim waste water treatment is to remove as much of suspended solids as possible before the remaining water, called effluent, discharge back to the environment.

② make them less effective so that the receiving water bodies may not become unsuitable for use or cause damage to aquatic life -  
how does it help with water

Treatment: ?

⇒ Assimilative capacity of receiving water bodies with it help

its Biodigeste waste water treatment service

Environmental Burnham (BES) specialises

in the design and manufacture of biodigester and water water.

\* ① Consultancy service.

② Remedial waste water.

③ Biodigester installation

④ Servicing and maintenance.

physical forces helping Assimilative capacity  
of Receiving bodies:-

① Dilution:- process to reducing concentration  
of pollutants.

② Dispersion: Distributed pollutants on large  
area of water.

③ Sunlight:- Sunlight facilitate biological  
decomposition of pollutants and  
kills pathogens by ultra violet radiation.

factor effect Assimilative

① Temperature:- play an importance role in  
assimilative receiving of water bodies.

② flow velocity:-

flow velocity is also  
critical to assimilative capacity  
of receiving water bodies.

?

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No#02

# 2 Difference b/w aerobic and anaerobic waste water treatment

parameter	Aerobic treatment.	Anaerobic treatment.
Application	① Low to medium strength ② Waste water (< 1000ppm) eg ③ municipal Sewage, refinery ④ Waste water. etc.	medium to high strength. Waste water (> 1000ppm) food and beverage industry waste water.
Capital Investment	Relatively high	Relatively low with pay back.
Energy Consumption	Relatively high	Relatively low.
Foot-print.	Relatively high.	Relatively small and compact.
post-treatment.	typically direct discharge.	required to fulfil wastewater standard discharge requirement.
Example technologies	① Activated Sludge process (ASP) ② trickling filter and Rotating. ③ Biological. ④ Contactor (RBC)	① Anaerobic Digestors (AD) ② Continuous Stirred tank Reactor (CSTR) Sequencing. ③ Batch Reactor (SBR) ④ Upflow Anaerobic Sludge Blanket (UASB) Reactor

Importance water Scarcity is the major problem that is faced all across the world. Although  $\frac{2}{3}$ rd of Earth crust is made of water but all this water is not available for drinking and from other human activity 97% of total water is Salty no used for human and animals remaining 3% of water is fresh.

Why -----  
\* Rectangular tank: these are the most widely used tanks.

\* cost of maintenance is very low in case of "rectangular tank" also these are suitable for large capacity.

Circular tank = these type of Sedimentation tank are preferred from for continuous vertical flow. type of Sedimentation tanks.

\* It have high Clarification. efficiency but they are Impractical.

Q No # 03 (4)

Ans Assimilative Capacity of Receiving Water bodies

Assimilative Capacity of Receiving bodies :- A refer to the ability

of a body of water to clean itself. the capacity to receive waste wastewater

with detet erious effects and without causing damage to aquatic life or

humans who consumes the water. it is level to which water

body or nature control the toxicity without effecting the -

aquatic life - although water is properly treated

before it is disposed of to the natural water streams

still it has impurities / pollutants

that need to remove or make -

briefly describe Sludge activated Sludge process

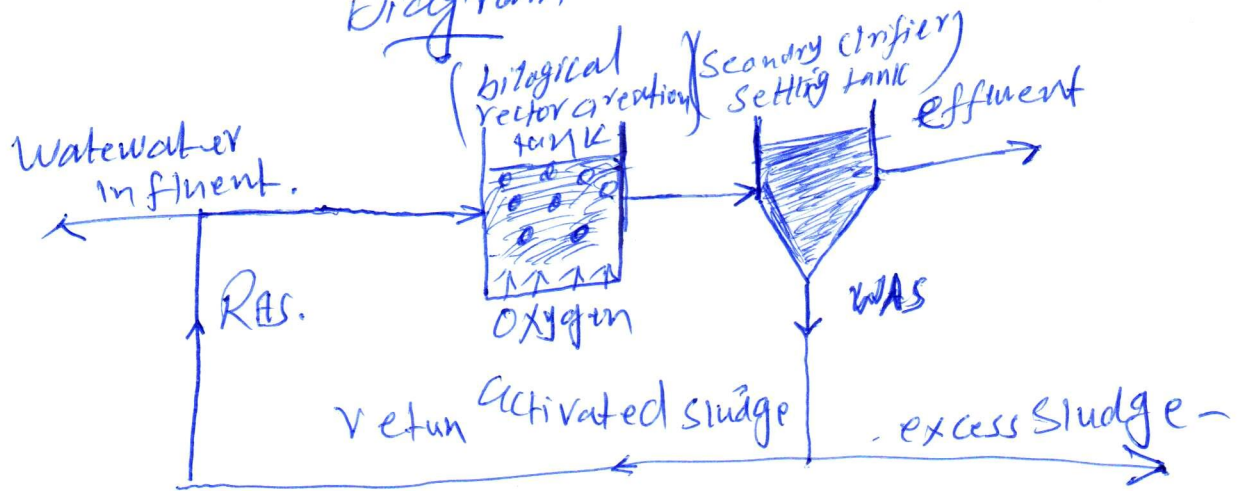
\* micro organisms responsible for treatment - are maintained in liquid suspension by appropriate mixing method.

\* Aeration tank is followed by clarifier/settler in which the micro-organisms from flocks settle down at the bottom.

\* a part of settled bio flocs are recycled back to the aeration tank to maintain

certain amount of micro-organisms in the system for efficient operation of the system. this known as recycled activated sludge.

Diagram





Q No# of Sludge management: -  
Sludge is a Semi-solid slurry that can be produced from a range of industrial process. from water treatment.

or.  
describe the process used to manage and disposal of Sewage Sludge producing during Sewage treatment.  
Sludge handling process

I ~~Primary~~ operation

(i) Grinding: it include particle size reduction

(ii) Screening: it include removal of fibrous material

(iii) Gritting: it include removal of Sand and other organic material

(iv) Blending: making the Sludge homogenous.

(v) Storage: it ensures flow equalization in the system

② Sludge thickness  $\propto$  sludge thickness is under taken to increase percentage of solid content in sludge by removing a portion of liquid fraction. \* volume reduction of approximately 30-80% can be reach with sludge thickness. Various methods of sludge thickness.

① Gravity thickness ② floating thickness

③ Rotatory drum thickness -

③ Dewatering  $\rightarrow$

$\propto$  Dewatering under taken to reduce the moisture content of sludge.

\* Compared to thermal (evaporative process) for water reduction mechanical

\* centrifugation is the method used for separating liquids of different densities thickening slurry.

= advantages.

- ① low cost. ② No water bill ③ minimal odour ④ little maintenance ⑤ Breakdown solid faster. ⑥ less water full.

QNO # 05 (b)

Define Environmental Impact Assessment  
Of EIA

Ans: A Technique and process by which information about environmental effect of a project is collected, both by the developer and from other source and taken into account by the planning authority in forming the judgement on whether the developer should proceed.

The process identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposal prior to major decisions being taken and commitments made -

Opinion - my opinion if such parameter should be considered

while conducting EIA for newly proposed  
wastewater treatment plant - given below

- ① Economical. — low maintenance cost.
- ② flexible - it should be flexible - We - 85 to 10%
- ③ Simple - less easy set up.
- ④ Safe - no gas and dust explosion hazard.

### Parameters

- ① Optimum reinforced concrete columns according to IS (EIA)
- ② Global warming implication of facade.
- ③ Uncertainty in water resource model. used to climate change impact.

Environmental assessment was undertaken for assessing several - physical, ecological and human and use and socio-economic parameters should be considered while conducting EIA for a newly proposed wastewater treatment plant.