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Sec A

Sessional

Assignment No 1

1) Briefly describe Hydraulic Retention time HRT

The hydraulic retention time HRT in waste water treatment plant is a measure of an average length of time holding the waste water tank. It is also known as hydraulic residence time.

The waste water is retained in different treatment unit at a particular time to achieved the desired parameter. The HRT followed in the homogenization tank is 12 to 24 hours, 24 to 48 hours in aeration tank, 72 to 120 days in anaerobic reactors, 5 to 12 hours in secondary clarifiers, 3 to 5 hours in primary clarifiers, 30 minutes in chlorination tanks etc.

during the design stage itself the HRT of waste water in various stage are calculated in order to achieve the outlet parameter.

→ Solid Retention Time.

The Solid Retention time is the average time the activated sludge solids are in the system. The SRT is an important design and operating parameter for the activated - sludge process and is usually expressed in days.

The solid retention time (SRT) control the concentration of bacteria through the treatment system.

* Small reactor size.

* Large separator size

* Reduce sludge production

Question # 2 :

Answer: Method used
for decomposing SRT from
HRT.

By decoupling the SRT &
HRT, the liquid wastewater
is returned within the digester
& is equal to reactor
volume divided the
average volumetric flow rate.
On many instance a
short HRT will reduce
Capital Operation rate.

Through modern controls
permits it band off
management more
complex design that decouple
HRT and SRT. Some
of the more common

Question #3:

Answer: Advantages
of decoupling SRT from
HRT.

* HRT treatment technology
was relatively low capital
cost.

* Available HRT treatment
system can be applied
at well as large
scale.

* Management requirement is
low.