Sessional Assignment No. (01)
(Revised)

Subject: Wastewater Engineering

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Section : C

The basic design parameters of wastewater treatment system are Hydraulic Retention time (HRT) and solids Retention time (SRT).

1) Briefly describe each one of these parameters?

The basic design parameters of wastewater treatment plant system we need some important parameter such as cptal amount of BOD, COD, TSS, VSS, TKN total phosphorus and also an inlet flow to the

Facilities and the temperature and pH of wastewater to be treated.

one parameter:

PH: Generally the wastewater collect the monitored site is slightly alkaline the PH varies between. 6.8 and 8.3 average value thus the PH values are within the accepted range for 6.5 and 9.0 for wastewater this parameter [H^+] ion Concentration.

Hydraulic retention time:

(HRT) in wastewater treatment plant measure at an average length of time holding the wastewater in a tank. It is also known as the hydraulic retention time.

Solid retention time:

(SRT) is a critical activated sludge design and operating parameter the traditional method for control SRT is to manually adjust the sludge wasting rate base on the food-to-micro-organisms (f/m) ratio of mixed ligar suspended solids (MLSS) concentration.

2) What are the methods used for decoupling SRT from HRT?

Ans: Method decoupling SRT from HRT:

Hydraulic retention time (SRT) from (HRT) Reduces the capital expenditure and increase Biogas production and for CHP Utilization.

The decoupling of SRT from HRT not only increased glucose at organic loading rate of 6.5 - 42.8 of COD/L-d

and HRT of 8-12 hr the SRT to 99.9% in the IBROSS from 0.55-1.8 in the CSTRs. To 2.4-9.6 %-d.
SRT from HRT to ensure sufficient reactor biomass.

3) What are the advantages of decoupling SRT from HRT?

ADVANTAGES OF DECOUPLING SRT FROM HRT:

1) Good contact between biomass and substrate efficiency.
2) Required small area.
3) Stable sludge.
4) Long service time.
5) Simple design.
6) Relatively low cost.
7) Low excess sludge production.
8) High biomass retention.
9) High organic loading.
10) High contact between sludge and wastewater.
11) Improve mixing those advantage SRT from HRT.