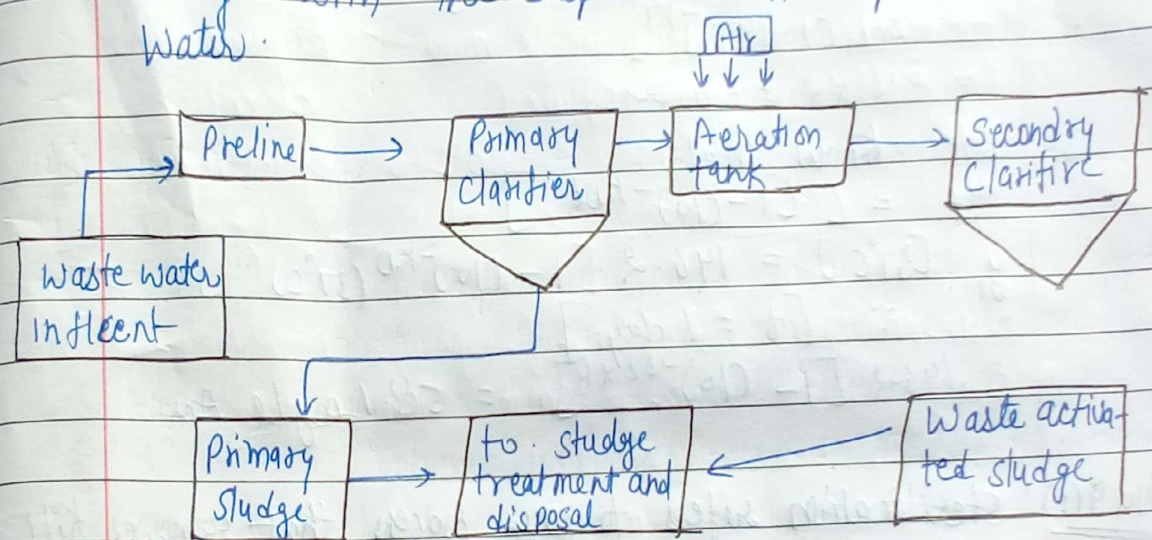


- ① The activated sludge process is the biological process by which non settleable substances occurring in dissolved and colloidal forms are converted into settleable sludge which is removed from the liquid carrier.
- ② At a plant the activated sludge is settled out along with the suspended solids present in the water.



Functions of sedimentation tank - Sedimentation tank also called settling tank or clarifier

Component of a modern system of water supply or waste water treatment. A sedimentation tank allows suspended particles to settle out of water or waste water as it flows slowly through the tank there by providing some degree of purification.

Ans ① given -

5 day 20°C BOD

$Y_{50} = 100 \text{ mg/l}$

To find one day 37°C BOD

Sol - ① The BOD at 20°C is given by



$$y_t = L [1 - (10)^{-kDt}]$$

Assume  $k_D (20^\circ) = 0.1$

$$100 = L [1 - (10)^{-0.1 \times 5}]$$

$$100 = L [1 - (10)^{-0.5}]$$

$$L = 146.9 \text{ mg/l}$$

2. We know that  $k_D (37^\circ) = 0.1 [1.047]^{37.20} = 0.1 [1.047]^{17} = 0.1 \times 2.2 = 0.22$

3. We know that  $y_t = L [1 - (10)^{-kDt}]$

$$y_1 [37^\circ C] = 146.2 [1 - (10)^{-k_D (37^\circ C) \times 1}]$$

$$\therefore [t = 1 \text{ day}] = 146.2 [1 - (10)^{-22 \times 1}] = 58.1 \text{ mg/l Ans}$$

Ans 4(c) Sterilization refers to any process that removes kill or deactivates all forms of life (in particular referring to microorganisms such as fungi bacteria viruses spores unicellular eukaryotic organisms such as plasmodium etc.

After sterilization an object is referred to as being sterile or aseptic.

Significance of GLSS in UASB — The function of the GLSS is to provide enough gas-water interfaces inside the gas dome sufficient setting area outside the dome to control surface overflow rate.

Oxidation Ditch — Oxidation ditch is work in aerobic condition.

② The size of oxidation ditch is small.