

Vidya Bhawan Balika Vidyapeeth Lakhisarai

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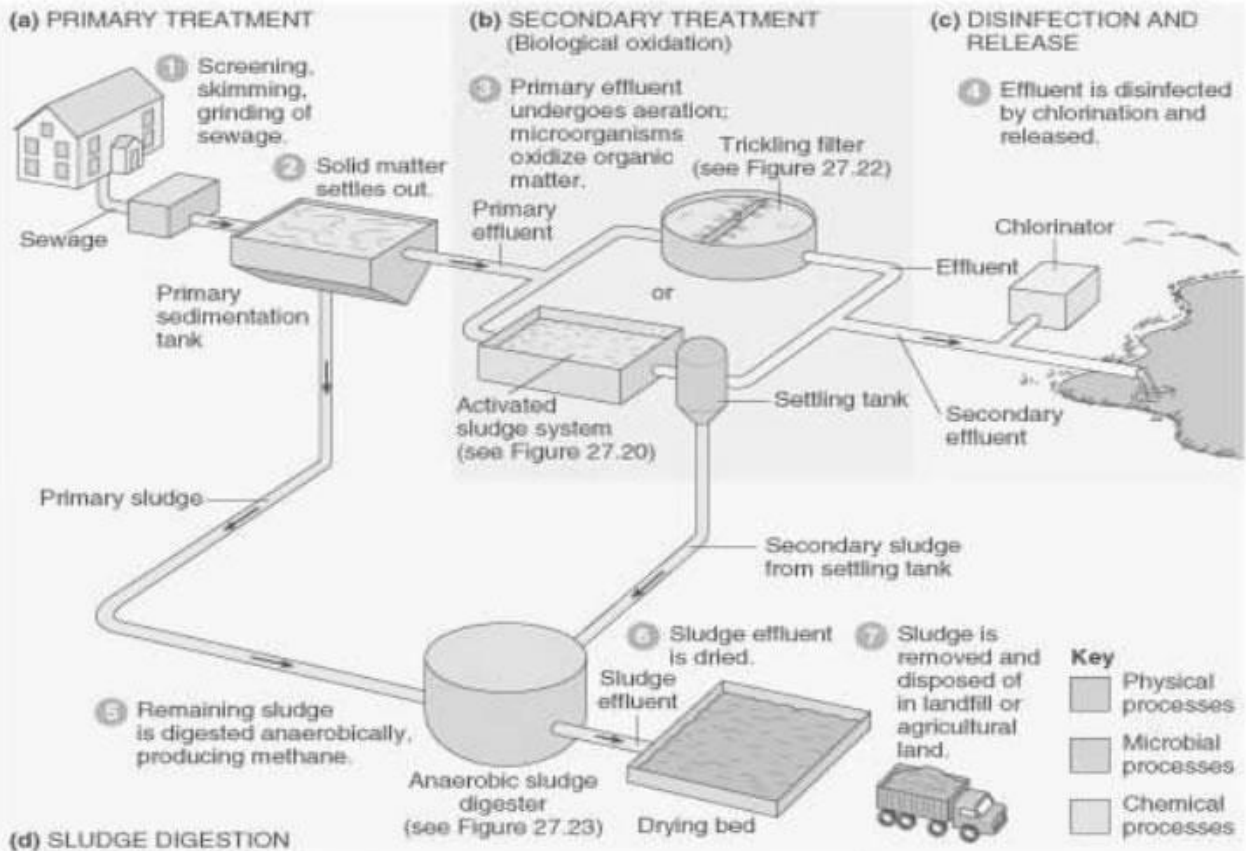
Sub. Biology

Class 12th

Date:- 10.01.21

Treatment done in two stages.

- **Primary** : Physical removal of particles large and small by filtration and sedimentation.
- Solids – primary sludge.
- Supernatant – effluent.
- **Secondary** : Primary effluent taken to large aeration tanks.
- Agitated mechanically and air pumped into it.
- Aerobic microbes form masses with fungal filaments flocs.
- Microbes consume organic matter in effluent for growth.
- BOD (Biological oxygen demand) reduced.
- Passed into settling tank.
- Bacterial flocs sedimented (activated sludge)
- Small part of activated sludge used as inoculums in aeration tank.
- Major part pumped into large anaerobic sludge digesters.
- Anaerobic bacteria digest bacteria and fungi.
- Bacteria produce gases such as methane, hydrogen sulphide and CO₂ – Biogas.
- Secondary effluent released into rivers and streams.
- No man made technology available till date.
- Untreated sewage if released into rivers causes pollution.
- Ministry of environment and Forests initiated, Ganga Action Plan and Yamuna Action Plan.



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Biogas plant :-

- Concrete tank 10- 15 meters deep, slurry or dung fed.
- Floating cover placed above rises as biogas content rises.
- Connecting pipe for supply of biogas.
- Used for cooking and lighting.
- **Development by IARI** :- Indian Agriculture Research institute & KVIC : Khadi and village Industries Commission.

Microbes as Biocontrol Agents :

- Insecticides and Pesticides toxic, harmful & are pollutants.
- Natural predation better method.
- No of pests kept in check, not totally eradicated.
- Food chains not disturbed
- Eg. Ladybird and Dragon flies useful to get rid of aphids and mosquitoes.