**CONCEPTS OF BOD,COD AND TOC-**

Biochemical Oxygen Demand(BOD)-

Also called Biological Oxygen Demand(BOD),is the amount of dissolved oxygen needed by aerobic biological organisms to break down organic material present in a given water sample at certain temperature over a specific time period. So, BOD, is the measure of the quantity of oxygen used by microorganisms(e.g., aerobic bacteria) in the oxidation of organic matter. Most of the bacteria in the aquatic water column are aerobic. That means they use oxygen to perform their metabolic activities of decomposition. If the dissolved oxygen concentration drops below 5 ppm(parts per million),fishes will be unable to live for a long time.

Lesser the BOD, lesser the water will be polluted. If the BOD of any water body is high then the aquatic animals will not be able to survive in it.

The BOD value is most commonly expressed in milligrams of oxygen consumed per litre of sample during 5 days of incubation at 20oC.

What happens? What is the process…..

INCREASED POLLUTION IN WATER.

EXCESS GROWTH OF ALGAE RESULTS IN ALGAL BLOOMS.

PLANTS(ALGAL BLOOMS) GROWTH AND DECAY MAY BE UNNATURALLY ACCELERATED WHEN NUTRIENTS AND SUNLIGHT ARE OVERLY ABUNDANT DUE TO HUMAN INFLUENCE.

OXYGEN CONSUMED IN THE DECOMPOSITION PROCESS OF DEAD ALGAE ROBS OTHER AQUATIC ORGANISMS FROM THE WATER BODY.

SUMMARY:

When excess growth of algae occurs in any water body then, the algae eventually starts to decay. Now when algae decays the number of bacterial population increases for the completion of the process of decaying (decomposition) of the dead algae. Every water body has a limited (fixed) amount of oxygen concentration; when the growth of bacterias takes place and the rate of decomposition also increases then the oxygen deficiency occurs in that particular water body.

Total Organic Carbon(TOC)-

TOC is the term used to describe the measurement of organic contaminants in a water system.

Organic comtamination can come from a variety of sources, since “organics” are compounds such as sugar, sucrose, alcohol, petroleum, PVC cement, plastic based derivatives etc.Organics may result from the formation of biofilms in the water system.

Chemical Oxygen Demand(COD)-

COD is the total amount of oxygen required to chemically oxidize the biodegradable and non-biodegradable organic matter. The waste material which cannot be broken down into non-poisonous or harmless substances in nature are called non-biodegradable waste.e.g., plastics, polythene bags, synthetic fibres and glass objects.

Examples of biodegradable wastes are human and animal wastes. Plant products, wood, paper, food waste, leaves, grass etc.

COD often is used as a measurement of pollutants in wastewater and natural waters.

**So, these tests are used to estimate the amount of organic matter present in the water sample. That is why it determines the strength of sewage in liquid waste management.**