1. Environment constitutes air, water, soil, plants and atmosphere around us.
2. The branch which deals with the relationship between living organisms and environment is called environmental chemistry.

EFFECTS OF POLLUTION:

a) Due to London Smog nearly 3000-4000 people died.
b) Many people in japan have suffered from a disease called "Minamata", a disease that spread after eating fish in Minamata Island, as the island waters were contaminated with mercury.
c) In 1984, thousands of people were killed by the gas, methyl isocyanate (MIC), which leaked from union carbide factory at Bhopal.
d) Many buildings in Italy and Rome are getting destroyed by the acid rain
e) The Meditarian sea turned into "dead sea" is unable to support aquatic life.
f) A special board has been established to purify the holy river Ganges in India.
g) The dangerous radiations from the radio active fall out of reactors and testing of nuclear weapons creating problems in the air.
h) The beauty of Taj Mahal is decreasing due to air polution.
i) In the second world war lakhs of people died in Hiroshima and Nagasaki cities of Japan due to atom bomb.
j) Nuclear pollution gave more effect to the people at Chernobil in Russia.
k) The accident in the oil refinery of HPCL near Visakhapatnam.
l) The accident of ONGC wells which allowed the gas gushing out and burn for months near"Konaseema" in East Godavari District. It is called "blow out".
m) In 1991, during the Gulf war some millions of litres of oil was thrown into the sea. Due to the formation of a film on the water many birds and animals died.
n) The accidental fire which burnt the forests in Indonesia caused heavy damage to the near by islands.

DEFINTION OF TERMS:

a) Pollutant: A substance which is present in the nature and which grows in quantity due to human activity and has adverse effect on environment is called as pollutant.

Ex: CO, SO_2, lead in mercury etc.

b) Contaminant: A substance which is not present in nature, but released due to human activity and has an adverse effect on environment is called as contaminent.

Eg: The killer gas methly isocyanate (MIC) leaked from union carbide factory in Bhopal.

c) Receptor: The medium which is effected by pollution is called receptor.

d) Sink: The medium which reacts with the pollutant and minimises the effect of pollution is called sink.

1) Micro organisms which eat the dead animal or which convert the dry leaves and garbage into fertillizers.
2) Sea water is a big sink for carbondioxide.
   Plants are also good sink for CO_2.

Speciation: Categorisation of various pollutants as per the degree of their toxicity is called speciation.

Alkylated mercury is more toxic than mercury. Mercury compounds are more poisonous than lead.

Dissolved Oxygen (D.O.)

i) The amount of oxygen present in water in dissolved state is called dissolved oxygen (D.O)
ii) The amount of oxygen required for the healthy growth of plants and animals in water is 4-6 mg/litre.
iii) The D.O. value in water is less than 5 ppm, then the water is said to be polluted.
   Higher the DO value, lower is the pollution of water and vice versa.
vi) When temperature increase D.O. value decreases.
vii) D.O. value is used to estimate the extent of pollution.

Biochemical Oxygen Demand (B.O.D):

i) The amount of oxygen used by the microorganisms present in water for five days at 20^0C is called as B.O.D.
ii) For pure water B.O.D. value is 3 ppm.
iii) Impure water has higher B.O.D.value i.e.>3 ppm
iv) The municipal sewage has BOD value of 100 - 4000 ppm.
v) Higher BOD of water leads to death of plants, fish, aquatic fauna.
vi) Thus higher the BOD, higher is the pollution.

Chemical Oxygen Demand (COD):

i) The amount of oxygen required to decompose organic matter present in water is called as chemical oxygen demand (COD).
ii) COD value is an important parameter for determination of quality of water.
iii) The above O_2 is available from 50% acidified potassium dichromate
iv) Higher the COD value, higher is the pollution
v) COD value is also useful to determine the extent of pollution of H_2O.

Determination of COD or BOD value:

- COD or BOD is expressed in ppm.

- It is the number of parts by weight of O_2 required for 1 million Parts by weight of water. or It is the number of mg of O_2 required per litre of water
- COD or BOD in ppm = $\frac{\text{weight of } O_2}{\text{weight of water}} \times 10^6$

Threshold Limit Value (TLV):

i) The minimum level of the toxic substances or pollutants present in the atmosphere, which affect a person adversely when he is exposed to it for 8 hours in a day in the industry is called the threshold limit value (TLV).

ii) TLV indicates the permissible level of the pollutants that can be present in industries or mining areas.