Subject Code : SEJ1:3

ENVIRONMENTAL CHEMISTRY

UNIT – I (15 Hrs)

Environment :

1.1 Introduction – Environment keeps changing – Componets of environment – Factors affecting Environment – Man and environment – Types of environment – Segments of environment.

1.2 Atmosphere – structure of atmosphere- Hydro-sphere - Hydro-logical cycle – Lithosphere – Biosphere.

1.3 Pollution – Poolutants – classification of pollutants Types of pollution.

1.4 Air pollution – Composition of air – Major sources of air pollution – Emissions of major industrial air pollutants – Occupational hazards – Air pollution episode – Classification and effects of air poolutants – particulate emissions – Fly ash Effect and control of particulate emissions – Vehicular pollution – Automobile emissions – Vehicular pollution in Delhi and other cities of India.

1.5 Prevention and control of vehicular pollution – other measures to control vehicular pollution.

UNIT – II (15 Hrs)

2.1 Effects of ozone on man and plants – Effects of photochemical smog on man and plants.

2.2 Greenhouse effect – Major sources and consequences of greet house effect – control and remedial measures of green house effect.

2.3 Chlorofluoro carbons – cause of ozone depletion – Formation of ozone and ozone depletion – Harmful effects posed by CFCS – Beneficial aspects – Deleterious effects – search for alternative technology and substitute chemicals – Effects of ozone depletion.

2.4 Acid rain – formation Adverse effects of acid rain – control of acid rain – prevention and control of air pollution – control of air pollution by fuel selection and utilization – control of air pollution by process modification or equipments – control of air pollution by site selection and zoing.

2.5 General methods of air pollution control by zoing, At source – Devices and equipments – stacks – planting trees and growing vegetation.

UNIT – III (15 Hrs)

Water Pollution :

3.1 Defintion – Types of water pollution – Ground water pollution – Surface water pollution – River water pollution – Sea water pollution.

3.2 Sources of water pollution – sewage and domestic wastes Harmful effects of sewage and

domestic waste – Industrial effluents – Harmful effects of industrial effluents – Agricultural discharges – Fertilizers – Effects of Fertilizer and detergents.

3.3 Thermal pollutants – Effects and classification of Thermal pollutants – Eutrophication – Types of Eutrophication.

3.4 Sources of Pesticide pollutants in water – Bio-degradation of pesticides – Farm waste -
Fertilizers – Bio fertilizers.

3.5 Approaches to prevent and control water pollution – water pollution controls act.

UNIT – IV (15 Hrs)

Soil Pollution :

4.1 Types of soil – Sources of soil pollution

4.2 Detrimental effects of soil pollutants – Effects of industrial pollutants, urban waste products, radioactive pollutants, modern agro technology, pesticides.

4.3 Diseases caused by soil pollution – Methods of minimize soil pollution

4.4 Thermal pollution – Hazardous effects – Effects of Thermal pollution – Control of thermal pollution.

UNIT – V

Radioactive Pollution: (15 Hrs)

5.1 Radiation – Man Made radiations – Sources of radioactive pollution – Natural sources –
Anthropogenic sources – Radio waste generated by Nuclear power plants.

5.2 Harmful effects of Radiation – Effects of ion-ising, Nonionising microwave radiations –
Biological effects of radiation – Dangers from nuclear power plants.

5.3 Prevention measures from radiation – Disposal of radioactive waste – Recent methods to dispose critically dangerous radio waste – other recent disposal methods.

5.4 Noise pollution – Noise – Sources of Noise pollution – characteristics of sound – Effects and Control of Noise pollution – Noise pollution control in India.

BOOKS RECOMMENDED :

1. Environmental Chemistry by Anil Kumar D.E
2. Introduction to Environmental Chemistry by Lacy T.Pryde.
3. Industrial Effluents by N.Manivasakam.
4. Environmental Chemistr by Samir K.Banerji.
5. Environmental Chemistry by B.K.Sharma and H.Kaur.
6. Environmental pollution Analysis by S.M.Khopkar.