

UNIT I: BIOLOGY OF DIFFERENT ENVIRONMENTS

Environment: definition, constituents of environment, types of environment- Abiotic, biotic, social and cultural. General account of biomes and their environments.

Types of Ecosystems: Marine Ecosystem – classification and characteristics and stratification of the ecosystem. Fresh water Ecosystem – classification and characteristic and stratification of the ecosystem.

Energetics of Ecosystem: tropic dynamic view of ecosystem. Energy flow – primary productivity and secondary productivity. Factors influencing productivity. Biomagnification.

Estimation of Energy Budget and Methods of measuring productivity for different Ecosystems – harvesting method, CO₂ assimilation method, oxygen production method, chlorophyll method.

Concept of Pollution: Aquatic Pollution: Effect of pollutants (Local and Global); Agricultural waste and Air: Source, Types, composition, impact, treatment and disposal.. Heavy Metal Pollution: Hg, Pb, Cd, Cr as sources, Impact on biota, Disposal

Role of environmental epidemiological studies and health indices in evaluation of environmental health hazards. Environmental epidemiological episodes in India and abroad.

Environmental Impact Assessment (EIA): Environmental impact on human actions, responses of society, Administrative procedures, What should an EIA do? Methods for EIA assessment, Socio-economic effects and impacts. Environmental Laws.

Bioremediation: Need and scope of Bioremediation, environmental applications of bioremediation.

Phytoremediation – Biotechnological cleaning up of the environment by plants using Biotechnological methods.

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