

DGE 3

AQUATIC BIOLOGY

THEORY

(Credits 4)

Unit 1

Freshwater Biology

- 1.1 Brief introduction to aquatic biomes
- 1.2 Freshwater ecosystem, estuaries, intertidal zones
- 1.3 Different stages of stream development, physiochemical environment
- 1.4 Adaption of hill stream fishes

Unit 2

Freshwater Biology II

- 2.1 Lakes: Origin and classification
- 2.2 Lake as an Ecosystem, Lake morphometry,
- 2.3 Physico-chemical Characteristics
- 2.4 Nutrient Cycles in Lakes- (Nitrogen, Sulphur and Phosphorous)

Unit 3

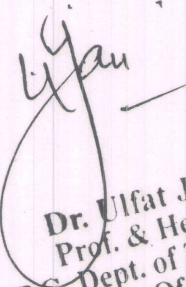
Marine Biology

- 3.1 Oceanic pelagic zone and marine benthic zones
- 3.2 Salinity and density of Sea water, Continental shelf
- 3.3 Adaptations of deep sea organisms
- 3.4 Coral reefs, Sea weeds.

Unit 4

Management of Aquatic Resources

- 4.1 Causes of pollution: Agricultural, Industrial, Sewage, Thermal and Oil spills,
- 4.2 Eutrophication, Management and conservation (legislations)
- 4.3 Sewage treatment
- 4.4 Water quality assessment- BOD and COD.


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AQUATIC BIOLOGY

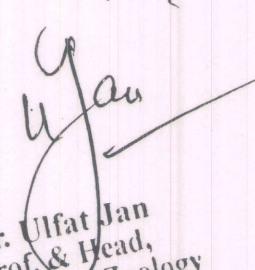
PRACTICAL

(Credits 2)

1. Determine the area of a lake using graphimetric and gravimetric method.
2. Identify the important macrophytes, phytoplanktons and zooplanktons present in a lake ecosystem.
3. Determine the amount of Turbidity/transparency, Dissolved Oxygen, Free Carbon dioxide, Alkalinity (carbonates & bicarbonates) in water collected from a nearby lake/ water body.
4. Instruments used in limnology (Secchi disc, Van Dorn Bottle, Conductivity meter, Turbidity meter, PONAR grab sampler) and their significance.
5. A Project Report on a visit to a Sewage treatment plant/Marine bioreserve/ Fisheries Institutes.

SUGGESTED READINGS

- ☐ **Anathakrishnan** : Bioresources Ecology 3rd Edition
- ☐ **Goldman** : Limnology, 2nd Edition
- ☐ **Odum and Barrett** : Fundamentals of Ecology, 5th Edition
- ☐ **Pawlowski** : Physicochemical Methods for Water and Wastewater Treatment, 1st Edition
- ☐ **Wetzel** : Limnology, 3rd edition
- ☐ **Trivedi and Goyal** : Chemical and biological methods for water pollution studies
- ☐ **Welch** : Limnology Vols. I-II


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