B.sc. FISHERIES BIOLOGY SYLLABUS UNDER CBCS

(With effect from 2016-2017)

V-SEMESTER

PAPER VI- WATER QUALITY MANAGEMENT (Theory)

Max Marks:75

UNIT-I Water quality, fertilizers and manures , liming and Dynamics of dissolved oxygen.

1.1 Water quality: constituents of water quality parameters,-optimal levels and their management in fresh water fish.

1.2 Fertilizers and manures : Different kinds of fertilizers and manures ,fertilizer grade source, rate and frequency of application; Ecological changes taking place after fertilizing.

1.3 Bio fertilizers : Role of inorganic, organic and biofertilizers in aquaculture Practices; Utilization of bioactive compounds by micro organisms.

1.4 Liming: properties of liming materials, lime requirements and application of liming materials to ponds, effects of liming on ecosystem.

1.5 Dynamics of dissolved oxygen : Dial changes in dissolved oxygen concentration ,

1.6 oxygen budget of culture ponds ; algal die – off, overturns,

1.7 identification of oxygen problems.

UNIT-II Aeration, and Hatchery management

2.1 Aeration : principles aeration ,emergency aeration, desertification and Practical considerations.

2.2 Hatchery management: Fish hatchery protocols, seed rearing technology;

2.3 Packaging and transport of seed ,,shrimp hatchery –Larval rearing; culture and use of different live feed; different chemicals and drugs used ; water quality and feed management.

2.4 water discharge standards: effect treatment in hatcheries.

UNIT-III Aquatic weed management and pollution during aquaculture practices.

3.1 Aquatic weed management: Common weeds and problems in culture ponds; Chemical, biological And mechanical control methods: Algal bloom Control.

3.2 Chemical treatment; potassium permanganate, hydrogen peroxide, calcium hydroxide;

3.3 Reduction of pH, control of turbidity, salinity ,hardness, Chlorides, water exchange, Chlorine removal; rotenone, formalin and malachite green;

3.4 Methods of applying chemicals.

3.5 Pollution in relation to aquaculture practices.

REFERENCE BOOKS

1. Adhikari S & Chatterjee DK. 2008. *Management of Tropical Freshwater Ponds*. Daya Publ.
2. Boyd CE and Tucker CS. 1992. *Water Quality and Pond Soil Analyses for Aquaculture*. Alabama Agricultural Experimental Station, Auburn University.
3. Boyd CE. 1979. *Water Quality in Warm Water Fish Ponds*. Auburn University
4. Boyd, CE. 1982. *Water Quality Management for Pond Fish Culture*. Elsevier Sci. Publ. Co.
5. Hepher B & Pruginin Y. 1981. *Commercial Fish Farming*. John-Willey & Sons Inc.
6. Jhingran VG. 1982. *Fish and Fisheries of India*. Hindustan Publishing Corporation, India.
7. Midlen & Redding TA. 1998. *Environmental Management for Aquaculture*. Kluwer.
8. Pillay TVR & Dill WMA.1979.*Advances in Aquaculture*. Fishing News Books, Ltd.England.
9. Rajagopalsamy CBT & Ramadhas V. 2002. *Nutrient Dynamics in Freshwater Fish Culture System*. Daya Publ.
10. Sharma LL, Sharma SK, Saini VP & Sharma BK. 2008. *Management of Freshwater Ecosystems*. Agrotech Publ. Academy.
11. Stickney RR. 1979. *Principles of Warm water Aquaculture*. John-Willey & sons Inc.
12. Tucker C.S. 1985. *Channel Catfish Culture*. Elsevier.

Practical-30 Marks

1 Types of Aerators.

2 Studies of fish breeding and gamete preservation. Method to identify quality seeds- stress test and microscopic examination.

3 Design and construction of fish hatcheries.

4 Freshwater fish identification – tagging – different types of tags.

5 Visit to nearest freshwater body; catching methods – catch data analysis on major freshwater resource – Estuaries - Reservoirs.

6 Types of weeds and treatment.

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