

**B.sc. FISHERIES BIOLOGY SYLLABUS UNDER CBCS
(With effect from 2016-2017)
V-SEMESTER
PAPER V-FISH PATHOLOGY(Theory)**

UNIT I – Viral and Bacterial diseases

Max .Marks:75

- 1.1 viral hemorrhagic septicemia. clinical symptoms , pathology and control measures.
- 1.2 Koi Herpesvirus clinical symptoms, pathology and control measures.
- 1.3 Infections haematopoietic necrosis virus clinical ,pathology and control measures.
- 1.4 Aquabrinavirus and betadona virus clinical symptoms ,pathology and control measures.
- 1.5 Gil ,Tail Rot and Fin Rot Dropsy and Red pest diseases –clinical symptoms, Pathology ,prevention and control measures.

UNIT II-Fungal, protozoan, and Helminthes diseases.

- 2.1 columnris- Mouth fungus clinical symptoms Pathology Prevention and control measures
- 2.2 epizootic ulcerative syndrome (EUS),clinical symptoms and treatment of EUS.
- 2.3 clinical symptoms, Pathology ,Prevention and control measures of Lagenidium diseases(Larva Mycosis) and Brown gill diseases.
- 2.4 Velvet, Rust –Gold Dust Diseases-clinical symptoms, and control measures.
- 2.5 Brooklynellosis , Hexamita and Costia Clinical Symptoms, Pathology and control measures.

UNIT-III Crustacean, Nutritional and Ecological diseases.

- 3.1 ichthyophthiriasis, Enterococcidiasis, whirling disease and Nodular disease. Clinical Symptoms , Pathology and control measures
- 3.2 Gyrodactylosis, Dactylogyrosis, Argulosis and Lernaeasis diseases-clinical symptoms, pathology and control measures.
- 3.3 Diseases of vitamin deficiency and Fatty liver degeneration.
- 3.3 Carbohydrates, proteins and lipid deficiency diseases in fish.
- 3.4 Gas bubble diseases and lack of oxygen –clinical symptoms ,pathology and control measures .
- 3.5 Environmental stress on outbreaks of infections diseases of fishes.

REFERENCE BOOKS

1. Cheng TC. 1964. *The Biology of Animal Parasites*. W.B. Saunders Company, Philadelphia, Pennsylvania, USA.
2. Conroy CA and Herman RL. 1968. *Text book of Fish Diseases*. TFH (Great Britain) Ltd, England.
3. Lightner DV. 1996. *A Handbook of Shrimp Pathology and Diagnostic Procedures for Diseases of Cultured Penaeid Shrimp*. World Aquaculture Society, Louisiana, USA.
4. Reichenbach KH. 1965. *Fish Pathology*. TFH (Gt. Britain) Ltd, England.
5. Ribelin WE and Migaki G. 1975. *The Pathology of Fishes*. The Univ. of Wisconsin Press Ltd, Great Russel Street, London, UK.
6. Shuzo Egusa. 1978. *Infectious Diseases of Fish*. Oxonian Press Pvt. Ltd. New Delhi.
7. Van Duijn, C. 1973. *Diseases of Fishes*. Cox and Wyman Ltd. London.

Practicals-30 Marks

1. Isolation and maintenance of bacteria from fishes and water.
2. Examination of moribund fish for viral and bacteria diseases; Sampling techniques,
3. Microbial identification Enumeration of bacteria on fish by TPC method
4. Histopathological observation of diseases fish organs.
5. Identification of various finfish / shellfish disease
6. Parasite in fishes, protozoan, helmiths, crustaceans
7. Prophylaxis for the prevention of outbreak of fish disease
8. Processing and study of the arthropods and their larval stages, staining and study of the protozoans Fixation and staining of protozoa, examination of biopsy material, examination of tissue sections for parasites.

Sadia Begum