B.Sc., Honours in AQUACULTURE: MAJOR
w.e.fAY2023-24onwards COURSE
DEPARTMENT OF AQUACULTURE & ZOOLOGY
SEMESTER –II

Taxonomy and Functional Anatomy of Fin Fish and Shellfish

Unit I: General characters & Classification of Cultivable fin fish and shell fish

1.1General Characters of Crustacea
1.2Classification of Crustacean: Major groups up to orders and their important characters.
1.3General Characters of fishes
1.4Classification of Fishes: Major groups up to subclass and their important characters.

Unit 2: Digestive and Respiratory systems of Fish and shell fish

2.1: Digestive system of fish
2.2Respiratory system of fish
2.3 Digestive system of Prawn
2.4 Respiratory system of prawn

Unit 3: Circulatory systems of Fish and shell fish

3.1 Cardiovascular system: Structure of heart in fishes
3.2 Blood vascular system in prawn

Unit 4: Nervous system of Fish and shell fish

4.1 Nervous system in fish: Structure and functions of Brain
4.2 Central Nervous system in prawn.

Unit 5 Reproductive system of Fish and shell fish

5.1 Urino-genital system in fishes
5.2 Reproductive system in prawn

PRACTICAL SYLLABUS

1. Study of mouth parts in herbivorous and carnivorous fishes
2. Comparative study of digestive system of herbivorous and carnivorous fishes
3. Demonstration of brain of fish
4. Demonstration of cranial nerves of fish
5. Demonstration of Nervous system of prawn
6. Exposure of gills of prawn
7. Exposure of gills of fish

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DEPARTMENT OF AQUACULTURE & ZOOLOGY
SEMESTER –II

Biology of Fin Fish & Shellfish

UNIT- I: Specialised organs in fish

1.1 Sense organs of fishes and crustaceans .
1.2 Specialized organs in fishes – electric organ, venom and toxins
1.3 Buoyancy in fishes- swim bladder and mechanism of gas secretion
1.4Fish and Crustaceans of commercial importance

UNIT- II: Food, Feeding and Growth

2.1 Natural fish food, feeding habits, feeding intensity, stimuli for feeding, utilization of food, gut content analysis, forage ratio
2.2 Principles of Age and growth determination; growth regulation, Growth rate measurement – scale method, otolith method, skeletal parts as age indicators
2.3 Length-frequency method, age composition, age-length keys, absolute and specific growth, back calculation of length and growth, annual survival rate,
2.4 Length-weight relationship.

UNIT- III: Reproductive Biology

3.1 Breeding in fishes, breeding places, breeding habits & places, breeding in natural environment and in artificial ponds, courtship and reproductive cycles
3.2.Induced breeding in fishes 3-3 Breeding in shrimp, oysters, mussels, clams, pearl oyster, pila, and cephalopods.

UNIT- IV: Development

4.1.Parental care in fishes, ovo-viviparity, oviparity, viviparity, nest building and brooding
4.2 Embryonic and larval development of fishes
4.3 Embryonic and larval development of shrimp, crabs and molluscans of commercial importance
.4 Environmental factors affecting reproduction and development of cultivable aquatic fin & shell fish

UNIT- V: Hormones & Growth.

1.1 Endocrine system in fishes.
1.2 Neuro-secretory cells, androgenic gland, ovary, chromatophores,
1.3 Molting, molting stages, metamorphosis in crustacean shell fish

PRACTICAL SYLLABUS

1. Length-weight relationship of fishes
2. Gut content analysis in fishes and shrimp
3. Mouth parts and appendages of cultivable prawns, shrimps and other crustaceans
4. Study of eggs of fishes, shrimps, prawns and other crustaceans
5. Study of oyster eggs
6. Embryonic and larval development of fish
7. Study of gonadial maturity and fecundity in fishes and shellfish
8..Observation of crustacean larvae 9.Study of nest building and brooding of fishes