FACULTY OF SCIENCE BSc I YEAR SEMESTER – I FISHERIES SYLLABUS THEORY MODULE /PAPER – I ECOLOGY AND BIOLOGY OF FISHES -I

60 hours (4 hrs/week) Max Marks : 100

UNIT –I

1.0 Introduction to fishery Science -I

- 1.1. Introduction, definition, scope and importance of fisheries
- 1.2. classification of fisheries

UNIT –II

2.0 Introduction to fishery Science -II

- 2.1. History of fisheries
- 2.2. Prospects and perspectives of fisheries in India
- 2.3. Present status of fisheries in India

UNIT –III

3.0. Ecology of water bodies - I

- 3.1. Ecology of lentic and lotic ecosystems Reservoirs, Ponds, Rivers and Estueries
- 3.2. Ecosystem energies and productivity Energy flow, Tropic levels, Pyramids, biogeochemical cycles, eutrophication

UNIT-IV

4.0. Ecology of water bodies II

- 4.1. Physico-chemical characters of water and soil of freshwater and brackish water systems
- 4.2. Population dynamics Population characterstics, Dynamics of fish populations, Significance of planktons in aquaculture
- 4.3. Aquatic pollution and its effect on fisheries



FACULTY OF SCIENCE BSc (FISHERIES) I YEAR SEM - II THEORY SYLLABUS W.E.F.2019-20 MODULE/PAPER - II FISHERIES BIOLOGY

60 HOURS (4 hrs/week)

Max Marks: 100

<u>Unit – I</u>

- 1.1. Fins and their origin Median fins, Caudal fin, Paired fins structure of the fin ray. Grill arch theory.
- 1.2. Scales- structure and types.
- 1.3. Skeletal system- Vertebral column, trunk vertebra, complex vertebra, caudal vertebrae, pectoral girdle, pelvic girdle.
- 1.4. Digestive system of fish Mouth, teeth, Taste buds, gill rakers, murul secretins cells, pharynx,oesophagus, stomach, pylorus, pyloric caeca, pancreatic tissue(Exocrine and endo crine),liver, gall bladder, intestine, rectum and anus. Food & Process of digestion.

<u>Unit – II</u>

- 2.1. Cardio vascular system- structure of heart, working of the heart, arterial system, venous system and blood
- 2.2 Respiratory system of fish Respiratory organs, structure of a teleostean gill. Gill epithelium & branchial glands, Gill area, vascular supply of a teleost gill,
- 2.3. Mechanism of respiration. Other respiratory organs, Accessory respiratory organs, Origin and significance of Accessory respiratory organs .Psuedobranch, its structure and functions

<u>Unit – III</u>

3.1. Reproductive system, Spawning, rhythm and larval development – Male reproductive organs, Histology of testis, seasonal changes in the testis, Interstitial and the lobule boundary cells, Female reproductive organs, Maturation and spawning, Maturity stages in female fish, Follicular atresia, Nonhyertropic atresia, Causes and functional significance of atresia. The discharged follicle, Length and weight relationship and condition factor,



Ovulation and fertilization, Eggs, Fecundity, Migration for spawning, development Hatching and post embryonic development and larval development.

- 3.2 Nervous system- Fore brain, mid brain, hind brain, spinal card, cranial nerves of Labeo.
- 3.3. Sensory system Olfactory rosette Organs of smell , water current ,functions, Taste buds, eye, membranous labyrinth, , the lateral line system and electro receptors.

<u>Unit – IV</u>

- 4.1. Excretory system Structure and Histology of the kidney
- 4.2. Osmoregulatory system- Osmoregulation in fresh water & marine fishes ,Control of Osmoregulation.
- 4.3. Sex dimorphism, Courtship and Parental care in fishes (Nest building, vivi parity). Role of hormones. Evolution of mating system



FACULTY OF SCIENCE BSc (FISHERIES) I YEAR SEM – II PRACTICAL SYLLABUS W.E.F.2019-20 MODULE/PAPER - II FISH BIOLOGY

- I. Identification of fish species -Morphometry
- 1. identification of body shape
- 2. Measurement of general body plan of carp Total length of the body, Standard length of the body, Body depth, Head length, Eye diameter, Snout length, Length of the caudal peduncle, Depth of the caudal peduncle
- 3. Fin and derivation of fin formula Disposition of the fin formula, Fin rays and fin formula
- 4. Scales and derivation of scale formula
- II. Study of important cultivable fresh water fishes carps
- 1. Catla catla 2. Labeo rohitha, 3. Cirrhinus mrigala 4. . Hypopthalmicus molitrics
- 5. Cyprinus carpio 6. Ptenopharyngidon idella
- III. Identification of cultivable freshwater Prawns
- 1. Macrobrachium rosenbergii 2. Macrobrachium malcomsonii
- IV. Dissections
- 1. Male reproductive system of carp
- 2. Female reproductive system of carp



FACULTY OF SCIENCE BSc (FISHERIES) I YEAR SEM – II PRACTICAL SYLLABUS W.E.F.2019-20 MODULE/PAPER - II FISH BIOLOGY

MODEL PAPER

Time : 3 hours		Ma	Max Marks : 80	
	I). Answer the following Questions	s. Any two questions from each compulsory	y 8 x 4 = 32 Marks	
	A. 1			
	2.			
	3			
	B. 4			
	5			
	6			
	C. 7			
	8			
	9			
	D. 10.			
	11.			
	12.			
	II). Answer the following questior	15	4 x 12 = 48 Marks	
	13 a).			
		OR		
	b).			
	14 a).			
		OR		
	b).			
	15 a).			
	0	R		
	b).			
	16 a).			
	0	R		
	b).			