

SYLLABUS FOR ASSISTANT FISHERY INSPECTOR**1. Fish Biology:**

- 1.1. Classification, Structure and Physiology of Freshwater fish.
 - 1.1.1. Introduction & brief account of External and Internal anatomy of typical freshwater fish.
 - 1.1.2. Taxonomy and classification of fishes and brief account on the identification of commercially important fishes, special emphasis on characters for easy field identification.
 - 1.1.3. Brief account of the physiology of locomotion, digestion, respiration, Circulation, excretion and reproduction of fishes.
 - 1.1.4. Study hard parts- scale, spine & otolith for determination of age.
- 1.2. Brief account of natural habitat, distribution, food and feeding habit, growth, maturity, fecundity, breeding and economic importance of the following species.

Indian major carps: Catlacatla, Labeorohita, Labeocalbasu and Chirrhinamrigala.

- 1.2.1. Exotic carps: -Hypophthalmichthys molitrix (Silver carp), Ctenopharyngodon Idella (Grass carp), Cyprinus carpio (Common carp).
- 1.2.2. Game fishes: Tor putitora, Tor tor.
- 1.2.3. Air breathing fishes: Clariasbatrachus, Heteropneustesfossilis, Channa sps., Anabas testudineus, Notopteruschitala, Notopterusnotopterus.
- 1.2.4. Cat fishes: Wallago attu
- 1.2.5. Other local varieties of fish: Osteobramabelangeri, Monopterus alba, Schizothoraxspp etc.

2. Inland Capture Fisheries:

- 2.1. Riverine fisheries: Present production and potential of major river System of India, conservation, improvement, exploitation and problem of riverine fisheries.
- 2.2. Cold water fisheries of hill streams: Principal species, suitable indigenous fish fauna - lines of development.
- 2.3. Reservoir Fisheries Development of reservoir and lacustrine fisheries, under exploitation and commercial exploitation, management and problem of reservoir fisheries, Dams, Weirs and passer type of passes, behaviour of fish in relation to migration.

3. Fishery Engineering:

- 3.1. Selection of fish farm site, their objectives & significance, topography landscape & contour survey, catchment area, source of water, soil classification & properties, high flood level, low level, measurement of length, breadth, area & volume, erosion, seepage los, evaporation loss, Surface run off communication, transportation & marketing facility, storage facility.

3.2. Designing: Pond- Types of ponds, Design of Fish Farm, Map Drawing, Design of Bundh, interbundh, approach road, protection, fencing, watchmen tower cum garage office cum godown, net drying hall, dewatering & rewatering by gravitational force of water.

3.3. Construction: Pond Dyke, Free board, Berm, Turfing, stone pitching, Feeding channel, ring bundh, cemented pond, overhead tank, drains, siphons, inlet, outlet, Fish screens, Sluice gate, siltation, boring, filtration, waste weir, anicut, Dam, Mini barrage or earthen dam, cross section of pond, Bund & Dyke, Levelling instruments in Fish Farm Engineering

3.4. Renovation of Pond, side slopes dressing & pitching, dewatering, desiltation, Annual repair, Major repair.

3.5. Reclamation of swamp: Line fixation, staking of Dykes, preparation of bund with locally available materials, preparation of pond and water exchange.

PART- II

Inland Culture Fisheries and Technique of Fish Seed Production

1. Inland Culture Fisheries:

1.1. Management

1.1.1. *Nursery Pond Management*

1.1.1.1. Technique, shape and size, nursery pond, pre-stocking management.

1.1.1.2. Control of Aquatic weeds- weed types, identification, de-weeding & control methods, etc.

1.1.1.3. Liming & manuring dose, method of application, etc., plankton identification, assessment of plankton, production etc.

1.1.1.4. Control of Aquatic insects- identification of harmful insects, control methods, material & doses etc.

1.1.1.5. Spawn stocking and supplementary feeding, spawn transfer & duration or stocking, different types of feed and dose, etc. Post stocking management.

1.1.1.6. Harvesting of Fry and transfer, duration of stocking.

1.1.2. *Rearing Pond Management.*

1.1.2.1. Shape and size of rearing pond, pre & post stocking management of rearing pond.

1.1.2.2. Pre- stocking and duration of stocking, supplementary feeding and doses etc.

1.1.2.3. Harvesting of fingerlings, methods of packing & transportation, acclimatization.

1.1.3. *Stocking Pond Management*

1.1.3.1. Fingerling stocking, duration of stocking, supplementary feeding and dose, etc.

1.1.3.2. Harvesting of fingerlings, transportation of live fish and stock transfer.

1.2. Fish Pathology-Common fish diseases and their preventive and remedial measures.

1.3. Different Culture Types.

1.3.1. Monoculture & polyculture, advantage & disadvantage, stock density, manipulation etc, harvesting and economics.

1.3.2. Intensive or composite Fish culture, principle, species cultures & specific characters, stocking density, specie ratio, manipulation etc, harvesting and economics.

1.3.3. Integrated fish farming, principle, species cultured & packing ratio, manipulation etc, harvesting etc.

1.3.3.1. Fish cum paddy culture

1.3.3.2. Fish cum duck rearing

1.3.3.3. Fish cum pig rearing

1.3.3.4. Culture of air breathing fishes

1.3.3.5. Cage culture

1.3.3.6. Fresh water prawn culture

1.3.3.7. Eel culture

PART- III

1. Technique of Fish seed production:

1.1. Natural spawning of Indian major carps, factors responsible for breeding, location of breeding ground, collection of spawn, net & technique, transport technology, wild breeding & controlled breeding.

1.2. Bundh breeding technique, wet and dry bundh, construction and preparation techniques, breeding and method of egg/spawn collection.

1.3. Breeding of common carps (*Cyprinus carpio*), selection of breeding, breeding techniques, preparation of egg, collectors or kakabans etc.

1.4. Induced breeding techniques of Indian major carps and Chinese carps, carp selection and identification of gravid breeders, chronological steps of the breeding techniques, pituitary gland and collection method, preservation, preparation of pituitary gland extract, administration of PG hormone, factors responsible for breeding, etc. breeding hapa, hand net, induced breeding equipment, collection of eggs, transfer of eggs.

1.5. Hatching techniques and hatchery management, identification of viable and dead eggs, fertilization rate, stages of development from egg to spawn, period of

hatching, Spawn collection technique, economics of fish seed productions, hatching hapa, hatching in controlled environment, glass jar hatchery and other modern hatcheries.

2. Aquaculture:

- 2.1. Present status, prospects, perspective and limitation for future developments.
- 2.2. Commercially viable schemes for aquaculture.

PART-IV FISHERY TECHNOLOGY

1. Inland Fishing crafts:

- 1.1. General definition of Fishing craft, classification of Fishing craft, principal dimension and terminologies, Indian boat types, Inland Fishing crafts of Manipur,
- 1.2. Boat building material- Selection of boat building material, seasoning, storage and use of timbers in boat building, treatment of timbers, modern materials used in boat building, type of construction and joints, timbers used in Manipur.

2. Inland Fishing Gears:

- 2.1. Principles of fishing gear, classification- Main fishing gears used in Inland waters, method of operation, preservation of fishing gears.
- 2.2. Fishing gear materials and synthetic material, properties of fibers, types of fibers, yarn, and numbering system of yarn.
- 2.3. Construction of twines and ropes- twist, direction of twist, braided netting twines and ropes.
- 2.4. Specification of twines and ropes- methods of specification.
- 2.5. Fishing gears accessories- Floats, sinkers, etc.

PART- V

Fishery Administration, Cooperative, Marketing, Extension

1. Fisheries Administration:

- 1.1. Objective and organization of fishery administration.
- 1.2. Fisheries administration in India, machinery at the centre and at the states.
- 1.3, Fisheries law and legislation.

2. Fishery Cooperative:

- 2.1. Fishery Cooperative in India, multipurpose and specialization, aim and objective and organization.

2.2. Problems of Fishery cooperative in India and scope for improvement, socio economies.

2.3. Fishermen communities and their socio-economic status, schemes to improve the socioeconomic condition of fishermen.

3. Marketing:

3.1. General Principal of Marketing, physical facilities for marketing.

3.2. Problems of marketing practices in vogue and improvement, necessary in transport, handling and distribution.

4. Fishery Extension:

4.1. Aim and objective of extension organization.

Fisheries Extension programme and extension technique and methods.

