

**DETAILED SYLLABUS FOR THE POST OF
LAB ASSISTANT IN APEX SOCIETIES OF CO-OPERATIVE SECTOR
INKERALA /MATSYAFED**

**(Category Nos.: 235/2020, 236/2020,
237/2020)**

- 1. Fish Biochemistry and Nutritional Value** - Composition of fish moisture, proteins, lipids, minerals, vitamins and non-protein nitrogen components. Nutritive value of fish – essential amino acids, essential fatty acids, polyunsaturated fatty acids, squalene, peptides, collagen. Vitamins in fish – water soluble and fat soluble- minerals of nutritive importance- macro elements – trace elements. Fish muscle – structure – protein denaturation – changes during heat processing **(10 Marks)**

- 2. Fish Spoilage** - Post-mortem changes in fish–rigor mortis- autolysis, enzymatic spoilage, microbial spoilage, spoilage process - rancidity flavour changes. Freshness quality characteristics of fish – physical chemical- microbial quality -Spoilage indices **(10 Marks)**

- 3. Fish Preservation** - Traditional fish preservation techniques- curing drying, salting, smoking, marinating, fermenting. Modern fish preservation techniques – chilling, freezing, canning, accelerated freeze drying, irradiation. **(10 Marks)**

- 4. Chilling of Fish** - Principles of low temperature preservation. Chilling methods- icing, refrigerated seawater system, chilled sea water system, refrigerated fish rooms, quality standards of ice - icing practices – types of ice – spoilage in chilled fish. **(10 Marks)**

- 5. Freezing of Fish** - Principles of freezing – methods of freezing - types of freezing- slow freezing – quick freezing – individual quick freezing – immersion freezing – air blast freezing – quality changes in frozen fish –

dehydration – fat oxidation– drip loss- frozen storage – transportation of frozen fish- cold chain. (10 Marks)

6. Canning - Principle of canning – thermal death time- canning process types of can – seaming –retortable pouches - spoilage in canned fish botulism (10 Marks)

7. Fish Packaging - Principles of fish packaging - packaging materials – properties – flexible packaging materials – biodegradable packaging materials – vacuum packaging – modified atmosphere packaging - labelling – standards of packaging materials (10 Marks)

8. Fishery By products - Fish meal, fish oil, fish hydrolysate, fish protein concentrate, fish ensilage, isinglass, fish paste, fish pickles, value added fish products battered &breeding – fish wafers, surimi and surimi based value added products. Shrimp shell products- chitin- chitosan, glucosamine hydrochloride, seaweed products. (10 Marks)

9. Quality Control in Fish - Organoleptic quality assessment- sensory, biochemical and microbial quality evaluation – spoilage bacteria and pathogenic bacteria – quality standards of fish and fishery products. Additives in fish- adulterants and prohibited chemicals. (10 Marks)

10. Handling of Fish onboard Fishing Vessels - Landing centres, transportation, sanitation in fishing vessels, landing centres, processing centres. Standard sanitary operating practices, good manufacturing practices, traceability, HACCP, seafood safety standards, role of FSSAI. (10 Marks)