

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

NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper