

ભાગ-૧ અને ભાગ-૨ ના ૧૦૦ મિનિટના સંયુક્ત પ્રશ્નપત્રની પ્રાથમિક કસોટીનો અભ્યાસક્રમ

જાહેરાત ક્રમાંક : ૧૩૭ / ૨૦૧૫-૧૬

જગ્યાનું નામ :- મદદનીશ મત્સ્યોદ્યોગ નિયામક, વર્ગ-૧

ભાગ-૧- સામાન્ય અભ્યાસ

માધ્યમ:- ગુજરાતી

કુલ પ્રશ્નો-૧૦૦

કુલ ગુણ:-૧૦૦

૧.	ગુજરાતની ભૌગોલિક, આર્થિક અને સામાજિક ભૂગોળ
૨.	ગુજરાતનો સાંસ્કૃતિક વારસો-સાહિત્ય, કલા, ધર્મ
૩.	ભારતની અર્થવ્યવસ્થા અને રાજનીતિ
૪.	ભારતનું બંધારણ: (૧) આમુખ (૨) મૂળભૂત અધિકારો અને ફરજો (૩) રાજ્યનિતીના માર્ગદર્શક સિદ્ધાંતો (૪) સંસદની રચના (૫) રાષ્ટ્રપતિની સત્તાઓ (૬) ભારતનું ચુંટણીપંચ (૭) રાજ્યપાલશ્રીની સત્તાઓ (૮) ન્યાયતંત્ર (૯) એટર્ની જનરલ (૧૦) કમ્પ્ટ્રોલર અને ઓડિટર જનરલ (C.A.G.) (૧૧) અનુસૂચિત જાતિ, અનુસૂચિત જનજાતિ અને સમાજના પછાત વર્ગો માટેની જોગવાઈઓ (૧૨) પંચાયતી રાજ (૧૩) નાણા પંચ
૫.	સામાન્ય વિજ્ઞાન
૬.	ગણિતશાસ્ત્ર (૧) સંખ્યાત્મક કસોટી (૨) સામાન્ય બૌદ્ધિક ક્ષમતા અને તાર્કિક કસોટી
૭.	ગુજરાતી વ્યાકરણ (૧) જોડણી (૨) સમાનાર્થી-વિરુદ્ધાર્થી શબ્દો (૩) રૂઢિપ્રયોગો અને કહેવતો (૪) સમાસ (૫) અલંકાર (૬) છંદ (૭) સંધિ
૮.	અંગ્રેજી વ્યાકરણ (૧) Articles, Pronouns, Adjectives, Prepositions, Conjunctions and Question tag. (2) Verb and Tense, Agreement between subject and verb, Gerund, Participles. (3) Model auxiliaries, Usage of can, may, could, should etc. (4) Use of some, many, any, few, a little, since and for. (5) Active and passive voice. (6) Degree of adjectives. (7) Common errors of usage.
૯.	આધુનિક ભારતનો ઇતિહાસ
૧૦.	જાહેરાતમાં દર્શાવેલ જગ્યા અંગેની સામાન્ય ફરજો અને વિભાગની પ્રવૃત્તિની રૂપરેખા અને યોજનાઓ તથા ગુજરાતના વહીવટી તંત્રનું માળખું
૧૧.	ખેલ જગત
૧૨.	તાજેતરનાં મહત્વના બનાવો.

(પાછળ)

**Syllabus for the Preliminary Test for the recruitment of Assistant Director of Fisheries (Technical), Class-I, Advt. no. 137/ 2015-16**

**Total Questions-100      Total Marks- 200      Medium: English**

**1. Aquaculture**

Definition, scope and History of aquaculture. Various Systems of aquaculture. Extensive, semi-intensive, intensive and super intensive aquaculture in different types of water bodies. Pre-stocking and post stocking pond management. Major candidate species and Criteria for selection of candidate species for aquaculture. Water and soil quality in relation to fish production and estimation of productivity. Physical, chemical and biological factors affecting productivity of ponds. Nutrition, health management and economics. Fresh Water aquaculture, coastal aquaculture, Mari culture and brackish water aquaculture.

**2. Aquaculture Engineering**

Land survey, Farm-types and objectives, Location, design and construction of hatcheries, race ways and farm complex. Tide-fed / pump fed farms, creeks, estuarine and marine water source utilization. Open canals and their types. Sluices and gates. Earth work calculation. Design and construction of ponds and dykes. Tidal influences and maintenance; Effect of seepage and evaporation and their control.

**3. Finfish and Shellfish: Anatomy, Taxonomy, Physiology and Biology. Breeding and Hatchery Management. Diseases and Management.**

**4. Fish Nutrition and Feed Technology**

Nutritional requirements of cultivable fish and shellfish. Feed: formulation and manufacturing. Forms, additives, storage, evaluation, Feeding devices and methods. Non-conventional feed ingredients and anti-nutritional factors. Digestive enzymes, feed digestibility. Factors affecting digestibility. Nutritional deficiency diseases.

## **5. Fish Genetics and Breeding**

Principles of genetics and breeding, Gene and chromosome as unit of inheritance, Structure of genetic material. Chromosomal structure and aberrations. Laws of inheritance. Linkage and crossing over. Sex determination. Chromosome and gene manipulation. Population parameters. Gene and genetic frequency. Hardy-Weinberg law and its significance. Inbreeding and its consequences. Selection methods and breeding plans. Heritability and significance.

## **6. Culture of Fish Food Organisms**

Candidate species of phytoplankton and zoo plankton as food organisms of freshwater and marine species. Trophic potentials- proximate composition of live feed. Biology and culture requirements of important live food organisms. Green algae, blue-green algae, spirulina, diatoms, infusoria, rotifers, cladocerans, tubifex, brine shrimp, chironomids. Culture of earthworms, bait fish and forage fish.

## **7. Fish Microbiology and Quality Assurance**

Micro-organisms in fish; intrinsic and extrinsic parameters of fish that affect microbial growth. Characteristics of psychrophiles, halophile and thermophiles, their role in spoilage, food poisoning. Determining incidence and types of microorganisms and their products in fish. Types of spoilage of fish, semi processed and processed fishery products, Indices of fish sanitary quality, Concept of Quality Management; TQM, SSOP, GMP; ISO and Codex Alimentarius; HACCP, Microbiological standards and criteria, BIS and codex standards for fish and fishery products. Process water quality. Fish plant sanitation. Disinfectants, detergents and cleaning schedule. Biochemical Techniques and Instrumentations.

## **8. Fish Products and By-Products Technology**

Principle of fish preservation by different methods. Preservation of fish by traditional methods. Principles and methods of preparation of various fish paste products. Fish muscle structure, myofibrillar protein and their role in elasticity formation. Extruded products. Fish protein concentrate. Fish hydrolysate, partially hydrolyzed and deodorized fish meat, functional fish protein concentrate and their incorporation to various products. Fish meal and oil. Dry reduction and wet reduction methods. Fish maws, shark leather, Chitin, chitosan, fish glue, fish gelatin, isinglass, pearl essence, shark fin rays, beach de mer, and biochemical and pharmaceutical products. Utilization of seaweeds. Diversified fish products. Value addition, HACCP in safe products production. Capture Fisheries, Culture Fisheries, Fisheries Resources of Gujarat.

## **9. Refrigeration and Equipment Engineering**

Fishing vessel auxiliary systems, Fish finding equipments, Fish processing equipments. Different types of ice making machinery, brine tank, brine solution; leak detection arrangements; operation of various machinery used in freezing; machinery for sausage making, canning, fish products, by-products and packaging. Special equipment for freeze-drying; irradiation and cryogenics; general maintenance of freezing plant, cold storage and ice plant.

## **10. Freezing Technology**

Introduction, handling and of preservations fresh fish, Chilling and Freezing of fish, Changes that occur during frozen storage, protective treatments, thawing of frozen fish, Transportation of frozen fish, cold chain, quality control, HACCP in freezing industry.

## **11. Canning and Fish Packaging Technology**

Introduction to canning principle. Historical developments. Containers, Steps in canning, Thermal processing, Fo- value. Canning of

commercially important fishes, shellfishes and other food products-salient features. Retort pouch packing, HTST process and aseptic packing, spoilage of canned foods. Introduction to food packaging-objectives and requirements. Characteristics and testing of various packaging materials. Environmental aspects of food packaging.

## **12. Marine Fisheries**

Basic concepts of Marine Biology. Classification and definition of fishery zones and fishery resources of world. Overview of marine fisheries resources of the world and India. Major exploited marine fisheries of India, their developmental history and present status. Potential marine fishery resources of the India's EEZ. GIS and Remote sensing in marine capture fishery. Ecology and Biodiversity.

## **13. Ornamental Fish Production and Management**

World trade of ornamental fish and export potential. Different varieties of exotic and indigenous fishes. Principles of a balanced aquarium. Fabrication, setting up and maintenance of freshwater and marine aquarium. Aquarium accessories and decoratives. Aquarium fish feeds. Dry, wet and live feeds. Breeding and rearing of ornamental fishes. Broodstock management. Application of genetics and biotechnology for producing quality strains. Management practices of ornamental fish farms. Common diseases and their control. Conditioning, packing, transport and quarantine methods. Trade regulations and wild life act in relation to ornamental fishes.

## **14. Concept of Inland Fisheries, Fishing Craft Technology, Fish Population Dynamics and Stock Assessment, Fishing and Gear technology, Fish Biotechnology and Bioinformatics.**

## **15. Fisheries Extension Education**

Introduction, concepts, objectives and principles; History and role of

fisheries extension in fisheries development. Fisheries extension methods, important TOT programs in fisheries, role of NGOs and SHGs in fisheries; Fisheries co-management; Adoption and diffusion of innovations, adoption and diffusion process, adopter categories and barriers in diffusion of fisheries innovations; Extensions program planning and evaluation. Basic concepts in rural sociology and psychology and their relevance in fisheries extension.

## **16. Fisheries Economics**

Introduction, positive and normative economics, environmental economics, resource, scarcity, farm-firm relationships, production etc. Micro-economics and Macro-economics for development of fisheries. Seafood Export Regulations; Fisheries Subsidies and WTO. Fisheries Trade and Environment; Intellectual Property Rights (IPR) and different forms. Patents and patenting process, Agreement on TRIPS. Bio-piracy. GMOs in fisheries. Overview of Patents in Indian fisheries sector.

## **17. Fisheries Administration and Legislation**

Organizational set up, Functions and powers of fisheries administration at the Centre and state levels. International agencies and organizations for promotion of fisheries worldwide. Objectives, functions and authority of fishery regulatory agencies like Coastal Regulatory Zone (CRZ) and Aquaculture Authority of India. Various Central and State Government's schemes, programmes and policies for development of fisheries and welfare of Fisherman. Indian Fisheries Act, 1897. Gujarat Fisheries Act, 2003.

## **18. Current Trends and Recent Advancements in the field of fisheries.**