

**FURTHER DETAILS REGARDING MAIN TOPICS OF
PROGRAMME NO. 05/2017 ONLINE (Item No. 4)**

AQUACULTURE EXPERT

(CATEGORY NO. 107/14)

FISHERIES DEPARTMENT

Module 1

Relevance and scope of aquaculture. Global trends in aquaculture. Status of aquaculture in India. Candidate species in inland and marine aquaculture. Carps, catfish, murrels, tilapia, prawns/shrimps, cobia, sea bass and carangids. Different farming systems: Extensive, semi intensive, intensive, composite/poly culture, integrated fish farming, raceway culture, cage culture, satellite farming, wastewater-fed aquaculture, sustainable aquaculture. Aquaranching, aquatourism.

Module 2

Selection of site for aquaculture. Farm engineering-surveying-leveling-trapezoidal and Simpson's rule, site selection for aquaculture farms. Water resources and their suitability, quantity and quality assessment. Aquafarm design and construction: Types of ponds, shape, size and orientation, design of embankments, pond bottom, pond inlets, outlets, sluice gates and monks; water supply channels and drainage systems, design considerations for integrated aqua farms. Design and construction of enclosures, pens, cages, raceways, flow-through systems and re-circulatory aquaculture systems, biofilters, effluent treatment systems. Equipments in farm and hatchery.

Module 3

Farming practices for cultivable inland species: carps, catfish, murrels, tilapia, freshwater prawns and coldwater fishes. Grow out practices: pre-stocking and post-stocking management, harvesting, improved strains for culture such as GIFT. Advanced farming practices and value addition, eco labelling, aquaponics, biofloc techniques, RAS and organic farming

Module 4

Farming practices for marine and estuarine fishes such as pearl spot, sea bass, cobia, pompano, milk fish and mullets. Farming practices for shrimps. Environmental impacts of intensive aquaculture.

Module 5

Seed production of fishes : Carps-wild collection and transportation, bundh breeding, brood stock maintenance, design of hatchery, hypophysation, ovulating agents like Ovaprim, Ovatide etc., seed production of exotic carps. Seed production in catfishes, murrels and tilapia. Seed production and culture of brackishwater/marine fishes pearl spot, sea bass, milk fish, mullets, groupers, cobia and carangids.

Module 6

Seed production of freshwater prawns : Water quality requirements, feeding, health management, design of prawn culture and farm management. Shrimp seed production:brood stock maintenance, larval stages, feeding, water quality requirements, health management, packing and transportation, design of shrimp hatchery. Seed production and culture of crabs and lobsters. Seed production and culture of mussels, oysters and clams.

Module 7

Brood stock management: availability, collection, transport, captive, rearing, maturation. Nutritional requirements of fishes (carps, cobia, groupers, pompano, seabass, milkfish, mullets, pearlspot) and shellfishes(shrimps, crabs, lobsters, mussels and oysters). Nutritional quality of commonly used fish food organisms, bio-enrichment of fish food organisms. Formulation and preparation of artificial feeds for larval rearing, microparticulate diets, particulate and microencapsulated diets. Algal culture.

Module 8

Global status of ornamental fish trade, present status and prospects of ornamental fish farming and trade in India, Indian ornamental fish diversity and its status. Marketing strategies, anesthetics, packing and transportation. Captive breeding techniques of commercially important indigenous and marine ornamental fishes. Prerequisite for establishment of ornamental fish breeding, culture unit for entrepreneurship development. Socio-economic upliftment and ornamental fish culture.

PART II

General Knowledge and Current Affairs

Salient Features of Indian Constitution

Salient features of the Constitution - Preamble- Its significance and its place in the interpretation of the Constitution.

Fundamental Rights - Directive Principles of State Policy - Relation between Fundamental Rights and Directive Principles - Fundamental Duties.

Executive - Legislature - Judiciary - Both at Union and State Level. - Other Constitutional Authorities.

Centre-State Relations - Legislative - Administrative and Financial.

Services under the Union and the States.

Emergency Provisions.

Amendment Provisions of the Constitution.

Social Welfare Legislations and Programmes

Social Service Legislations like Right to Information Act, Prevention of atrocities against

Women & Children, Food Security Act, Environmental Acts etc. and Social Welfare

Programmes like Employment Guarantee Programme, Organ and Blood Donation etc.

RENAISSANCE IN KERALA

Towards A New Society

Introduction to English education - various missionary organisations and their functioning- founding of educational institutions, factories,printing press etc.

Efforts To Reform The Society

(A) Socio-Religious reform Movements

SNDP Yogam, Nair Service Society, Yogakshema Sabha, Sadhu Jana Paripalana Sangham, Vaala Samudaya Parishkarani Sabha, Samathwa Samajam, Islam Dharma Paripalana Sangham, Prathyaksha Raksha Daiva Sabha, Sahodara Prasthanam etc.

(B) Struggles and Social Revolts

Upper cloth revolts.Channar agitation, Vaikom Sathyagraha, Guruvayoor Sathyagraha, Paliyam Sathyagraha. Kuttamkulam Sathyagraha, Temple Entry Proclamation, Temple Entry Act .Malyalee Memorial, Ezhava Memorial etc.

Malabar riots, Civil Disobedience Movement, Abstention movement etc.

Role Of Press In Renaissance

Malayalee, Swadeshahimani, Vivekodayam, Mithavadi, Swaraj, Malayala Manorama, Bhashaposhini, Mathnubhoomi, Kerala Kaumudi, Samadarsi, Kesari, Al-Ameen, Prabhatham, Yukthivadi, etc

Awakening Through Literature

Novel, Drama, Poetry, *Purogamana Sahithya Prasthanam, Nataka Prashtanam*, Library movement etc

Women And Social Change

Parvathi Nenmenimangalam, Arya Pallam, A V Kuttimalu Amma, Lalitha Prabhu.Akkamma Cheriyan, Anna Chandi, Lalithambika Antharjanam and others

Leaders Of Renaissance

Thycaud Ayya Vaikundar, Sree Narayana Guru, Ayyan Kali.Chattampi Swamikal, Brahmananda Sivayogi, Vagbhadananda, Poikayil Yohannan(Kumara Guru) Dr Palpu, Palakkunnath Abraham Malpan, Mampuram Thangal, Sahodaran Ayyappan, Pandit K P Karuppan, Pampadi John Joseph, Mannathu Padmanabhan, V T Bhattathirippad, Vakkom Abdul Khadar Maulavi, Makthi Thangal, Blessed Elias Kuriakose Chaavra, Barrister G P Pillai, TK Madhavan, Moorkoth Kumaran, C. Krishnan, K P Kesava Menon, Dr.Ayyathan Gopalan, C V Kunjuraman, Kuroor Neelakantan Namboothiripad,

Velukkutty Arayan, K P Vellon, P K Chathan Master, K Kelappan, P. Krishna Pillai, A K Gopalan, T R Krishnaswami Iyer, C Kesavan. Swami Ananda Theerthan , M C Joseph, Kuttippuzha Krishnapillai and others

Literary Figures

Kodungallur Kunhikkuttan Thampuran, KeralaVarma Valiyakoyi Thampuran, Kandathil Varghese Mappila. Kumaran Asan, Vallathol Narayana Menon, Ulloor S Parameswara Iyer, G Sankara Kurup, Changampuzha Krishna Pillai, Chandu Menon, Vaikom Muhammad Basheer. Kesav Dev, Thakazhi Sivasankara Pillai, Ponkunnam Varky, S K Pottakkad and others

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.