

प्रदेश लोक सेवा आयोग
कोशी प्रदेश, विराटनगर, नेपाल
प्रदेश निजामती सेवा तथा स्थानीय सरकारी सेवा अन्तर्गतका प्राविधिक तर्फ कृषि सेवा, मत्स्य समूह, अधिकृतस्तर
सातौं तहको पदको खुला, अन्तर स्थानीय तह तथा अन्तर तह प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

पाठ्यक्रमलाई निम्नानुसार विभाजन गरिएको छ :

परीक्षाको चरण	परीक्षाको किसिम	पूर्णाङ्क
प्रथम	लिखित परीक्षा	२००
अन्तिम	सामूहिक परीक्षण र अन्तर्वार्ता	४०

परीक्षा योजना (Examination Scheme)

१. प्रथम चरण (First Phase): लिखित परीक्षा (Written Examination)

पत्र	विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली	प्रश्न संख्या X अङ्क	समय
प्रथम	सामान्य विषय	१००	४०	वस्तुगत: बहुवैकल्पिक प्रश्न (MCQs)	१०० प्रश्न X १ अङ्क	१ घण्टा ३० मिनेट
द्वितीय	सेवा सम्बन्धी विषय	१००	४०	विषयगत (Subjective)	लामो उत्तरात्मक ८ प्रश्न X १० = ८० छोटो उत्तरात्मक ४ प्रश्न X ५ = २०	३ घण्टा

२. अन्तिम चरण:- सामूहिक परीक्षण र अन्तर्वार्ता (Group Test & Interview)

विषय	पूर्णाङ्क	परीक्षण प्रणाली	समय
सामूहिक परीक्षण (Group Test)	१०	सामूहिक छलफल (Group Discussion)	३० मिनेट
व्यक्तिगत अन्तर्वार्ता (Individual Interview)	३०	मौखिक (Oral)	-

द्रष्टव्य:-

- यो पाठ्यक्रम योजनालाई प्रथम चरण (लिखित परीक्षा) तथा अन्तिम चरण (सामूहिक परीक्षण र अन्तर्वार्ता) गरी दुई भागमा विभाजन गरिएको छ।
- प्रश्न पत्र अंग्रेजी वा नेपाली भाषामा हुनेछ।
- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुनेछ।
- वस्तुगत बहुवैकल्पिक (Multiple Choice) प्रश्नहरूको गलत उत्तर दिएमा प्रत्येक गलत उत्तर बापत २० प्रतिशत अङ्क कट्टा गरिने छ। तर उत्तर नदिएमा त्यस बापत अङ्क दिइने छैन र अङ्क कट्टा पनि गरिने छैन।
- परीक्षा हलमा मोबाइल फोन, स्मार्ट वाच, हेडफोन वा यस्तै प्रकारका विद्युतीय उपकरण, पुस्तक, नोटबुक, झोला लगायतका वस्तुहरू लैजान पाइने छैन।

६. विषयगत प्रश्नका लागि तोकिएका अङ्कका हकमा एउटा लामो प्रश्न वा एउटै प्रश्नका दुई वा दुईभन्दा बढी भाग (Two or more parts of a single question) वा एउटा प्रश्न अन्तर्गत दुई वा बढी टिप्पणीहरू (Short notes) सोध्न सकिनेछ।
७. परीक्षामा सोधिने प्रश्न संख्या, अङ्क र अङ्कभार यथासम्भव सम्बन्धित पत्र/विषयमा दिइए अनुसार हुनेछ।
८. द्वितीय पत्र (विषयगत प्रश्न हुने पत्र) का हकमा प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन्। परीक्षार्थीले प्रत्येक खण्डका प्रश्नहरूको उत्तर सोही खण्डको उत्तर पुस्तिकामा लेख्नु पर्नेछ।
९. प्रथम र द्वितीय पत्रका पाठ्यक्रमका एकाईहरूबाट सोधिने प्रश्नहरूको अङ्क भार र संख्या देहाय अनुसार हुनेछः

प्रथम पत्रका ईकाई	१	२	३	४	५	६	७	८	९	१०	११	१२	जम्मा
प्रश्न संख्या	१०	१५	४	१६	१५	१०	८	५	७	४	४	२	१००
द्वितीय पत्रका खण्ड	A			B			C			D			
प्रश्न संख्या र अङ्क भार	१×१०=१० १×५=५			२×१०=२० १×५=५			२×१०=२० १×५=५			३×१०=३० १×५=५			१००

१०. यस पाठ्यक्रम योजना अन्तर्गतका पत्र/ विषयका विषयवस्तुमा जेसुकै लेखिएको भएतापनि पाठ्यक्रममा परेका कानुन, ऐन, नियम तथा नीतिहरू परीक्षाको मिति भन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भइ हटाइएका वा थप गरी संशोधन भएका) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ।
११. प्रथम चरणको लिखित परीक्षामा छनौट भएका उम्मेदवारहरूलाई मात्र अन्तिम चरणको सामूहिक परीक्षण र अन्तर्वार्तामा सम्मिलित गराइने छ।
१२. प्रथम चरणको लिखित परीक्षा र अन्तिम चरणको सामूहिक परीक्षण र अन्तर्वार्ताको कूल अङ्क योगका आधारमा अन्तिम परीक्षाफल प्रकाशित गरिनेछ।
१३. पाठ्यक्रम लागू हुने मिति:- २०८०/०२/३२

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प्रथम पत्र (Paper I): सामान्य विषय (General Subject)

1. नेपालको संविधान तथा सान्दर्भिक कानूनहरू:

- 1.1 नेपालको संविधान
- 1.2 सार्वजनिक खरिद ऐन, २०६३ र नियमावली, २०६४
- 1.3 स्थानीय सरकार संचालन ऐन, २०७४
- 1.4 प्रदेश सुशासन (व्यवस्थापन तथा संचालन) ऐन, २०७६ तथा नियमावली, २०७९
- 1.5 प्रदेश आर्थिक कार्यविधि तथा वित्तीय उत्तरदायित्व सम्बन्धमा व्यवस्था गर्न बनेको ऐन, २०७८
- 1.6 संघ, प्रदेश तथा स्थानीय तह (समन्वय तथा अन्तर सम्बन्ध) ऐन, २०७७
- 1.7 संघ, प्रदेश र स्थानीय तहका कर्मचारीको सेवाका शर्त सम्बन्धी कानूनहरू
- 1.8 भ्रष्टाचार निवारण ऐन, २०५९
- 1.9 प्रदेश कृषि व्यवसाय प्रवर्धन अनुदान ऐन, २०७७

2. General Awareness and Contemporary Issues

- 2.1 Physical, socio-cultural and economic geography and demography of Nepal
- 2.2 Major natural resources of Nepal
- 2.3 Geographical diversity, climatic conditions, and livelihood & lifestyle of people
- 2.4 Notable events and personalities, social, cultural and economic conditions in modern history of Nepal
- 2.5 Current periodical plans of Nepal and Koshi Province
- 2.6 Nepal's international affairs and general information on the UNO, SAARC and BIMSTEC
- 2.7 Governance system and Government (Federal, Provincial and Local)
- 2.8 Functions and scope of public services.
- 2.9 Concept, objective and importance of public policy
- 2.10 Fundamentals of management: planning, organizing, directing, controlling, coordinating, decision making, motivation and leadership
- 2.11 Government planning, budgeting and accounting system
- 2.12 World Organization for Animal Health (WOAH), its objective, structure, function, Aquatic animal health code
- 2.13 World Trade Organization (WTO), Sanitary and Phytosanitary measures (SPS) and Technical Barrier to Trade (TBT)

3. Major events and current affairs of national and international importance: Sustainable Development Goal, Climate Change, Energy crisis, Biodiversity, Science and Technology, Gender Equity and Social Inclusion)

4. Fisheries Development and related plans, policies and acts

- 4.1 Fisheries statistics of Nepal and Koshi Province
- 4.2 Fisheries sector in Agriculture Development Strategy (2015-2035 AD)
- 4.3 Role of research in fisheries sector development, Nepal Agricultural Research Council (NARC), its vision and functions.
- 4.4 जलचर संरक्षण ऐन, २०१७ तथा नेपाल सरकारले जलचर संरक्षण ऐन, २०१७ को दफा ४ तथा ५ बमोजिमको आदेश

- 4.5 जलचर ठेक नियम, २०१९
- 4.6 Animal Health and Livestock Services Act, 2055 and its regulation, 2056
- 4.7 National Fisheries Development Policy, 2079
- 4.8 One Health Strategy, 2076
- 4.9 National Food Safety Policy 2076
- 4.10 Food Security & Food Sovereignty Act 2076
- 4.11 Feed Act, 2033 and its regulation, 2035
- 4.12 National Agriculture Policy, 2061
- 4.13 पशु स्वास्थ्य तथा पशु सेवा व्यवसायी परिषद् ऐन, २०७९
- 4.14 माछा भुराबारे मापदण्ड, २०६१
- 4.15 Fisheries Insurance policies and programs
- 4.16 Fisheries related provincial periodic plans, policy, programs and projects

5. Aquaculture

- 5.1 History of fish culture in Nepal
- 5.2 Principle of aquaculture
- 5.3 Present status and prospect of aquaculture in Nepal and Koshi province
- 5.4 Problems of Aquaculture and Fisheries development in Koshi province
- 5.5 Role of aquaculture and fisheries sectors in the livelihood of farmers in Koshi province
- 5.6 Capture fisheries and Culture Fisheries
- 5.7 Best management practices in aquaculture
- 5.8 Fish farm/Pond/Raceway design and construction
 - 5.8.1 Planning
 - 5.8.2 Site selection
 - 5.8.3 Soil texture and quality
 - 5.8.4 Topography and layout of fish pond/Raceway
 - 5.8.5 Pond/Raceway construction
 - 5.8.6 Water budgeting & sources of water, water quality parameters
- 5.9 Species selection for fish farming in different agro-ecological zone of Koshi province
- 5.10 Cultivated indigenous & exotic fish species in Koshi province
- 5.11 Aquatic ecology in relation to fish production
- 5.12 Hatchery management techniques
 - 5.12.1 Design and construction of Hatchery for different species
 - 5.12.2 Water Quality management for Hatchery
 - 5.12.3 Brood fish management
 - 5.12.4 Fish breeding (natural & induced)
 - 5.12.5 Nursing and rearing of hatchling, fry, fingerlings (fish seed)
 - 5.12.6 Transportation of hatchling, fry, fingerlings (fish seed)
 - 5.12.7 Feed and fertilizer
 - 5.12.8 Breed Improvement, Improvement by selection

6. Introduction to Ichthyology

- 6.1 Definition of fish, economic importance of fish, fish diversity
- 6.2 Economically important fishes of Nepal, harmful fishes
- 6.3 Taxonomy; economically important fishes of Nepal: General characters and classification of class Pisces
- 6.4 Morphology of fish: external features, shape and size, structure and functions of different organs
- 6.5 Anatomy of fish: Study of location and functions of different organs
- 6.6 Different organ systems: structure and functions
 - 6.6.1 Digestive system-structure and functions of alimentary canal
 - 6.6.2 Respiratory system- structure and function of gills

- 6.6.3 Reproductive system- structure and functions of gonads
- 6.7 Endocrine system related to reproduction
- 7. Water quality management in pond culture**
 - 7.1 Relationship between water quality parameter and fish production
 - 7.2 Water quality parameters and the requirements for different cultivated species
 - 7.3 Planktons and live feed culture
 - 7.4 Aquatic weeds and its control
 - 7.5 Liming and fertilization
- 8. Nutrition**
 - 8.1 Feed formulation
 - 8.2 Selection of feed Ingredients
 - 8.3 Nutrients Requirements and Deficiencies
 - 8.4 Fish Feeds and their quality
 - 8.5 Natural food and their Nutritional value
 - 8.6 Feeding practices
 - 8.7 Feed preparation and nutrition value
 - 8.7.1 Major nutrients
 - 8.7.2 Vitamins
 - 8.7.3 Essential minerals and amino acids
 - 8.7.4 Storage of feed
- 9. Fish health management**
 - 9.1 Common fish diseases - causes, symptoms & species affected
 - 9.2 Fish diseases in cold and warm water species
 - 9.3 Different methods of treatment: prevention, prophylaxis and treatment: sanitation of aquaculture equipment, quarantine and restriction of movements, curative measure: dip bath, flush, pond treatment
- 10. Post-harvest technology**
 - 10.1 Nutritional significance of fish for human population
 - 10.2 Quality assurance
 - 10.3 Methods of preservation and processing
 - 10.3.1 Fish drying
 - 10.3.2 Fish smoking
 - 10.3.3 Pickling
 - 10.3.4 Curing
 - 10.3.5 Fish chilling & refrigeration
 - 10.3.6 Transportation and Marketing
- 11. Capture Fisheries**
 - 11.1 Limnological studies
 - 11.2 Stock enhancement, biodiversity conservation and management
 - 11.3 Fisher community and their dependency in the natural water bodies of Koshi province for livelihood.
 - 11.4 Freshwater ecology and fish production
 - 11.5 Fishing gear and tools
- 12. Ornamental Fish Production and Management**
 - 12.1 Common ornamental fishes and plants
 - 12.2 Aquarium construction and management
 - 12.3 Water quality requirement, Water filtration system
 - 12.4 Aquarium fish feeds

नमूना प्रश्न (Model Questions)

1. नेपालको संविधान २०७२ मा कतिवटा मौलिक हकको व्यवस्था गरिएको छ ?
 - a. २९
 - b. ३१
 - c. ३३
 - d. २१
2. राष्ट्रिय मत्स्य विकास नीति नेपाल सरकारबाट कहिले पारित भयो ?
 - a. २०७८/०९/२७
 - b. २०७९/०४/११
 - c. २०७९/०५/२७
 - d. २०७९/०५/०३
3. Sensory organ of fish is.....
 - a. Operculum
 - b. Peduncle
 - c. Vent
 - d. Lateral line
4. Which of the following fish is planktivorous?
 - a. Silver carp
 - b. Bighead carp
 - c. Bhakur
 - d. All of the above
5. Which of the following species is well known sports fish?
 - a. Common carp
 - b. Tilapia
 - c. Sahar
 - d. Big head

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सातौं तहको पदको खुला, अन्तर स्थानीय तह तथा अन्तर तह प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

द्वितीय (Paper II) : Technical Subject

Section A– 15 Marks

1. Introduction

- 1.1 History and current status of fisheries sector in Nepal
- 1.2 Indigenous and exotic species of fish in Nepal
- 1.3 Role of public and private sectors in promotion of fisheries sector in national and provincial level (special attention to Koshi province)
- 1.4 Provisions made by Agriculture Development Strategy (ADS), current periodic plan (federal and provincial) in relation to fisheries sector
- 1.5 जलचर संरक्षण ऐन, २०१७
- 1.6 माछा भुरा बारे मापदण्ड निर्धारण, २०६१
- 1.7 राष्ट्रिय मत्स्य विकास नीति, २०७९

Section B– 25 Marks

2. Fish Farming Systems in Nepal

- 2.1 On the basis of intensity
 - 2.1.1 Extensive
 - 2.1.2 Semi-intensive
 - 2.1.3 Intensive
 - 2.1.4 Super-intensive
- 2.2 On the basis of species
 - 2.2.1 Monoculture
 - 2.2.2 Polyculture
 - 2.2.3 Monosex culture
- 2.3 On the basis of structure
 - 2.3.1 Pond/Tank culture
 - 2.3.2 Cage culture
 - 2.3.3 Pen culture
 - 2.3.4 Raceway culture
- 2.4 On the basis of integration
 - 2.4.1 Integrated fish culture (Livestock, Horticultural crops with fish)
 - 2.4.2 Rice fish culture
- 2.5 Recently developed culture system in Aquaculture (Aquaponics, Recirculating Aquaculture System, Biofloc system)

Section C– 25 Marks

3. Management Practices in Aquaculture

- 3.1 Soil and Water Quality management
 - 3.1.1 Physical and chemical properties of soil for aquaculture

- 3.1.2 Water quality (Physical, Chemical and Biological)
 - 3.1.3 Soil and Water quality management techniques
- 3.2 Pond Management techniques (Liming, Fertilization, application of feed, weed control)
- 3.3 Management techniques in Hatchery, Nursery, Rearing and Production Ponds
- 3.4 Importance of growth checkup
- 3.5 Fish calendar and Record keeping
- 4. Capture Fisheries**
 - 4.1 Limnological studies and their importance
 - 4.2 Fisher community and their livelihood
 - 4.3 Climate change, Environmental factors and its effects to fish population
 - 4.4 Factors affecting survival and migration of fish and mitigation measures for the sustainable utilization of natural water bodies in Nepal
 - 4.5 Stock assessment principles and methods, Stock enhancement
 - 4.6 Fish biodiversity conservation & co-management practices
 - 4.7 Use of indigenous knowledge in different aspects of capture fisheries, Aqua-tourism and Sport fishery

Section D– 35 Marks

- 5. Fish breeding techniques**
 - 5.1 Site selection and design of fish hatchery for different fish species (Warm water and cold-water fishes)
 - 5.2 Different pond construction for hatchery management (Brood fish pond, Nursery Pond, Rearing Pond)
 - 5.3 Brood fish management
 - 5.4 Criteria for brood fish selection
 - 5.5 Natural breeding
 - 5.6 Semi-artificial breeding
 - 5.7 Induced breeding
 - 5.8 Application of inducing agents/hormones in induced breeding
 - 5.9 Incubation techniques
 - 5.10 Endocrine system related to reproduction
 - 5.11 Fish Physiology
 - 5.11.1 Physiological systems and osmoregulation
 - 5.11.2 Function of different organ system (Digestive, Reproductive, Respiratory)
- 6. Nutrition and Fish Health Management**
 - 6.1 Nutritional requirements of cultivable fish
 - 6.2 Conventional and Non-conventional feed
 - 6.3 Feed formulation and manufacturing
 - 6.4 Live feed culture
 - 6.5 Factors affecting fish health
 - 6.6 Identification of fish diseases and parasites
 - 6.7 Lab techniques
 - 6.8 Treatment procedures/ Control mechanisms
- 7. Aquaculture Extension and Economics**
 - 7.1 Extension methodology, tools & communication systems

- 7.2 Institutional development in research, extension and education in fisheries sector.
- 7.3 Participatory approach in planning, implementation and monitoring
- 7.4 Women in aquaculture and their roles in livelihood enhancement
- 7.5 Fisher community and their role in biodiversity conservation in natural water bodies
- 7.6 Prime Minister Agriculture Modernization Project (PMAMP) (pocket/block/zone/super zone) program
- 7.7 Social mobilization, gender, integration and group dynamics
- 7.8 Fish value chain, Fish Marketing, Marketing challenges and coping strategies
- 7.9 Aquaculture Economics, Fisheries statistics of Koshi province, credit support system, Subsidies, Insurance

नमूना प्रश्न (Model Question)

1. Define Aquaculture and Fisheries. Why Aquaculture is important? Explain in the light of culture and capture fisheries scenario. (2+8)
2. ठुला ठुला जलविद्धत आयोजना एवं विकास निर्माणका कार्यबाट हाम्रा प्राकृतिक जल सम्पदा एवं जलीय जैविक विविधतामा पार्ने असरहरु के हुन् र त्यसलाई न्युनीकरण गर्ने उपायहरु सुझाउनुस् । (5+5)
3. What can be the limiting factors to produce more phytoplankton in an aquatic ecosystem? (5)