प्रदेश लोक सेवा आयोग, प्रदेश नं.२

कृषि सेवा, एगृ. इन्जिनियरिङ्ग समूह, अधिकृत सातौं तहको पदको खुला तथा अन्तर सेवा प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

यस पाठ्यक्रम योजनालाई दुई चरणमा विभाजन गरिएको छ :

प्रथम चरण :–	लिखित परीक्षा (Written Examination)	पूर्णाङ्क :– २००
द्वितीय चरण :-	(क) सामूहिक परीक्षण (Group Test)	पूर्णाङ्क :– १०
	(ख) अन्तर्वार्ता (Interview)	पूर्णाङ्क :– ३०

परीक्षा योजना **(Examination Scheme)**

प्रथम चरण : लिखित परीक्षा**(Written Examination)** पूर्णाङ्क :– २००

पत्र	विषय	खण्ड	पूर्णाङ्क	उर्तीर्णाङ्क	परीक्षा प्रणाली		प्रश्नसंख्या X अङ्क	समय
प्रथम	General Subject	Part I: General Awareness & General Ability Test	१००	४०	वस्तुगत (Objective)	बहुवैकल्पिक प्रश्न (MCQs)	५० प्रश्न X१ अङ्क	१घण्टा ३० मिनेट
		Part II: General Technical Subject					५०प्रश्न X१ अङ्क	
द्वितीय	Technical Subject		१००	४०	विषयगत (Subjective)	छोटो उत्तर लामो उत्तर	४ प्रश्न × ५ अङ्क ८ प्रश्न ×१०अङ्क	३ घण्टा

द्वितीय चरण : सामूहिक परीक्षण **(Group Test)** र अन्तर्वार्ता **(Interview)** पूर्णाङ्क :– ४०

पत्र /विषय	पूर्णाङ्क	उर्तीर्णाङ्क	परीक्षा प्रणाली	समय
सामूहिक परीक्षण (Group Test)	१०		सामूहिक छलफल (Group Discussion)	३० मिनेट
अन्तर्वार्ता (Interview)	३०		बोर्ड अन्तर्वार्ता(Board Interview)	-

द्रष्टव्य :

१. लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुनेछ ।

२. प्रथमपत्र र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।

३. वस्तुगत बहुवैकल्पिक (Multiple Choice) प्रश्नहरुको गलत उत्तर दिएमा प्रत्येक गलत उत्तर बापत २० प्रतिशत अङ्क कट्टा गरिनेछ । तर उत्तर नदिएमा त्यस बापत अङ्क दिइने छैन र अङ्क कट्टा पनि गरिने छैन ।

४. बहुवैकल्पिक प्रश्नहरु हुने परीक्षामा कुनै प्रकारको क्याल्कुलेटर (Calculator) प्रयोग गर्न पाइने छैन ।

५. विषयगत प्रश्नहरुको हकमा तोकिएको अंकको एउटा लामो प्रश्न वा एउटै प्रश्नका दुई वा दुई भन्दा बढी भाग (Two or more parts of a single question) वा एउटा प्रश्न अन्तर्गत दुई वा बढी टिप्पणीहरु (Short notes) सोध्न सकिने छ ।

६. द्वितीय पत्रमा (विषयगत प्रश्न हुनेका हकमा) प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरु हुनेछन् । परीक्षार्थीले प्रत्येक खण्डका प्रश्नहरुको उत्तर सोहीखण्डको उत्तरपुस्तिकामा लेख्नुपर्नेछ ।

७. यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जेसुकै लेखिएको भए तापनि पाठ्यक्रममा परेका कानून, ऐन, नियम तथा नीतिहरु परीक्षाको मिति भन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाईएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठक्रममा परेको सम्झन् पर्दछ ।

८. प्रथमचरणको परीक्षाबाट छनौट भएका उम्मेदवारहरुलाई मात्र द्वितीयचरणको परीक्षामा सम्मिलित गराइनेछ ।

९. पाठयक्रम लागू मिति : २०७८।०३।३० गते देखि ।

प्रदेश लोक सेवा आयोग, प्रदेश नं.२

कृषि सेवा, एग्. इन्जिनियरिङ्ग समूह, अधिकृत सातौं तहको पदको खुला तथा अन्तर सेवा प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

प्रथम पत्र **(Paper I): General Subject**

Part (I) : - General Awareness & General Ability Test (50 Marks)

1. **General Awareness and Contemporary Issues (25 ×1 Mark = 25 Marks)**
   - 1.1 Physical, socio-cultural and economic geography and demography of Nepal
   - 1.2 Major natural resources of Nepal
   - 1.3 Geographical diversity, climatic conditions, and livelihood & lifestyle of people
   - 1.4 Notable events and personalities, social, cultural and economic conditions in modern history of Nepal
   - 1.5 Current periodical plan of Nepal
   - 1.6 Information on sustainable development, environment, pollution, climate change, biodiversity, science and technology
   - 1.7 Nepal's international affairs and general information on the UNO, SAARC & BIMSTEC
   - 1.8 The Constitution of Nepal (From Part 1 to 5 and Schedules)
   - 1.9 Governance system and Government (Federal, Provincial and Local)
   - 1.10 Provisions of civil service act and regulation relating to constitution of civil service, organisational structure, posts of service, fulfillment of vacancy and code of conduct
   - 1.11 Functional scope of public services
   - 1.12 Public Service Charter
   - 1.13 Concept, objective and importance of public policy
   - 1.14 Fundamentals of management : planning, organizing, directing, controlling, coordinating, decision making, motivation and leadership
   - 1.15 Government planning, budgeting and accounting system
   - 1.16 Major events and current affairs of national and international importance
   - 1.17 Province no.2, Civil Service Act, 2077
2. **General Ability Test (25 ×1 Mark = 25 Marks)**
   - 2.1 **Verbal Ability Test** (8×1 Mark = 8 Marks)
     Jumble words, Series, Analogy, Classification, Coding-Decoding, Matrix, Ranking Order Test, Direction and Distance Sense Test, Common Sense Test, Logical Reasoning, Assertion and Reason, Statement and Conclusions
   - 2.2 **Numerical Ability Test** (9×1 Mark = 9Marks)
     Series, Analogy, Classification, Coding, Arithmetical reasoning/operation, Percentage, Ratio, Average, Loss & Profit, Time & Work, Data interpretation & Data verification
   - 2.3 **Non-verbal/Abstract Ability Test** (8×1 Mark = 8 Marks)
     Figure Series, Figure Analogy, Figure Classification, Figure Matrix, Pattern Completion/Finding, Analytical Reasoning Test, Figure Formation and Analysis, Rule Detection, Water images, Mirror images, Cubes and Dice &Venn-diagram

प्रदेश लोक सेवा आयोग, प्रदेश नं.२

कृषि सेवा, एगृ. इन्जिनियरिङ्ग समूह, अधिकृत सातौं तहको पदको खुला तथा अन्तर सेवा प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

Part (II) : - General Technical Subject (50 Marks)

1. General Agriculture **10**

1.1 Principles of agronomy(cereals, cash crops , pulses and oilseed)

1.2 Agro meteorological data recording, collection and analysis and introduction to sunshine recorder, max and min temperature, wind vain, rain gauges, soil temperature and evaporation pan etc)

1.3 Introduction to sociology and rural development

1.4 Elements of soil science(soil fertility, properties and classification)

1.5 Introduction to plant protection(Emphasis on equipment)

1.6 Elements of farm management

1.7 Introduction to horticulture(fruits and vegetables)

1.8 Province no.2, Agriculture and Engineering related Acts, Rules and Regulations

2. General Engineering

2.1 **Mechanical Engineering** **20**

2.1.1 Work, power and energy

2.1.2 Basic knowledge workshop technology and metallurgy

2.1.3 Fluid Mechanics(compressible and incompressible fluids, viscosity, Bernoulli theorem, Archimedes' principle, buoyancy)

2.1.4 Thermodynamics(laws of thermodynamics, Carnot engine, entropy, enthalpy, Kinetic theory of gases)

2.1.5 Basic knowledge on thermal energy conversion, fossil fuels, refrigerants and psychrometry

2.1.6 Introduction to theory of machines

2.1.7 Design of machines(machines related to agriculture)

2.1.8 Internal combustion engines(petrol and diesel engines)

2.1.9 Engine terminologies

2.2 **Electrical Engineering** **10**

2.2.1 Electrical circuits

2.2.2 Fundamentals of electronics

2.2.3 Introduction to computer software and hardware

2.2.4 Basic knowledge on electric machines

2.2.5 Electromagnetic devices and electric power measurements

2.3 **Civil Engineering** **20**

2.3.1 Engineering hydrology(hydrological cycle, measurement and analysis of precipitation, measurement, estimation and analysis of runoff, hydrograph)

2.3.2 Engineering materials (cement, brick, steel, timber, sand, stone, aggregate, paints etc.)

2.3.3 Strength of material/ Mechanics (torque, couple moments, moment of inertia, elasticity, , impulse, centripetal and centrifugal forces, gravitational lows)

2.3.4 Design of structures (steel, concrete and timber)

2.3.5 Soil engineering (soil physics, soil mechanics and foundation)

2.3.6 Surveying (plane table, leveling with different types of equipment's), topographical, contouring, job layout, etc.)

2.3.7 Building construction technology (brick and stone masonry, carpentry, painting, plastering, concreting roofing, floorings, damp proof course
2.3.8 Estimating and costing of buildings, Irrigation and other agricultural structures.
2.3.9 Open channel hydraulics

3. Agricultural Engineering 40

3.1 Soil water; soil moisture tension, infiltration, permeability, wilting coefficient and conductivity
3.2 Weirs, parashal flumes, cut throat flumes, orifice and meter gates
3.3 Tracer method
3.4 Plant water relationship, evaporation, transpiration and consumptive use, evapotranspiration(ET) estimation methods
3.5 Water requirements, irrigation frequencies, Irrigation efficiencies
3.6 Furrow irrigation, border irrigation and check basin Irrigation
3.7 Sprinkler and drip/trickle Irrigation
3.8 Type of drainage system, Surface and sub-surface drainage system
3.9 Ground water and aquifers, hydraulics of wells
3.10 Water erosion (rain drop erosion, sheet erosion , rill erosion, gully erosion, stream channel erosion)
3.11 Human, animal, electrical and mechanical powers
3.12 Solar and wind power, energy from agricultural residue and animals waste including biogas,
3.13 Scope of agricultural mechanization in Nepal
3.14 Tillage requirements and draft power requirement
3.15 Tillage implements(traditional animal drawn plough, mold board plough, disc plough, chisel plough, rotavator, harrows
3.16 Sowing methods of major crops
3.17 Seed drill, planters and their components
3.18 Power transmission system and devices (belt, chain, shaft, pulley etc.)
3.19 Grain drying theory
3.20 Grain pressure theory
3.21 Unit operation in seed processing
3.22 Province no.2, Agriculture and Engineering related Plans and Policies
3.23 Province no.2, Agriculture and Engineering related Status and Statistics

द्वितीयपत्र **(Paper II) : Technical Subject**

Section A– 20 Marks

1. Soil and Water Engineering 20

1.1 Water Conveyance and Control

1.1.1 Design of open channels ,channel linings, drop structures and spillways, water control and division structures

1.1.2 Design of under ground pipe conveyance system

1.2 Land Development

1.2.1 Land leveling- grading design methods ,estimation of earthwork quantities, leveling and grading procedures, equipment for land grading and field layout

1.3 Ground Water , Irrigation Wells and Pumps

1.3.1 Design of wells

1.3.2 Wells construction procedures

1.3.3 Indigenous water lifting devices, positive displacement pumps, centrifugal pumps, vertical turbine pumps, submersible pumps, propeller and mixed flow pumps, selection of pumps and their performances, repaired and maintenance

1.4 Water erosion and control measures

1.4.1 Soil losses and its measurement

1.4.2 Erosion control measures (engineering and bioengineering methods)

1.4.3 Conservation structures, watershed management and water harvesting techniques

Section B– 30 Marks

2. Farm power and Machinery 30

2.1 Farm Tractor and its operation, repair and maintenance

2.1.1 Farm tractor types

2.1.2 Different parts and components of farm tractor

2.2 Tillage and tillage implements

2.2.1 Minimum and zero tillage implements

2.2.2 Testing and selection of tillage implements

2.2.3 Operation and maintenance of tillage implements

2.3 Seeding, harvesting and threshing machineries

2.3.1 Rice trans-planters ,vertical conveyor, reaper and its components, combine harvester, different type of threshers(rice thresher ,multi-crop thresher) and winnowing machine) with their repair and maintenance

2.4 Mechanical weeding and chemical application equipment

2.4.1 Manual and power weeders, sprayers (its types, components, nozzle types, application), dusters, with their operation , maintenance and selections of mechanical weeding and chemical application equipment

Section C– 20 Marks

3. Post Harvest Engineering 20

3.1 Grain Drying

3.1.1 Grain drying needs, methods and theory

3.1.2 Mechanical dryers (batch and continuous type), grain pressure theory

3.2 Processing of Rice, wheat, Maize, Sugarcane, Legume and Oilseeds

3.2.1 Milling, hulling, expelling

3.2.1 Equipments for hulling, milling, and expelling

3.3 Preservation of Horticultural and Livestock Commodities

3.3.1 Principles of cold storage design

3.3.2 Refrigeration and air conditioning

3.3.3 Seed processing equipments

3.3.4 Dairy machinery(heaters and coolers , pasteurization, can washer, Cream separators, butter churns, steam boilers)

Section D– 30 Marks

4. Farm Structure Development 20

4.1 Planning of farmstead, farm residence, water supply and sanitation

4.2 Farm road, farm fencing, farm ponds, farm irrigation and drainage

4.3 Animal Shelters

4.3.1 Dairy barn(housing requirements, stanchion and loose housing barns with equipments and accessories, milking barn, pen barn)

4.3.2 Poultry housing (housing requirements, types of poultry house, brooder house, poultry equipments and accessories)

4.3.3 Ship and goat housing (types, housing requirements, construction material, layout, equipment and accessories in goat and sheep housing etc.)

4.3.4 Swine housing (types, housing requirements, construction materials, layout, equipment and accessories in swine housing)

4.3.5 Aqua cultural engineering.

4.4 Storage Structures

4.4.1 Fodder storage structure, feed storage structure, food grain storage structure (digenous storage structure, bag storage structure, grain bins, modern go downs), farm machinery storage structure and farm workshop

4.5 Farm and Rural electrification

4.5.1 Power transmission and distribution, house wiring and its components

4.5.2 AC motor (single phase and poly phase) , starters, selection of electric motors, care and maintenance of electric equipments 4.5.3 Micro- hydro power plants

5. Rural Engineering 10

5.1 Green roads

5.2 Water supply

5.3 Sanitation

5.4 Bio engineering measures

5.5 Renewable energy

कृषि सेवाका विभिन्न समूह/उपसमूह, अधिकृत सातौं तहको पदमा प्रथम चरणको लिखित परीक्षाबाट छनौट भएका उम्मेदवारहरुलाई मात्र सामूहिक परीक्षण **(Group Test)** लिइने छ ।

सामूहिक छलफल **(Group Discussion)**

यस प्रयोजनका लागि गरिने परीक्षण १० पूर्णाङ्क र ३० मिनेट अवधिको हुनेछ जुन नेता विहिन सामूहिक छलफल (Leaderless Group Discussion) का रुपमा अवलम्वन गरिने छ । दिइएका प्रश्न वा Topic का विषयमा पालैपालोसँग निर्दिष्ट समय भित्र समूह वीच छलफल गदै प्रत्येक उम्मेदवारले व्यक्तिगत प्रस्तुति (Individual Presentation) गर्नु पर्नेछ । यस परीक्षणमा मूल्याङ्कनका लागि ३ जना भन्दा बढीको समिति रहनेछ ।