

**लोक सेवा आयोग**  
नेपाल इञ्जिनियरिङ्ग सेवा, मेटेरियोलोजी समूह, राजपत्रांकित तृतीय श्रेणीका पदको खुला 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	उत्तीर्णाङ्क	परीक्षा प्रणाली		प्रश्नसंख्या × अङ्क	समय
प्रथम	General Subject	Part I: General Awareness & General Ability Test	१००	४०	वस्तुगत (Objective)	बहुवैकल्पिक प्रश्न (MCQs)	५० प्रश्न × १ अङ्क	१ घण्टा ३० मिनेट
		Part II: General Technical Subject					५० प्रश्न × १ अङ्क	
द्वितीय	Technical Subject		१००	४०	विषयगत (Subjective)	छोटो उत्तर लामो उत्तर	४ प्रश्न × ५ अङ्क ८ प्रश्न × १० अङ्क	३ घण्टा

द्वितीय चरण : सामूहिक परीक्षण (Group Test) र अन्तर्वार्ता (Interview)

पूर्णाङ्क :- ४०

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

**द्रष्टव्य :**

- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुनेछ ।
- प्रथमपत्र र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।
- वस्तुगत बहुवैकल्पिक (Multiple Choice) प्रश्नहरूको 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 ।
- बहुवैकल्पिक प्रश्नहरू हुने परीक्षामा कुनै प्रकारको क्याल्कुलेटर (Calculator) प्रयोग गर्न पाइने छैन ।
- विषयगत प्रश्नहरूको 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 टिप्पणीहरू (Short notes) सोध्न सकिने छ ।
- द्वितीय पत्रमा(विषयगत प्रश्न हुनेका हकमा) प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन् । परिक्षार्थीले प्रत्येक खण्डका प्रश्नहरूको उत्तर सोहीखण्डको उत्तरपुस्तिकामा लेख्नुपर्नेछ ।
- यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जेसुकै लेखिएको भए तापनि पाठ्यक्रममा परेका कानून, ऐन, नियम तथा नीतिहरू परीक्षाको मिति भन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाईएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ ।
- प्रथमचरणको परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीयचरणको परीक्षामा सम्मिलित गराइनेछ ।
- यस भन्दा अगाडि लागू भएका माथि उल्लेखित सेवा, समूहको पाठ्यक्रम खारेज गरिएको छ ।
- पाठ्यक्रम लागू मिति : २०७६/०७/२५

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**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
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

**Part (B) : - General Technical Subject (50 Marks)**

- 1. Physical Meteorology (16%)**
- 1.1 Introduction of the atmosphere
    - 1.1.1 Characteristics of the atmosphere
    - 1.1.2 Composition of the atmosphere
  - 1.2 Radiation
    - 1.2.1 Energy sources and radiation principles
    - 1.2.2 Solar radiation
    - 1.2.3 Albedo
    - 1.2.4 Absorption of terrestrial radiation
    - 1.2.5 The effect of the line structure of the water vapour spectrum on the atmospheric emission and absorption
    - 1.2.6 Nocturnal radiation and the cooling of the surface layers
  - 1.3 The principles of thermodynamics
    - 1.3.1 Work, heat
    - 1.3.2 The law of conservation of energy
    - 1.3.3 Internal energy and heat capacities of an ideal gas
    - 1.3.4 Adiabatic processes
    - 1.3.5 Entropy and second law of thermodynamics
    - 1.3.6 Summary of thermodynamic variables
  - 1.4 Hydrostatic equilibrium
    - 1.4.1 The hydrostatic equation
    - 1.4.2 Height computation of upper air sounding
    - 1.4.3 The hydrostatics of special atmosphere
    - 1.4.5 Altimetry
    - 1.4.6 Reduction of pressure to sea level
  - 1.5 Hydrostatic stability
    - 1.5.1 Stability criteria
    - 1.5.2 Absolute stability
    - 1.5.3 Absolute instability
    - 1.5.4 Conditional instability
    - 1.5.5 Parcel method
    - 1.5.6 Slice method
    - 1.5.7 Entrainment theory
- 2. Dynamic Meteorology (14%)**
- 2.1 Coordinate system
  - 2.2 Inertial versus non-inertial coordinate system
  - 2.3 Dynamical equation in rotation coordinate system
  - 2.4 Concept of gravity and gravitation
  - 2.5 The pressure gradient force
  - 2.6 Inertia motion
  - 2.7 Individual versus local and convective derivatives
  - 2.8 Equation of continuity
  - 2.9 Complete set of equations governing the atmosphere
  - 2.10 Horizontal motion under balanced forces
    - 2.10.1 Geostrophic flow
    - 2.10.2 Gradient flow

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- 2.10.3 Cyclostrophic flow
- 2.10.4 The thermal wind
- 2.11 The mechanism and influence of pressure changes
  - 2.11.1 The pressure tendency equation
  - 2.11.2 The Bjerkenes-Holmboe theory
  - 2.11.3 The isallobaric wind
- 2.12 Circulation and vorticity
  - 2.12.1 The circulation theorem; Physical interpretation and application
  - 2.12.2 Vorticity theorem
  - 2.12.3 Divergence
- 2.13 Numerical weather prediction
  - 2.13.1 Fundamentals of NWP
- 2.14 General Circulation of the Atmosphere
  - 2.14.1 The mean circulation in the troposphere and lower stratosphere
  - 2.14.2 Meridional circulation
  - 2.14.3 Model of general circulation

**3. Synoptic Meteorology (16%)**

- 3.1 Air mass and front
  - 3.1.1 Definition of air mass, source region
  - 3.1.2 Classification and its symbols
  - 3.1.3 Modification of air mass
  - 3.1.4 General characteristics, classification of fronts
  - 3.1.5 Weather associated with idealized fronts
  - 3.1.6 Frontogenesis and frontolysis
- 3.2 Extra-tropical cyclone
- 3.3 Thunderstorms and tornadoes
- 3.4 Weather analysis and forecasting
  - 3.4.1 The concept of synoptic analysis
  - 3.4.2 Preparation of synoptic charts
  - 3.4.3 Isobars on a level surface and contours of the isobaric surfaces and thickness of isobaric layers
  - 3.4.4 Synoptic representation of the pressure field
- 3.5 Meteorological codes and symbols
  - 3.5.1 SYNOP, TEMP
  - 3.5.2 Meteorological symbols

**4. Tropical Meteorology (14%)**

- 4.1 The scope of tropical meteorology
- 4.2 The equatorial trough
- 4.3 Mean sea level circulation
- 4.4 The trade winds
- 4.5 Weather in tropics
- 4.6 Inter tropical convergence zone
- 4.7 Tropical disturbances and cyclones
  - 4.7.1 Classification and definition of tropical disturbances
  - 4.7.2 Global climatology of tropical cyclones
  - 4.7.3 Tropical storms, their formation, movement and forecasting
- 4.8 Monsoon

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- 4.8.1 Global monsoons
- 4.8.2 Differential heating
- 4.8.3 Heat low
- 4.8.4 Monsoon depressions
- 4.8.5 Monsoon climatology
- 4.9 Waves in the easterlies
- 4.10 El Nino, La Nina, Southern Oscillation

**5. Climatology (10%)**

- 5.1 Definition and scope of climatology
- 5.2 Solar radiation and terrestrial heat balance
- 5.3 Spatial and temporal variation of temperature
- 5.4 Spatial and temporal variation of winds and pressure
- 5.5 Climatic classification and description of climatic classification
- 5.6 Climates of Nepal
- 5.7 Climate change and its impact
- 5.8 Statistics in climatology

**6. Applied Meteorology (10%)**

- 6.1 Air pollution, pollutants and its dispersion
- 6.2 Agriculture meteorology
  - 6.2.1 General physiology of plant growth
  - 6.2.2 Role of soil and atmosphere
- 6.3 Weather and climate in relation to the plant growth and development of vegetation
  - 6.3.1 Photosynthesis
  - 6.3.2 Soil temperature
  - 6.3.3 Wind profile near ground
  - 6.3.4 Lysimeters
  - 6.3.5 Frost and frost protection
- 6.4 Aviation meteorology
  - 6.4.1 Visibility
  - 6.4.2 Fog
  - 6.4.3 Turbulence
  - 6.4.4 Jet stream
  - 6.4.5 Aircraft icing
  - 6.4.6 Altimeter setting
  - 6.4.7 Route forecast
  - 6.4.8 Clouds
  - 6.4.9 Meteorological Aviation Report (METAR), Terminal Aerodrom Forecast (TAF)

**7. Instrumentation and method of observation (10%)**

- 7.1 Precipitation
- 7.2 Surface wind
- 7.3 Pressure
- 7.4 Temperature
- 7.5 Humidity
- 7.6 Sunshine and Radiation

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- 7.7 Evaporation
- 7.8 Upper air observation

**8. Hydrometeorology (6%)**

- 8.1 Hydrologic cycle and application of hydrology
- 8.2 Precipitation
- 8.3 Infiltration
- 8.4 Evapotranspiration
- 8.5 Runoff
- 8.6 Hydrographs
- 8.7 Ground water
- 8.8 Water balance

**9. Satellite and radar Meteorology (4%)**

- 9.1 Introduction
- 9.2 Satellite Sensors
- 9.3 Image Interpretation
- 9.4 Quantitative Information from Satellites
- 9.5 Fundamentals of Radar
- 9.6 Bright Bands