

**राष्ट्रिय प्रसारण ग्रिड कम्पनी लिमिटेड**  
इन्जिनियरिङ्ग सेवा, विविध समूह, ७ तह, अधिकृत (वातावरण) पदको खुला र आन्तरिक प्रतियोगितात्मक परीक्षाको  
पाठ्यक्रम

पाठ्यक्रम योजनालाई निम्नानुसारका दुई चरणमा विभाजन गरिएको छः

प्रथम चरण:-	लिखित परीक्षा	पूर्णाङ्क:- २००
द्वितीय चरण:-	अन्तरवार्ता	पूर्णाङ्क:- ३०

**परीक्षा योजना (Examination Scheme)**

१. प्रथम चरण:- लिखित परीक्षा पूर्णाङ्क:- २००

पत्र	विषय	पूर्णाङ्क	उतीर्णाङ्क	परीक्षा प्रणाली		प्रश्नसंख्या × अङ्क	समय
प्रथम	संस्थागत र व्यवस्थापकीय ज्ञान	१००	४०	वस्तुगत	बहुवैकल्पिक प्रश्न (MCQ)	५० प्रश्न × २अङ्क	४५ मिनेट
द्वितीय	तथा सेवा सम्बन्धी (प्राविधिक)	१००	४०	विषयगत	छोटो उत्तर लामो उत्तर	६ प्रश्न × ५अङ्क ७ प्रश्न × १०अङ्क	३ घण्टा

२. द्वितीय चरण:- अन्तरवार्ता पूर्णाङ्क:- ३०

विषय	पूर्णाङ्क	परीक्षा प्रणाली
अन्तरवार्ता	३०	मौखिक

**द्रष्टव्यः**

१. यो पाठ्यक्रमको योजनालाई प्रथम चरण र द्वितीय चरण गरी दुई भागमा विभाजन गरिएको छ।
२. प्रथम र द्वितीय पत्रको विषयवस्तु एउटै हुनेछ।
३. प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ।
४. लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुनेछ।
५. वस्तुगत बहुवैकल्पिक (Multiple Choice) प्रश्नको 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।
६. वस्तुगत बहुवैकल्पिक हुने परीक्षामा परीक्षार्थीले उत्तर लेखदा अंग्रेजी ठूलो अक्षर (Capital letter) A,B,C,D मा लेख्नुपर्नेछ। सानो अक्षर (Small letter) a,b,c,d लेखेको वा अन्य कुनै सङ्केत गरेको भए सबै उत्तरपुस्तिका रद्द हुनेछ।
७. बहुवैकल्पिक प्रश्न हुने परीक्षामा कुनै प्रकारको क्याल्कुलेटर (Calculator) प्रयोग गर्न पाइने छैन।
८. परीक्षामा सोधिने प्रश्नसंख्या, अङ्क र अङ्कभार सामान्यतया सम्बन्धित पत्र/विषयमा दिइए अनुसार हुनेछ।
९. विषयगत प्रश्न हुने पत्रका हकमा प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन्। परीक्षार्थीले प्रत्येक खण्डका प्रश्नहरूको उत्तर सोही खण्डको उत्तरपुस्तिकामा लेख्नुपर्ने छ।
१०. 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।
११. प्रथम चरणको परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराइनेछ।
१२. पाठ्यक्रम स्वीकृत मिति:- २०८०/११/१७

प्रथम र द्वितीय पत्र:- संस्थागत, व्यवस्थापकीय ज्ञान र सेवा सम्बन्धी (प्राविधिक)

भाग (अ)- सेवा सम्बन्धी (प्राविधिक)

खण्ड (क)- (४०% अङ्क)

**1. Concept of Environment**

- 1.1 Environment as a life supporting system: Physical, biological and socio-economic aspects of environment and their interrelationships
- 1.2 Environmental degradation
- 1.3 Demographic characteristics and its relation to environment
- 1.4 Ecosystem dynamics: energy flow, biogeochemical cycles
- 1.5 Biomes and characteristics
- 1.6 Climatic systems, distribution and classification
- 1.7 Prospects and challenges of environmental biotechnology
- 1.8 Concept of Environmental chemistry and atmospheric environment.

**2. Natural Resources**

- 2.1 Water resources (surface and underground) and their utilization
- 2.2 Mineral resources: metallic and non-metallic
- 2.3 Energy resources: sources, classification and environmental issues
- 2.4 Forest resources: types, status in Nepal
- 2.5 Biodiversity: Prospects and challenges
- 2.6 Alternative Energy Sources: Solar, Wind, Green Hydrogen, biogas
- 2.7 Concept and practice of integrated watershed management
- 2.8 Contribution of the natural resources in nation development.

**3. Global Atmospheric Change**

- 3.1 Green House Effect and Global Warming
- 3.2 Climate change and its impacts on agriculture, forest, water resources, ecosystem and biodiversity, human health and natural disasters
- 3.3 Sensitivity of community to climate change
- 3.4 Climate modelling and analysis
- 3.5 Global and regional assessments of climate change
- 3.6 Climate change scenarios in Nepal
- 3.7 Climate change mitigation and adaptation
- 3.8 National Adaptation Program of Action (NAPA), National Adaptation Plan (NAP) and Local Adaptation Plans for Action (LAPA) process in Nepal, Nationally Determined Contributions (NDCs)
- 3.9 International Treaties, Protocols & Conventions: United Nations Framework Convention on Climate Change (UNFCCC), its Protocol and Conference of Parties (CoP); Convention on Biological Diversity (CBD) and its Protocol; United Nations Convention to Combat Desertification (UNCCD); Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
- 3.10 Concepts of Clean Development Mechanism (CDM), Carbon credits and its trading, Reducing emissions from deforestation and forest degradation (REDD)

**4. Environmental Pollution and Waste Management**

- 4.1 Pollution and its types
- 4.2 Types of water pollutants and sources, Water quality criteria and standards, Method of water analysis, Waste water treatment and other types of water pollution control, Economics of water pollution and water pollution control
- 4.3 Sources and causes of air pollution, Influence of weather and other synergistic factors in air pollution, Effects of air pollution on human health, animals, plants, microorganism, ecosystems, materials and climate, Acid rain, effects of air pollution in ozone shield, Air quality criteria and standards, Methods of air analysis, economics of air pollution, Air pollution control strategies and technologies
- 4.4 Noise pollution: causes, impacts and controls,
- 4.5 Solid waste management, Plastic pollution (macro-, micro-, nano- plastic), Characteristics of hazardous wastes, Hazardous Waste Management and Treatment: (Physical, Chemical, Biological), Waste incinerators, Waste disposal
- 4.6 Eco-toxicology: Acute, sub-acute and chronic toxicity
- 4.7 Ecological restoration.

**5. Environmental Earth Science**

- 5.1 Hydrological processes: precipitation, evaporation, snowmelt, surface flow
- 5.2 Soil-water dynamics and ground water recharge, Hyetograph, Intensity-duration of rainfall, River discharge, hydrograph
- 5.3 Geological process and mechanisms: weathering and erosion, fluvial, glacial and periglacial process
- 5.4 Concept of hazard, exposure, vulnerability and risk, Landslide, Floods, Glacial Lake Outburst Flood (GLOF), Earthquake, Hazard mapping.

**खण्ड (ख)- (४०% अङ्क)**

**6. Environmental Engineering and Assessment**

- 6.1 Basic concept of Environmental Engineering
- 6.2 Concept and Importance of Bio-Engineering
- 6.3 Evolution in global and national perspectives of environmental assessment
- 6.4 Environmental assessment: Brief Environmental Study (BES), Initial environmental examination (IEE) and Environmental Impact Assessment (EIA) and their importance
- 6.5 Process of Environmental assessment: Screening, Scoping, Terms of Reference (ToR) preparation, Base Line Data Collection, Impact Identification, Public Hearing, Report writing
- 6.6 Management of IEE/EIA process: public participation, EIA review, Mitigation measures, monitoring and Environmental Management Plan, Environmental auditing, Strategic Environmental Studies
- 6.7 Public involvement in the EIA /IEE process (as per the prevailing laws), Identification of the stakeholders of the project, Stakeholders Mapping
- 6.8 Ethics in Environmental Assessment
- 6.9 Environmental monitoring and environmental auditing
- 6.10 Concept of Cumulative Impact Assessment (CIA) and Strategic Environmental Assessment (SEA)
- 6.11 Environmental Management Systems (EMS): Concept, components, stages and modelling
- 6.12 Environmental Assessment of Transmission Line Projects: Issues and challenges

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**पाठ्यक्रम**

- 6.13 Use of Remote Sensing and GIS in environment management
  - 6.14 Environmental statistics: concept and practice
  - 6.15 Environment Protection Act, 2076
  - 6.16 Environment Protection Regulation, 2077
  - 6.17 Forests Act, 2076 and Forests Regulations, 2079
  - 6.18 National Parks and Wildlife Conservation Act, 2029 and its Regulation 2030
  - 6.19 National Environmental related Policies (Climate Change Policy, 2076; Environment Policy, 2076; Forests Policy, 2075; Water Resources Policy, 2077)
  - 6.20 National Environmental Impact Assessment Guidelines, 2050
  - 6.21 Wildlife -friendly Infrastructure Construction Directives, 2078
- 7. Project Management, Financial Analysis and Professional Practice**
- 7.1 Project management: Project Planning and Scheduling
  - 7.2 Project cycle, Manpower planning and resource scheduling
  - 7.3 Project implementation, monitoring and control
  - 7.4 Capital Planning and Budgeting: Capital planning procedures, Preparation and operating budgets, budgetary control
  - 7.5 Project Financial analysis: benefit cost ratio, internal rate of return, net present value, payback period, minimum attractive rate of return and their application;
- 8. Environmental Management of Transmission Line (TL) Projects**
- 8.1 Environmental and Social issues of overhead and underground TL Projects
  - 8.2 Right of Way (RoW) issues and management
  - 8.3 Land Acquisition for transmission lines
  - 8.4 Forest Clearance and Tree Cutting issues
  - 8.5 Compensatory Plantation
  - 8.6 Social Mitigation for TL projects
  - 8.7 Community Support Program (CSP)

**भाग (आ)- संस्थागत र व्यवस्थापकीय ज्ञान**

**खण्ड (ग)- (२०% अङ्क)**

- 1. Institutional Knowledge and Related Legislations**
- 1.1 Rastriya Prasaran Grid Company Limited (RPGCL): Introduction, mission, vision, organisational structure, functions, present status, opportunities, challenges and possibilities
  - 1.2 Corporate Development Plan (CDP) of RPGCL
  - 1.3 The RPGCL Memorandum of Association and Article of association, 2072
  - 1.4 The RPGCL Rules and bylaws
  - 1.5 Constitution of Nepal, 2072 (part 1 to 5 and annexes)
  - 1.6 Related Acts, Rules and Policies
    - 1.6.1 Hydropower development policy, 2057
    - 1.6.2 Electricity Act, 2049 and Electricity Regulation, 2050
    - 1.6.3 Environment Protection Act, 2076 (Preamble, Chapter 1,2,4,6,7)
    - 1.6.4 Environment Protection Regulation, 2077 (Preamble, Chapter 1,2,4,6,7,8; Annex-1, 2,3)
    - 1.6.5 Forest Act, 2076 (Preamble, Chapter 2,3,12,13,14)
    - 1.6.6 Forest Regulation, 2079 (Preamble, Chapter 12; Annexes-9,50,51,52)
    - 1.6.7 Procurement Act, 2063 and Procurement Regulation, 2064

राष्ट्रिय प्रसारण ग्रिड कम्पनी लिमिटेड  
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पाठ्यक्रम

**2. Management and Professional Practice**

- 2.1 Management: Concept, Function and Scope
- 2.2 Motivation, Leadership, Coordination, Team work, Decision Making
- 2.3 Organizational Behaviour and Grievance Handling
- 2.4 Corporate planning and strategic management
- 2.5 Ethics and Professionalism: Perspective on morals, codes of ethics and guidelines of professional practice
- 2.6 Public procurement practices for works, goods and services and its importance; relationship among client, consultant and contractor

**3. Occupational Safety**

- 3.1 Effects of electric shock on human beings, first aid requirements, safety and precautions against electric shocks; safety rules and regulation
- 3.2 Safety rules and regulation in the project construction area, safety tools and devices, live line maintenance system
- 3.3 Storage and handling of explosives, hazard mitigation
- 3.4 Fire hazards; Types of fire and firefighting techniques

प्रथम पत्रको लागि सामान्यतया निम्नानुसार प्रश्नहरू सोधिने छ।

प्रथम पत्र (वस्तुगत)					
भाग	विषय	खण्ड	परीक्षा प्रणाली	अङ्कभार	प्रश्न संख्या
(अ)	सेवा सम्बन्धी	(क)	बहुवैकल्पिक प्रश्न (MCQS)	४०	२० प्रश्न × २अङ्क = ४०
		(ख)		४०	२० प्रश्न × २अङ्क = ४०
(आ)	संस्थागत र व्यवस्थापकीय ज्ञान	(ग)		२०	१० प्रश्न × २अङ्क = २०

द्वितीय पत्रको लागि सामान्यतया निम्नानुसार प्रश्नहरू सोधिने छ।

द्वितीय पत्र (विषयगत)					
भाग	विषय	खण्ड	अङ्कभार	छोटो उत्तर	लामो उत्तर
(अ)	सेवा सम्बन्धी	(क)	४०	२ प्रश्न × ५अङ्क = १०	३ प्रश्न × १०अङ्क = ३०
		(ख)	४०	२ प्रश्न × ५अङ्क = १०	३ प्रश्न × १०अङ्क = ३०
(आ)	संस्थागत र व्यवस्थापकीय ज्ञान	(ग)	२०	२ प्रश्न × ५अङ्क = १०	१ प्रश्न × १०अङ्क = १०