

**हाइड्रोइलेक्ट्रिसिटी इन्भेष्टमेन्ट तथा डेभलपमेन्ट कम्पनी लिमिटेड**  
**प्राविधिक सेवा, इन्जिनियरिङ्ग समूह, ९ तह, बरिष्ठ प्रबन्धक (जलविद्युत) खुला तथा आन्तरिक प्रतियोगितात्मक**  
**परीक्षाको लागि पाठ्यक्रम**

पाठ्यक्रम योजनालाई निम्नानुसारका दुई चरणमा विभाजन गरिएको छ :

प्रथम चरण :- लिखित परीक्षा

पूर्णाङ्क :- २००

द्वितीय चरण :- अन्तर्वार्ता

पूर्णाङ्क :- ३०

**परीक्षा योजना (Examination Scheme)**

**१. प्रथम चरण : लिखित परीक्षा (Written Examination)**

**पूर्णाङ्क :- २००**

पत्र	विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली	प्रश्न संख्या X अङ्क	समय
प्रथम	शासकीय प्रबन्ध र संस्थागत ज्ञान	१००	४०	विषयगत	१० प्रश्न X ५ अङ्क = ५० ५ प्रश्न X १० अङ्क = ५०	३ घण्टा
द्वितीय	सेवा, समूह सम्बन्धी	१००	४०	विषयगत	६ प्रश्न X १० अङ्क = ६०	३ घण्टा
				विषयगत - समस्या समाधान	२ प्रश्न X २० अङ्क = ४०	

**२. द्वितीय चरण :**

विषय	पूर्णाङ्क	परीक्षा प्रणाली
अन्तर्वार्ता	३०	मौखिक

**द्रष्टव्य :**

- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुनेछ ।
- प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।
- लिखित परीक्षामा सोधिने प्रश्नसंख्या र अङ्कभार यथासम्भव सम्बन्धित पत्र, विषयमा दिईए अनुसार हुनेछ ।
- विषयगत प्रश्नहरूको हकमा 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 ।
- विषयगत प्रश्नमा प्रत्येक पत्र/विषयका प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन् । परीक्षार्थीले प्रत्येक खण्डका प्रश्नहरूको उत्तर सोही खण्डका उत्तरपुस्तिकामा लेख्नुपर्नेछ ।
- यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जेसुकै लेखिएको भएतापनि पाठ्यक्रममा परेका कानून, ऐन, नियम, विनियम तथा नीतिहरू परीक्षाको मितिभन्दा ३ महिना अगाडि (संशोधन नभएका वा संशोधन भई हटाईएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ ।
- प्रथम चरणको परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराइनेछ ।
- पाठ्यक्रम लागु मिति :- २०७८।०५।१२

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परीक्षाको लागि पाठ्यक्रम

**प्रथम पत्र - शासकीय प्रबन्ध र संस्थागत ज्ञान**

**खण्ड (क) - शासकीय प्रबन्ध (५०अङ्क)**

(विषयगत प्रश्न १०×५अङ्क = ५० अङ्क)

1. **Governance and Management (15 Marks)**
  - 1.1 Meaning, features and dimensions of governance
  - 1.2 History of Constitutional development in Nepal and Present Constitution of Nepal
  - 1.3 Federal system and its practices in Nepal
  - 1.4 E- governance and innovative governance
  - 1.5 Corporate governance System
  - 1.6 Management: concept, characteristics, functions, principles and scope
  - 1.7 Contemporary management issues and challenges
  - 1.8 Qualities of leadership, group dynamics, motivation and communication
  - 1.9 Managerial skills: Decision Making, Problem Solving and Communication
  - 1.10 Human Resource Management (HRM): acquisition, development, utilization and maintenance
  - 1.11 Financial Administration: concept, scope, function, objective and relationship between public administration and financial administration..
  - 1.12 Peoples participation in development, Sustainable Development, Public Private Partnership, Globalization and localization
  - 1.13 Management Information system for good decision and effective control
2. **Project Management and Financial Analysis (15 Marks)**
  - 2.1 Project management: Project Planning and Scheduling, project cycle, Network models, CPM/PERT, Manpower & Equipment planning and resource scheduling
  - 2.2 Project preparation for implementation and justification, Project monitoring and control
  - 2.3 Capital Planning and Budgeting: Capital planning procedures, Preparation and operating budgets , budgetary control
  - 2.4 Financial analysis: Methods of financial analysis such as benefit cost ratio, internal rate of return, net present value, payback period, minimum attractive rate of return and their application;
  - 2.5 General Concept of EIRR (Economic internal rate of return) and FIRR (Financial internal rate of return)
3. **Financial Resource Mobilization (10 Marks)**
  - 3.1 Development of banking and financial institutions in Nepal and their impact on National economy
  - 3.2 Role of capital market in national economy
  - 3.3 Role of financial institutions in rural economy
  - 3.4 Role of foreign aid, mobilization and management
  - 3.5 Role of WB, ABD and IMF
4. **Ethics, Morality, Accountability and Professionalism (10 Marks)**
  - 4.1 Essence, determinants, consequences and dimensions of ethics; Human values; Ethics in public service.
  - 4.2 Ethical issues in public service delivery and utilization of public funds
  - 4.3 Challenges of corruption and corruption control strategies
  - 4.4 The foundational values for public service - integrity, impartiality, dedication, empathy, tolerance and compassion

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परीक्षाको लागि पाठ्यक्रम

खण्ड (ख) संस्थागत ज्ञान – (५० अङ्क)  
(विषयगत (५ प्रश्न × १० अङ्क = ५० अङ्क)

5. **Institutional Knowledge and Related Act, Regulation and Guidelines (30 Marks)**
- 5.1 Introduction, organisational structure, functions, present status, opportunities, challenges and possibilities of HIDCL
  - 5.2 Memorandum of Association and Article of Association Of HIDCL
  - 5.3 Employee Service Bylaws of HIDCL
  - 5.4 Financial Administration and Procurement Bylaws of HIDCL
  - 5.5 Debt and Equity Investment Procedure, 2078
  - 5.6 Strategic Plan of HIDCL
  - 5.7 Electricity Act, 2049 and Electricity Regulation, 2050
  - 5.8 Electricity Regulation Commission Act, 2074 and Electricity Regulatory Commission Rules, 2075
  - 5.9 Foreign Investment and Technology Transfer Act, 2075
  - 5.10 Public Procurement Act 2063
  - 5.11 Land Acquisition Act, 2034
  - 5.12 Industrial Enterprises Act, 2076
  - 5.13 Public Private Partnership and Investment Act, 2076
6. **Power Sector and Hydropower Development in Nepal (20 Marks)**
- 6.1 Importance of electricity in National development
  - 6.2 Issues and challenges of hydropower development
  - 6.3 Strategies of power sector in periodic plan
  - 6.4 Potentiality of hydroelectricity development
  - 6.5 Contribution of alternative energy
  - 6.6 Role of private sector in hydropower development
  - 6.7 Energy Supply & Demand - trend and challenges
  - 6.8 Power Sector Development- history, generation structure, challenges and prospects
  - 6.9 Various model of Investment for Hydropower development

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**द्वितीय पत्र - सेवा सम्बन्धी**

**खण्ड (क) – (५० अङ्क)**

**विषयगत (३ प्रश्न × १० अङ्क, १ प्रश्न × २० अङ्क )**

- 1. Trends and Potentiality of Hydropower Development (10 Marks)**
  - 1.1 Global Trends, Opportunities and Challenges of Hydropower Development.
  - 1.2 Hydropower Investment and Development in Nepalese Perspective
  - 1.3 Concepts of different types of power ( Thermal, Hydro, Wind, Solar and others)
  - 1.4 Concepts of Energy Mix
  - 1.5 Impacts of Climate Change in Hydropower Project
  - 1.6 Overview of Nepal's Hydropower Sector
  - 1.7 Hydropower Development Plans and Policies of Nepal
  - 1.8 Legal and Regulatory Requirements for Hydropower Development in Nepal
  - 1.9 Roles and Tendency of Private Sectors in Hydropower Development in Nepal
  - 1.10 Issues and Challenges of Hydropower Projects Development in Nepal
  - 1.11 Future Prospect of Hydropower Development in Nepal Considering both National and Regional Context
- 2. Water Resources Planning and Management (10 Marks)**
  - 2.1 Strategic Issues in Water Resources Management
  - 2.2 Activities Involved in Water Resources Management
  - 2.3 Water Resources planning and management approaches
  - 2.4 Water Resources Planning
    - 2.4.1 Integrated Water Resources Management Planning
    - 2.4.2 Basin-wise planning
    - 2.4.3 Short, Medium and Long term Planning
    - 2.4.4 Selection of Master Plan
- 3. Hydropower Project Development (10 Marks)**
  - 3.1 Development Objectives
  - 3.2 Classification of Hydroelectric Plants
  - 3.3 Major components of Hydroelectric Plants
  - 3.4 Production Patterns and Output Profiles
  - 3.5 Cost Characteristics
  - 3.6 Project Planning and Implementation
    - 3.6.1 Options Selections
    - 3.6.2 Project Planning/Study Phase and Details of Study Requirements
      - Reconnaissance Study
      - Pre-feasibility Study
      - Feasibility studies/Detailed Engineering Studies/Designs/value engineering
    - 3.6.3 Project Financing
    - 3.6.4 Contracting/Bid Evaluation
    - 3.6.5 Project Construction/Development
    - 3.6.6 Project Operation and Maintenance
- 4. Project Appraisal/Due-diligence (20 Marks)**
  - 4.1 Technical Appraisal

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**परीक्षाको लागि पाठ्यक्रम**

- 4.1.1 Hydrology and Catchment Characteristics
- 4.1.2 Topographical Survey and Mapping
- 4.1.3 Geology/Geo-technical Investigations
- 4.1.4 Project Layout and Design Review
- 4.1.5 Hydromechanical works
- 4.1.6 Electromechanical equipments
- 4.1.7 Power Evacuation, Transmission Lines and Grid Connecting Equipments
- 4.1.8 Power and Energy
- 4.1.9 Unit Rates and Project Cost
- 4.1.10 Environmental and Social Impact Assessment
- 4.1.11 Construction Planning and Scheduling
  
- 4.2 Financial Appraisal
  - 4.2.1 Basic Criterion and Assumptions
  - 4.2.2 Cost comparison
  - 4.2.3 Benefit assessment
  - 4.2.4 Risk Analysis
  - 4.2.5 Cost-Benefit Analysis
  - 4.2.6 Financial Analysis
  - 4.2.7 Economic Analysis
  - 4.2.8 Sensitivity Analysis
- 4.3 Appraisal of Promoters and Management
- 4.4 Risks of Hydropower Project Development
  - 4.4.1 Types of Risks
  - 4.4.2 Risks Identification, Analysis and Assessment
  - 4.4.3 Risks Mitigation and Management

हाइड्रोइलेक्ट्रिसिटी इन्वेष्टमेन्ट तथा डेभलपमेन्ट कम्पनी लिमिटेड  
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परीक्षाको लागि पाठ्यक्रम

खण्ड (ख) – ५० अङ्क विषयगत

(३ प्रश्न × १० अङ्क, १ प्रश्न × २० अङ्क )

- 5 **Financing Hydropower Projects (10 Marks)**
  - 5.1 General Aspects of Hydropower Financing
  - 5.2 Financing Plan
  - 5.3 Financing Alternatives
    - 5.3.1 Equity Investments
    - 5.3.2 Bank/Financial Institutions loan
    - 5.3.3 Co-development with Financially Strong Partner
    - 5.3.4 Project Financing
    - 5.3.5 Re-financing
    - 5.3.6 Intermediary loan financing
    - 5.3.7 On-lending
  - 5.4 Key Considerations of Debt and Equity Financing
  - 5.5 Possible improvements to the financing situations
  - 5.6 General Processes of Financing Hydropower Projects in Nepal
  - 5.7 Risks and its Mitigation in Hydropower Financing
- 6 **Implementation of Hydropower Projects (20 Marks)**
  - 6.1 Definitive Study and Final design
  - 6.2 Types and Selection of Contract
  - 6.3 Procurement of Construction and Consulting Contract
  - 6.4 Quality Assurance and Quality Control
  - 6.5 Contract Management
  - 6.6 Monitoring and Evaluation
- 7 **Power Trading and Tarrifs (10 Marks)**
  - 7.1 Power Trading Schemes
  - 7.2 Power Trade Agreement
  - 7.3 Project Development Agreement
  - 7.4 Power Purchase Agreement
  - 7.5 Potential and Conditions for Power Export
  - 7.6 Tariffs: Principles, Tarrifs Design, Consumer Categories, Rate Formulation Process
  - 7.7 Concept of Energy banking
  - 7.8 Cross Border Grid Connectivity
  - 7.9 Energy Wheeling Charge, Energy Pool market
- 8 **Environmental and Social Issues (10 Marks)**
  - 8.1 Environmental Assessment procedure and their implementation
  - 8.2 Environmental and Social Assesment processes of Hydropower Projects in Nepal
  - 8.3 International Environmental and Social Safeguard Standards (For Example ADB, IFC, etc)
  - 8.4 Environmental and Social Management Plan (ESMP)
  - 8.5 Environmental and Social Monitoring (ESM)
  - 8.6 Stakeholder's Management
  - 8.7 Public Concerns and Grievance Redress Mechanism
  - 8.8 Environment and Development Issues
  - 8.9 Clean Development Mechanism (CDM)

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