

हाइड्रोइलेक्ट्रिसिटी इन्भेष्टमेन्ट तथा डेभलपमेन्ट कम्पनी लिमिटेड
प्राविधिक सेवा, इन्जिनियरिङ्ग समूह, ८ तह, 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 :-

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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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प्राविधिक सेवा, इन्जिनियरिङ्ग समूह, ८ तह, प्रवन्धक (जलविद्युत) खुला तथा आन्तरिक प्रतियोगितात्मक 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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लागि पाठ्यक्रम
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
 - 4.1.1 Hydrology and Catchment Characteristics

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- 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

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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 Tariffs (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, Tariffs 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 Assessment 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)