नेपाल विद्युत प्राधिकरण

प्राविधिक सेवा, सवै समूह/उपसमूहको तह ९, उप प्रवन्धक पदको खुला/आन्तरिक प्रतियोगितात्मक परीक्षाको लागि पाठ्यक्रम

पाठ्यक्रम योजनालाई निम्नानुसार दुई चरणमा विभाजन गरिएको छः

प्रथम चरणः लिखित परीक्षा पूर्णाङ्कः- २००

द्वितीय चरणः अन्तर्वार्ता पूर्णाङ्कः- ३०

परीक्षा योजना (Examination Scheme)

प्रथम चरणः लिखित परीक्षा पूर्णाङ्कः- २००

पत्र	विषय	पूर्णाङ्क	उतिर्णाङ्क	खण्ड	परीक्षा प्रणाली		प्रश्न संख्या * अङ्कभार	समय
प्रथम	शासकीय प्रवन्ध, व्यवस्थापन र व्यवसायीकता	१००	४०	(क)	विषयगत	तर्कयूक्त विश्लेषणात्मक प्रश्न	३ प्रश्न * १० अंक	३ घण्टा
						समस्या समाधानमूलक प्रश्न	१ प्रश्न * २० अंक	
	सेवा सम्वन्धी सामान्य विषय			(ख)		तर्कयूक्त विश्लेषणात्मक प्रश्न	३ प्रश्न * १० अंक	
						समस्या समाधानमूलक प्रश्न	१ प्रश्न * २० अंक	
द्वितीय	सेवा सम्वन्धी (विस्तृत ज्ञान)	१००	४०	(क)	विषयगत	तर्कयूक्त विश्लेषणात्मक प्रश्न	३ प्रश्न * १० अंक	३ घण्टा
						समस्या समाधानमूलक प्रश्न	१ प्रश्न * २० अंक	
				(ख)		तर्कयूक्त विश्लेषणात्मक प्रश्न	३ प्रश्न * १० अंक	
						समस्या समाधानमूलक प्रश्न	१ प्रश्न * २० अंक	

द्वितीय चरणः अन्तर्वार्ता पूर्णाङ्कः- ३०

विषय	पूर्णाङ्क	परीक्षा प्रणाली
अन्तर्वार्ता	३०	मौखिक

द्रष्टव्यः

१. लिखित परीक्षाको माध्यम भाषा नेपाली र अंग्रेजी अथवा नेपाली अंग्रेजी दुवै हुन सक्नेछ।

२. प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ।

३. लिखित परीक्षामा सोधिने प्रश्नसंख्या र अंकभार यथासम्भव सम्वन्धित पत्र/विषयमा दिईए अनुसार हुनेछ।

४. विषयगत प्रश्नहरुको हकमा एउटा लामो प्रश्न वा एउटै प्रश्नका दुई वा दुई भन्दा वढी भाग (Two or more Parts of a single question) एउटा प्रश्न अन्तर्गत दुई वा वढी टिप्पणीहरु (Short notes) सोध्न सकिनेछ।

५. विषयगत प्रश्न हुने पत्र/विषयमा प्रत्येक खण्ड/प्रश्नका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरु हुनेछन। परीक्षार्थीले प्रत्येक खण्ड/प्रश्नको उत्तर सोही खण्ड/प्रश्नको उत्तरपुस्तिकामा लेख्नु पर्नेछ।

६. यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जुनसुकै कुरा लेखिएको भए तापनि पाठ्यक्रममा परेका कानून, ऐन, नियम, विनियम तथा नीतिहरु परीक्षाको मिति भन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाईएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्नेछ।

७. प्रथम चरणको परीक्षावाट छनौट भएका उम्मेवारहरुलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराईनेछ।

८. **पाठयक्रम स्वीकृत मितिः- २०८०/०८/२१**

नेपाल विद्युत प्राधिकरण

प्राविधिक सेवा, सवै समूह/उपसमूहको तह ९, उप प्रवन्धक पदको खुला/आन्तरिक प्रतियोगितात्मक परीक्षाको लागि पाठ्यक्रम

प्रथमपत्र

शासकीय प्रवन्ध, व्यवस्थापन र व्यवसायिकता

(Governance, Management and Professionalism)

खण्ड (क) : ५० अङ्क

1. **Governance**
   - 1.1. Meaning, features and dimensions of governance
   - 1.2. Global Governance System
   - 1.3. Corporate governance System
   - 1.4. The federal, provincial and local level governance
   - 1.5. New Public Governance

2. **Public Administration**
   - 2.1. Concept of Public Administration
   - 2.2. Basics elements of Personnel Administration
   - 2.3. financial Administration: Budget Preparation, Implementation, Monitoring and Evaluation
   - 2.4. Fiscal Federalism: Managing Federal, Provincial and Local Government Revenue and Expenditure
   - 2.5. Public Policy: Formulation, Implementation, Monitoring and Evaluation

3. **Management and Financial Analysis**
   - 3.1. Contemporary issues and Emerging concept of management: Time management, Resource management, Change management, Technology management, Information management, Performance Management, Grievance management, Team management, Conflict management, Crisis management, Stress management, Risk management, Participative management, Disaster Management and Work culture
   - 3.2. Role and Importance of Leadership, Motivation, Team work, Decision making, Control and coordination in management
   - 3.3. Corporate planning and strategic management
   - 3.4. Skill, Competencies and knowledge for successful manager
   - 3.5. Issues and Challenges for Manager
   - 3.6. Corporate social responsibility
   - 3.7. Project monitoring and control: System of control, Project control cycle, Feedback control systems, Cash control
   - 3.8. 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; tariff structure
   - 3.9. Management Information system (MIS) and Enterprise Resource Planning (ERP)

4. **Ethics, morality and Accountability**
   - 4.1. Essence, determinants, consequences and dimensions of ethics
   - 4.2. Human values, Norms and Perceptions
   - 4.3. Ethics in public service
   - 4.4. Ethical issues in public service delivery and utilization of public funds
   - 4.5. Challenges of corruption and corruption control strategies

4.6. Accountability, responsibility and authority
4.7. Compliance mechanism of public accountability

5. **Professionalism**
   5.1. The foundational values for public service - integrity, impartiality, dedication, empathy, tolerance and compassion
   5.2. Method and significance of Dispute Management

खण्डः (ख) : ५० अङ्क

6. **Constitution, Policy, Act and Rules**
   6.1. Constitution of Nepal
   6.2. Nepal Electricity Authority Act, 2041
   6.3. Present Nepal Electricity Authority, Employee Service bylaws
   6.4. Public Procurement Act, 2063, and Public Procurement Regulation, 2064
   6.5. Present Nepal Electricity Authority, Financial Administration bylaws
   6.6. Electricity Act, 2049 and Electricity Regulation, 2050
   6.7. Electricity Regulatory Commission Act, 2074
   6.8. Good Governance (Management and Operation) Act, 2064
   6.9. National Water Resources Policy, 2075
   6.10. Corruption Control Act, 2059
   6.11. Land Acquisition Act, 2034
   6.12. Environment Protection Act, 2076 and Environment Protection Regulation, 2077
   6.13. Present Nepal Electricity Authority, Electricity distribution bylaws
   6.14. Hydropower development policy, 2058
   6.15. Labor Act, 2074 and Labor Regulation, 2074

7. **Power Sector Development in Nepal**
   7.1. Energy Supply & Demand - trend and challenges
   7.2. Power Sector Development - history, generation structure, challenges and prospects
   7.3. Private sector's participation in hydropower and solar generation
   7.4. Power Development Agreement (PDA), Power Purchase Agreement (PPA), licensing, feasibility study, Detail Engineering Design
   7.5. Role of community electrifications and AEPC in public access to electricity
   7.6. Nepal Electricity Authority: Corporate structure, functions of different business groups, NEA's Subsidiary & Associate Companies, objective, achievement and challenges
   7.7. Concept of NEA Restructuring in federal context, Operational Performance
   7.8. Various model of Investment for Hydropower development
   7.9. Corporate Development Plan (CDP) of NEA

8. **New Trends of Power Sector**
   8.1. Energy security, present and future energy mix scenario of : (1) Nepal, (2) Bilateral: BBIN, SAARC and (3) The world
   8.2. Global efforts and achievements on Energy Efficiency, energy intensity
   8.3. Concept of Energy banking, Energy Trade, Energy Exchange and Regional Grid, International Energy market trends

8.4. Financial & Technical Aspects of Cross Border Grid Connectivity
8.5. Recent international practices in power sector reform; Energy wheeling charge, Energy pool market, Availability based tariff

9. **Grid Operation**
9.1. Management of Active/Reactive power in complex system-challenges and opportunities for management
9.2. Power system stability –Issues and challenges
9.3. Control and protection: Importance, trends and challenges in complex electrical systems

नेपाल विद्युत प्राधिकरण

प्राविधिक सेवा, सिभिल समूह, सर्भे उपसमूह, तह ९, उप प्रवन्धक पदको खुला/आन्तरिक प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

द्वितीय पत्र

सेवा सम्वन्धी विस्तृत ज्ञान

खण्ड (क) : ५० अङ्क

1. **Fundamentals of Surveying and Survey Management**
   - 1.1 Concept, principles and disciplines of surveying
   - 1.2 Linear and angular measurement techniques
   - 1.3 Types, sources of errors in measurements, precision and accuracy, propagation of error, theory of error and adjustment
   - 1.4 Principle and methods of plain table surveying
   - 1.5 Especial consideration of surveying and mapping for hydropower development
   - 1.6 Plotting of topographic map, L-section, Cross - section
   - 1.7 Software of plotting and mapping
   - 1.8 Survey need assessment, terms of reference, survey design, specification and costing
   - 1.9 Logistical arrangement for surveying including equipment and accessories, coordination with institutions, safety management, professional ethics, code of conduct

2. **Levelling**
   - 2.1 Principle of levelling
   - 2.2 Temporary and permanent adjustment of level
   - 2.3 Differential levelling, fly levelling, reciprocal levelling, profile levelling, cross sectioning
   - 2.4 Sources of errors in levelling
   - 2.5 Errors, precision and adjustment of errors
   - 2.6 Trigonometrical levelling; determination of height and distance of inaccessible objects, reciprocal trigonometric levelling

3. **Traversing, Triangulation and Trilateration**
   - 3.1 Definition, applications and uses
   - 3.2 Closed traverse and linked traverse
   - 3.3 Horizontal and vertical control of traverse
   - 3.4 Computation of angles, bearings, latitudes and departures, independent coordinates
   - 3.5 Errors, precision and adjustment in angles, bearings and coordinates
   - 3.6 Principles of triangulation and trilateration
   - 3.7 Computations and adjustment of triangulation and trilateration

4. **Computation of Area and Volume**
   - 4.1 Computation of area: Area by ordinates, coordinates and double meridian distance method
   - 4.2 Computation of volume: Volume by average end area, prismoidal formula, trapezoidal rule, and Simpson's 1/3 rule
   - 4.3 Cadastral Surveying : concept, principles and methods of cadastral surveying

5. **Cadastral Surveying**
   - 5.1 Cadastral Surveying : concept, principles and methods of cadastral surveying
   - 5.2 Organizational Arrangement for cadastral surveying and land administration in Nepal

5.3 Availability of cadastral and land ownership related data
5.4 Process of land acquisition, complexities of land acquisition in Nepal, Compensation issues

6. **Photogrammetric and Remote Sensing**
   6.1 Basics of Photogrammetry; Principles, application, terminologies, types of aerial photographs
   6.2 Planning aerial flight, aerial camera, overlaps, scale, etc.
   6.3 Distortions, Displacement in photogrammetry and their corrections
   6.4 Modern Technologies like Unmanned Aerial Vehicle (UAV), LiDAR; basics, techniques and application
   6.5 Basics of Remote Sensing; concept; principles, types
   6.6 Image acquisition techniques, types of scanners, source of errors and their removal
   6.7 Image processing and interpretation
   6.8 Acquiring and processing photographs and satellite images for hydropower projects

खण्ड (ख) : ५० अङ्क

7. **Global Navigation Satellite System (GNSS)**
   7.1 Introduction to space geodesy
   7.2 Principle of GNSS
   7.3 GNSS Components
   7.4 Types of GNSS; GPS, GLONAS, Bei Dou, Galileo, QZSS; significance of different GNSS systems
   7.5 GNSS Signals, biases and solutions
   7.6 Coordinate Systems and Spheroid used in different GNSS system
   7.7 GNSS Data processing; Significance of CORS, availability of CORS in Nepal
   7.8 Availability of GNSS/ CORS data in Nepal
   7.9 Coordinate system and star coordinate updating
   7.10 Mathematical model for latitude, longitude and azimuth
   7.11 Transformation between local and global system
   7.12 Celestial system

8. **Cartography**
   8.1 Concept and scope of cartography
   8.2 Scale, direction and coordinates
   8.3 Map projections
   8.4 Conventional and digital cartography
   8.5 Conceptual Modeling, Digital Landscape modeling, Digital Cartography Modeling and Cartographical Generalization
   8.6 Use of colour in map compilation
   8.7 Map compilation and production
   8.8 Modern map making techniques
   8.9 Data acquisition, processing, analysis, visualization and presentation
   8.10 Map reproduction, enlargement and reduction
   8.11 Web cartography

9. **Geographical Information System (GIS)**
   9.1 Introduction to GIS, GIS components
   9.2 Data model

9.3 Compiling data from different sources
9.4 GIS operation and spatial analysis
9.5 Geometric coordinates and WGS 84
9.6 Application of GIS

10. **Transmission Line, Tunnel and Construction Survey**
10.1 Route alignment survey of transmission line
10.2 Profile survey of transmission line
10.3 Tower location
10.4 Angle points
10.5 Power line/Transmission line crossing
10.6 Alignment of the centerline of the tunnel
10.7 Transferring the alignment under ground
10.8 Transferring the levels under ground
10.9 Construction Survey of hydropower station: Intake, reservoir, dam, powerhouse
10.10 Road alignment survey: gradient, curve, cutting, filling
10.11 Curve and curve setting

11. **Contract Management**
11.1 Preparation of contract documents, specifications, condition of contract and other contractual procedures
11.2 Familiarization with procurement guidelines and standards of PPMO Nepal, World Bank & Asian Development Bank (WB & ADB)
11.3 Standard Bidding Document for ICB including for EPC contract, Standard Bidding Document for NCB including for EPC contract
11.4 Settlement of contractual disputes (mediation, arbitration and negotiation)

12. **Engineering Economics**
12.1 Disbursement scheduling, cash flow analysis, time value of money
12.2 Project evaluation indicators, IRR, payback period, choosing the best alternative
12.3 Risk analysis, inflation & price change
12.4 Energy tariff schemes and regulatory issues