नेपाल विद्युत प्राधिकरण

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

पाठ्यक्रम योजनालाई निम्नानुसार दुई चरणमा विभाजन गरिएको छ:

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

परीक्षा योजना (Examination Scheme)

प्रथम चरणः लिखित परीक्षा पूर्णाङ्क:- २००

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

द्वितीय चरणः अन्तर्वार्ता पूर्णाङ्क:- 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 हुनेछन्।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 प्रबन्धक पदको खुला/आन्तरिक प्रतियोगितात्मक
परीक्षाको लागि पाठ्यक्रम
प्रथमपत्र
शासकीय प्रबन्ध, व्यवस्थापन र व्यवसायिकता
(Governance, Management and Professionalism)

<u>खण्ड (क) : ५० अङ्क</u>

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

द्वितीय पत्र
सेवा सम्बन्धी विस्तृत ज्ञान
खण्ड (क) : ५० अङ्क

1. **IT Strategy and Planning:** IT planning and strategy, Importance of IT in National development, Social and culture aspect of IT, information superhighway, SWOT analysis, Strategic use and Implementation of IT, Role of IT in Automation and Customer Services

2. **Computer Architecture:** Control Unit, RISC and CISC computers, Arithmetic and logic unit, Addressing modes, Memory system. CPU design and architecture, I/O organization and management, cache memory, parallel processing, RAID management

3. **Software Engineering and Software Project Management :** Information System and Modern System Analysis Technique, System Development Life cycle, Object Oriented Software Development, Agile software development, Client Server Computing, Clean room software Development, Software testing technique, Software Quality and Quality Assurance, Software reengineering, Configuration Management, PERT/ CPM network, COCOMO Model, Investment analysis and breakeven analysis. Time value of money, financial analysis, Software estimation, Software configuration management, Team building approach, Issue tracking and management Verification and Validation, Business Processing Reengineering, UML diagram and Modeling

4. **Artificial Intelligence and Expert Systems :** Concepts of artificial intelligence, Overview of knowledge-based and expert systems, Logic programming, Knowledge representation, Rule-based and object-based systems, Logistic Regression, deep learning, Computer vision, Fraud detection and control, Artificial Neural Network, Fuzzy logic, Reinforcement learning, NLP, Machine Learning, AI in NEA system automation

5. **Network and Information Security** : Classification of Data from security point of view, Risks of data loss, Security methods to be adopted (Operation Security, Backup of data, Data Access through login, Protection against viruses), Security principle of an organization
Data Privacy and confidentiality, cryptography, secret key cryptography, public key cryptography, authentication and Public Key Infrastructure, Cyber Attacks and system security, IDS (Intrusion Detection System) and IPS (Intrusion Prevention System), Type of attack and protection strategy

6. **Operating Systems:** Overview of operating systems, functionalities and characteristics of OS, Job and processor scheduling, scheduling algorithms, process hierarchies. Deadlock: prevention, detection, avoidance, banker's algorithm, Virtual storage management, page replacement strategies, File management. Windows, UNIX and Linux OS as case studies, Mobile phone OS, special purpose OS, IPC (Inter Process Communication) and synchronization, Distributed OS, Memory management, File management system

7. **Computer Networks and Network Security :** Network fundamentals, Network protocols, OSI Reference Model, TCP/IP Protocol suite, Types of networking,

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topologies, types of media, Layers, Protocols, Hubs, Bridge and Routers, IP address and Network mask, Network traffic analysis, TCP/IP Network (DNS, SNTP, FTP, DHCP), Network infrastructures (LAN and WAN including IEEE 802. standards), VPN and remote access, Internet and WWW, Disaster recovery, Distributed system, Privacy and security issues, Advanced IP Switching and Routing, case study on Network design, Subneting, Routing protocols

खण्ड (ख) : ५० अंक

8. **Database Management Systems** : Database model and design, Entity relationship diagram, RDBMS, Normalization, Structured Query Language, Data mining and warehousing, Transaction management and concurrency control, Query processing and optimization., Normalization, DBMC architecture, Basic concept of major DBMS products, Distributed Database Management System, Recovery system, Database programming and applications**,** Data Centre Management and Disaster Recovery Plan

9. **Information Systems :** MIS and its Components, Function of MIS department, Introduction of Information Systems, Types of Information Systems, Components of information Systems, Introduction of Information Technology and its components, Potential dangers from use of computer systems, ERP, CRM, SRM, Design of information systems, IS building blocks, Management information system development, Decision support system

10. **E-Commerce Technology :** Introduction to E-commerce, Technology Infrastructure for E-commerce, Business Concepts, Business application and Social Issues in E-commerce, Electronic payment system, security issues in Ecommerce, PKI and digital signature, Encryption and decryption methods System Automation, Reporting System, business intelligence and Intelligent Call Centre Management

11. **E-Government :** E-Government and E-Governance, E-Government strategy, Public Data management, Implementing E-Government, E-Government master plan of Nepal, Government enterprise architecture and government portal, Government integrated data center, Disaster recovery center, Focal agencies for E-Government (NITC and OCC), E-government model, E-Government readiness, E-Government infrastructure development, Security for E-Government, E-Government system life cycle and project assessment, Analysis of current issues, Design of new E-Government system, E-Government risk assessment and mitigation, E-Government system management

12. **Latest Trends and Technologies :** RFID technology and its usage, Wi-Fi (Wireless internet/intranet) technology, 5G, NGEN, Gigabit Ethernet, Fiber optics communication technologies and its implementation, IPV6 concepts, Bluetooth technologies and its implementation, Grid computing, Cloud Computing, Big Data, Internet of Things (IOT), Bio informatics, image processing, Smart Meter and Advanced Metering Infrastructure (AMI), RF, GPRS, PLC, NBIOT technology

13. **ICT Policies, Acts/ Regulations and Standards:** IT Policy of Nepal, Electronic Transaction Act of Nepal, Cyber Crime, Copy Right Act of Nepal, ISO Standards, WWW and Internet Standards and Regulations, Digital Nepal Framework-2076, IT Policy of Nepal Electricity Authority