

**नेपाल विद्युत प्राधिकरण**  
प्राविधिक सेवा, सबै समूह/उपसमूहको तह ८, सहायक प्रबन्धक 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	उत्तिर्णाङ्क	खण्ड	परीक्षा प्रणाली	प्रश्न संख्या * अङ्कभार	समय
प्रथम	शासकीय प्रबन्ध, व्यवस्थापन र व्यवसायीकता	१००	४०	(क)	छोटो आउने प्रश्न	४ प्रश्न * ५ अंक	३ घण्टा
				(ख)	लामो आउने प्रश्न	३ प्रश्न * १० अंक	
					छोटो आउने प्रश्न	४ प्रश्न * ५ अंक	
				लामो आउने प्रश्न	३ प्रश्न * १० अंक		
द्वितीय	सेवा सम्बन्धी (विस्तृत ज्ञान)	१००	४०	(क)	तर्कयुक्त विश्लेषणात्मक प्रश्न	३ प्रश्न * १० अंक	३ घण्टा
				(ख)	समस्या समाधानमूलक प्रश्न	१ प्रश्न * २० अंक	
					तर्कयुक्त 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

- लिखित परीक्षाको माध्यम भाषा नेपाली र अंग्रेजी अथवा नेपाली अंग्रेजी दुवै हुन सक्नेछ।
- प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ।
- लिखित परीक्षामा सोधिने प्रश्नसंख्या र अंकभार यथासम्भव सम्बन्धित पत्र/विषयमा दिईए अनुसार हुनेछ।
- विषयगत प्रश्नहरूको हकमा एउटा लामो प्रश्न वा एउटै प्रश्नका दुई वा दुई भन्दा बढी भाग (Two or more Parts of a single question) एउटा प्रश्न अन्तर्गत दुई वा बढी टिप्पणीहरू (Short notes) सोध्न सकिनेछ।
- विषयगत प्रश्न हुने पत्र/विषयमा प्रत्येक खण्डका प्रश्नका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन्। परीक्षार्थीले प्रत्येक खण्डका प्रश्नको उत्तर सोही खण्डको उत्तरपुस्तिकामा लेख्नु पर्नेछ।
- यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जुनसुकै कुरा लेखिएको भए तापनि पाठ्यक्रममा परेका कानून, ऐन, नियम, विनियम 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 पर्नेछ।
- प्रथम चरणको परीक्षाबाट छनौट भएका उम्मेवारहरूलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराईनेछ।
- पाठ्यक्रम स्वीकृत मिति:- २०८०/०८/२१

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प्रथमपत्र

शासकीय प्रबन्ध, व्यवस्थापन र व्यावसायिकता  
(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

**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, Stress management, Participative management, Disaster Management
- 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 management:
  - 3.7.1. Project Planning and Scheduling: Network models-CPM/PERT, Human resource planning and resource scheduling, Project preparation for implementation and justification
  - 3.7.2. Project monitoring and control: System of control, Project control cycle, Feedback control systems, Cash control
  - 3.7.3. 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
- 3.8. 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. Challenges of corruption and corruption control strategies
- 4.5. Accountability, responsibility and authority
- 4.6. Compliance mechanism of public accountability

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- 5. Professionalism :** The foundational values for public service - integrity, impartiality, dedication, empathy, tolerance and compassion

**खण्ड: (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

**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. Nepal Electricity Authority: Corporate structure, functions of different business groups, NEA's Subsidiary & Associate Companies, objective, achievement and challenges
- 7.6. Concept of NEA Restructuring in federal context, Operational Performance
- 7.7. Various model of Investment for Hydropower development
- 7.8. 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

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परीक्षाको लागि पाठ्यक्रम  
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, IT Automation and Customer satisfaction
2. **Computer Architecture** : Control Unit, RISC and CISC computers, Arithmetic and logic unit, Addressing modes, Memory system, CPU architecture, I/O organization and management, Computer memory, parallel processing, integration and performance, maintenance of computer hardware and software, RAID management
3. **Database Management Systems** : Database model and design, Entity relationship diagram, RDBMS, Data Flow Diagram, Normalization, Structured Query Language, Data mining and warehousing, Transaction management and concurrency control, Query processing and optimization., Normalization, DBMS architecture, Basic concept of major DBMS products, Distributed Database Management System, Recovery system, Database programming and applications, Data Centre Management and Disaster Recovery Plan
4. **Software Engineering and Software Project Management** : Information System and Modern System Analysis Technique, System Development Lifecycle, Object oriented Software Development, Agile software development, Client Server Computing, Clean room software Development, Software testing technique, Software Quality and Quality Assurance, Software reengineering, PERT/ CPM network, Investment analysis and breakeven analysis, Time value of money, financial analysis, Software estimation (COCOMO Model), Software configuration management, Team building approach, Issue tracking and management, Verification and Validation, Business Processing Reengineering, UML diagram and Modeling
5. **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. UML diagram and Modeling Logistic Regression, deep learning, Computer vision, Fraud detection, Artificial Neural Network, Convolutional Neural Network, Recurrent Neural Network, NLP, Machine Learning, AI and automation
6. **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, Conventional data and confidentiality, cryptography, secret key cryptography, public key cryptography, authentication (Kerberos, electronic mail security) and Public Key Infrastructure (PKI), Cyber-attacks and system security, information security and auditing
7. **Operating Systems** : Overview of operating systems, functionalities and characteristics of OS, Job and processor scheduling, scheduling algorithms, process hierarchies

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परीक्षाको लागि पाठ्यक्रम

Deadlock: prevention, detection, avoidance, banker's algorithm, Virtual storage management, page replacement strategies, File management, Windows, UNIX and Linux OS, Mobile phone OS, Distributed OS, IPC (Inter Process Communication) and synchronization, Memory management, File management system

8. **Computer Networks and Network Security** : Network fundamentals, Network protocols, OSI Reference Model, TCP / IP Protocol suite, Types of networking, topologies, types of media, Layers, Protocols, Hubs, Bridge and Routers, IP address and Network mask, Network traffic analysis, TCP/IP Network (DNS, SMTP, 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, firewall system

**खण्ड (ख) : ५० अंक**

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 building blocks, Management system development, Decision support system, Data Mining, Data Warehousing
10. **E-Commerce Technology** : Introduction to E-commerce, Technology Infrastructure for E-commerce, Business Concepts, Business application and Social Issues in E-commerce, Security issues in Ecommerce, PKI and digital signature, Encryption and decryption methods. Principles of Electronic Payment, Strategies & Systems. System Automation, Reporting System, business intelligence and Intelligent Call Centre Service
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, 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 construction implementation, Online service delivery and electronic service delivery
12. **Latest Trends and Technologies** : RFID technology and its usage, Wi-Fi (Wireless internet/intranet) technology, 5G, NGEN how it works, its frequency band and bandwidth, 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), Smart Meter Communication technology
13. **ICT Policies, Acts/ Regulations and Standards** : IT Policy of Nepal, Electronic Transaction Act of Nepal, Cyber Crime and preventive measures, Copy Right Act of Nepal, ISO Standards, WWW and Internet Standards and Regulations. Digital Nepal Framework -2076, NEA IT Policy and Roadmap