

नेपाल विद्युत प्राधिकरण

प्राविधिक सेवा, मेकानिकल समूह, तह-१० प्रबन्धक पदको
प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

१. लिखित परीक्षाको विषय, पूर्णाङ्क, परीक्षा प्रणाली, प्रश्नसंख्या, अंकभार र समय निम्नानुसार हुनेछ ।

पत्र	विषय	पूर्णाङ्क	परीक्षा प्रणाली	प्रश्न संख्या	प्रति प्रश्न अंकभार	समय
प्रथमपत्र	सेवा सम्बन्धी	५०	विषयगत	छोटो उत्तर	६	५
				लामो उत्तर	२	१०
द्वितीयपत्र	व्यवस्थापकीय ज्ञान	५०	विषयगत	छोटो उत्तर	६	५
				समस्या समाधान	१	२०

२. प्रथमपत्र र द्वितीयपत्रको परीक्षा २ पटक गरेर हुनेछ । प्रथमपत्रको परीक्षा सकिए पछि द्वितीयपत्रको परीक्षा तत्काल हुनेछ ।
३. परीक्षाको माध्यम नेपाली वा अंग्रेजी भाषा हुनेछ ।
४. सामान्यतः प्रत्येक शिर्षकको अंकभार तोकिए बमोजिम हुनेछ ।

प्रथमपत्र : सेवा सम्बन्धी [50]

1. **HYDRO POWER STATION : POWER HOUSE MECHANICAL EQUIPMENT** [12.5]
 - 1.1 Turbine: types, selection, capacity, speed, equipment layout
 - 1.2 Main components of turbine: runner, guide and thrust bearings, guide vanes/nozzles, draft tube, others
 - 1.3 Governor: type, design criteria, installation and maintenance
 - 1.4 Inlet valve: types, design criteria, installation and maintenance
 - 1.5 Types, design criteria, installation and maintenance of high pressure oil system, lubricating oil system, cooling water system, drainage and dewatering system, compressed air system, unit braking system, automatic grease lubrication system, oil handling system, air conditioning and ventilation system, fire detection and fire fighting system
 - 1.6 Auxiliary equipment: overhead traveling crane, diesel engine generating set
 - 1.7 Instrumentation
2. **HYDRO POWER STATION: HYDRO-MECHANICAL EQUIPMENT** [5+5]
 - 2.1 Penstock: types, design criteria, installation and maintenance
 - 2.2 Gate and hosting equipment: types, design criteria, installation and maintenance
 - 2.3 Valve: types, design criteria, installation and maintenance
3. **THERMAL POWER STATION: MECHANICAL EQUIPMENT** [5]
 - 3.1 Prime mover: types, selection, installation, operation and maintenance
 - 3.2 Fuels: types, properties, alternative fuels
 - 3.3 Repair and maintenance of equipment of thermal power stations.
4. **CONSTRUCTION EQUIPMENT** [5]
 - 4.1 Types of equipment and their applications
 - 4.2 Hydraulic system, transmission, undercarriage, implements and tools
 - 4.3 Electronic components and their functions
 - 4.4 Repair and maintenance of construction equipment
 - 4.5 Management of construction equipment
5. **HYDRO TRANSMISSION LINE TOWER** [5]
 - 5.1 Transmission line tower: types, design criteria and maintenance

6. **SAFETY ENGINEERING** [5]
6.1 Principles of industrial hygiene
6.2 Occupational safety and hazard control
6.3 System safety
6.4 Industrial health and safety
7. **MAINTENANCE MANAGEMENT** [7.5]
7.1 Maintenance strategy
7.2 Evolution of maintenance
7.3 Failure analysis
7.4 Maintenance management

द्वितीयपत्र : व्यवस्थापकीयज्ञान [50]

A. 1. POWER SECTOR DEVELOPMENT AND INSTITUTIONS INVOLVED: [5]

History of power development in Nepal, Energy demand supply trends, Challenges and prospects of hydropower development, Importance of power exchange agreement with India, Scope of power exchange with other countries, Cross border/regional power trade, Coordination between stakeholders in power sector, Scope for export oriented development of power sector, NEA's mission and objectives, Basic trends in NEA development, Policies and programs of NEA, Financing to NEA, Indicators of NEA financial performance, NEA rules and regulations on employment, procurement and promotions, Inventory control, Impediments for growth and possible reform measures, Role of Government institutions involved in power sector development, Role and importance of IPPs, Major projects under implementation and planning.

2. LEGAL PROVISIONS FOR POWER SECTOR DEVELOPMENT: [5]

Hydropower Development Policy, 2058, Water Resources Strategy, Water Resources Act, 2049, Water Resources Regulations, 2050, Electricity Act, 2049, Electricity Regulation, 2050, Nepal Electricity Authority Act, 2041, Environment Protection Act, 2053, Environment Protection Regulation, 2054, Nepal Environment Policy and Action Plan, Electricity Pilferage Control Act, 2058, Electricity Pilferage Control Regulation, 2059, Electricity Tariff fixation Regulation 1993, Land Acquisition Act.2034, Industrial Policy 2049, Foreign investment and technology transfer act, 2049. Industrial Enterprises Act, 2054.

3. ENGINEERING ECONOMICS: [2.5]

Cash flow analysis, Project evaluation indicators, Payback period, Criteria for capital investment decision, Risk analysis, Taxation system in Nepal, Energy tariff and regulatory issues.

4. PROJECT MANAGEMENT: [2.5]

Project Planning and Scheduling: Network models, CPM/PERT, Manpower leveling, Material scheduling, Project preparation for implementation and justification of the project.

Project monitoring and control: System of control, Project control cycle, Feedback control systems, Cash control.

Capital Planning and Budgeting: Capital planning procedures, Preparation of operating budgets, fixed and flexible budget, budgetary control.

5. **ORGANIZATION AND MANAGEMENT:** [5]
Concept, theory and evolution of Management, Internal Organization, Motivation, Leadership, control, coordination and team work, Decision making, Participatory management, Functions and attributes of a good manager, Corporate planning and strategic management, Management Information System, Job description, Job analysis, Performance appraisal, Auditing and inventory control, Personnel Management, Familiarization with procurement guidelines and standards of World Bank, ADB, Preparation of Contract documents, specifications, condition of contract and other contractual procedures, Arbitration.

6. **अन्तर्राष्ट्रिय सन्धी तथा सम्झौता (Conventions) सम्बन्धी:** [5]
Koshi Agreement, 1954/1966, Gandak Agreement, 1959, Electricity Exchange 1961, Treaty between the then His Majesty's Government of Nepal and Government of India concerning the integrated development of Mahakali river including Sarada Barrage, Tanakpur Barrage and Pancheswar Project.

7. **सेवासँग सम्बन्धी निर्देशिकाहरु (Manuals):** [5]
Manual for public Involvement in Environmental Impact Assessment (EIA) process of Hydropower Projects, Manual for preparing Terms of Reference (TOR) for environmental Impact Assessment, (EIA) of Hydropower Projects, Manual for preparing Scoping Document for Environmental Impact Assessment (EIA) of Hydro power Projects, Manual for preparing Environmental Management Plan (EPM) for Hydropower Projects, National Environmental Impact assessment Guidelines, 1993, Safety Guidelines and standards for Generation, Transmission and Distribution of Hydro Electricity,

B. समस्या समाधान : [20]

- व्यवस्थापकीय कार्यसंग सम्बन्धित कुनै एउटा समस्या दिईनेछ । प्रचलित ऐन नियमको परिधि र अवस्था समेतलाई विचार गरी दिइएको समस्याको निम्न आधारमा उपयुक्त समाधान र सुझाव प्रस्तुत गर्नु पर्नेछ –
- (१) समस्याका खास खास कारणहरु दर्शाउने ।
 - (२) समस्या समाधानका लागि सुझावहरु प्रस्तुत गर्ने ।
 - (३) प्रस्तुत सुझावहरु कार्यान्वयन गर्दा त्यसबाट पर्न सक्ने सकारात्मक प्रभावहरु उल्लेख गर्ने ।

दृष्टव्य: पाठ्यक्रममा राखिएका सविधान, ऐन, नियम र विनियमहरु परीक्षा हुनु भन्दा ३ महिना अगाडी सम्म संशोधन वा खारेज भई त्यसको सट्टा हाल प्रचलनमा रहेकालाई सोही अनुरूप पाठ्यक्रममा समावेश भएको मानिने छ ।

