

चिलिमे जलविद्युत कम्पनी लिमिटेड

प्राविधिक सेवा, मेकानिकल समूह, तह-८, सहायक प्रबन्धक पदको
प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम ।

१. शैक्षिक योग्यता: चिलिमे जलविद्युत कम्पनी लिमिटेड कर्मचारी सेवा शर्त विनियमावलीमा व्यवस्था भए अनुसार ।
२. लिखित परीक्षाको विषय, पूर्णाङ्क, परीक्षा प्रणाली, प्रश्न संख्या, अंकभार र समय निम्नानुसार हुनेछ ।

पत्र	विषय	पूर्णाङ्क	परीक्षा प्रणाली	हल गर्नुपर्ने प्रश्न संख्या	प्रति प्रश्न अंकभार	समय
प्रथमपत्र	सेवा सम्बन्धी	५५	विषयगत	छोटो उत्तर	५	२ घण्टा
				लामो उत्तर	३	
द्वितीयपत्र	व्यवस्थापकीय ज्ञान	३०	विषयगत	छोटो उत्तर	३	१ घण्टा
				लामो उत्तर	१	

३. प्रथम र द्वितीयपत्रको परीक्षा २ पटक गरेर हुनेछ । प्रथम पत्रको परीक्षा सकिएपछि द्वितीयपत्रको परीक्षा तत्काल हुनेछ ।
४. परीक्षामा कालो/नीलो मसी मात्र प्रयोग गर्नुपर्ने छ ।
५. प्रत्येक पत्रको न्यूनतम ४० प्रतिशत उत्तीर्णाङ्क हुनेछ ।
६. परीक्षाको माध्यम नेपाली वा अंग्रेजी भाषा हुनेछ ।
७. सामान्यतः प्रत्येक शिर्षकको अंकभार तोकिए बमोजिम हुनेछ ।

प्रथमपत्र – सेवा सम्बन्धी [55]

1. ENERGY RESOURCES [5]

- Conventional and non-conventional energy resources
- Renewable and non-renewable resources
- Hydropower

2. HYDROPOWER TECHNOLOGY [5]

- History and development of water power in Nepal and world
- Types of power plant: run-of-river, storage, pumped storage
- Classification of hydropower plant: large, medium, small, mini and micro hydropower plants
- Environmental impact of hydropower plants

3. WATER TURBINES [10]

- Classification of turbines on various criteria
- Main components of turbine and their functions
- Working principle of turbines and their efficiencies
- Specific speed of a turbine
- Selection of turbines

4. HYDRO-MECHANICAL EQUIPMENT [5]

- Types, selection, use and design of gates, seals, hoisting equipment and valves
- Use and design of trashrack and safety rack
- Design, selection of penstock and accessories
- Types and working principles
- Operation and maintenance

5. PUMPS [5]

- Types, working principles, selection of pumps
- Operation and maintenance of pumps

6. INTER COMBUSTION ENGINE AND POLLUTION [5]

- Introduction of IC engine: Engine classification, engine operating cycles, engine components
- Fuel and fuel supply system: types of fuel used in IC engines, fuel supply system in SI and CI engine.
- Ignition system: Purposes, types, components and their functions, problems associated to ignition system.
- Cooling system: Purposes, types, components and their functions, problems related to cooling system.
- Lubricants and lubrication system: classification of lubricants and their uses, purposes, types, components and their functions of lubricating system.
- Engine operating characteristics: engine performance parameters, indicated and brake power and mean effective pressure; operating variables that affect SI engine performance, efficiency and emission.

7. CONSTRUCTION EQUIPMENT [5]

- Introduction to construction equipment: types, general specification and application of construction equipment
- Hydraulic system: pump, valve, cylinders and moors, accumulator and filters, reservoirs, hoses, pipe, tubes and couplers, seals and fluids
- Transmission: clutches, mechanical transmission, hydraulic assist transmissions, power shift transmission, hydrostatic drive, torque converters, differential, final drive, power take-offs, special drives.
- Undercarriage: track chain, idler, sprocket, track rollers, tyres
- Implements and tool: blades, rippers, bucket
- Electronic components and their functions:
- Repair and maintenance of construction equipment:

8. RENEWABLE ENERGY TECHNOLOGIES [5]

- Renewable energy sources: biomass, solar energy, wind energy, geothermal energy
- Renewable energy technologies for electricity generation: solar PV, wind power generator, biomass power plant.
- Role or renewable energy technologies in rural electrification.
- Environmental benefits of renewable energy technologies

9. AIR CONDITIONING [5]

- Air conditioning system design for power plants
- Estimation of cooling and heating load
- Selection of air-conditioning units
- Noise, vibration and volume control

10. MAINTENANCE MANAGEMENT [5]

- Types of maintenance systems: breakdown, preventive, proactive.
- Wear and tear of turbines.
- Conditioning monitoring maintenance planning and control.
- Equipment and tools used in maintenance.
- Maintenance of turbine, pump and bearings.
- Maintenance management of equipment in hydropower plant.
- Maintenance management of equipment in diesel power plant.
- Maintenance management of construction equipment.

द्वितीयपत्र – व्यवस्थापकीय ज्ञान [30]**1. POWER SECTOR DEVELOPMENT AND INSTITUTIONS INVOLVED: [5]**

History of power development in Nepal, Energy demand supply trends, Challenges and prospects of hydropower development, Coordination between stakeholders in power sector, Policies and programs of NEA, Role of Government institutions involved in power sector development, Role and importance of IPPs, Major projects under implementation and planning.

Role of Chilime Hydropower Company in power sector development, Rules and regulations of Chilime Hydropower Company.

2. LEGAL PROVISIONS FOR POWER SECTOR DEVELOPMENT: [2.5]

Hydropower Development Policy, 2058, Water Resources Act, 2049, Electricity Act, 2049, Electricity Regulation, 2050, Nepal Electricity Authority Act, 2041, Environment Protection Act, 2053, Environment Protection Regulation, 2054, Electricity Pilferage Control Act, 2058, Electricity Pilferage Control Regulation, 2059.

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: [2.5]

Internal Organization, Management Information System, Motivation, Leadership and team work, Decision making, Corporate planning and strategic management, Job description, Job analysis, Performance appraisal, Auditing and inventory control, Personnel Management, Familiarization with procurement guidelines of GoN ADB, Preparation of Contract documents, specifications, condition of contract and other contractual procedures.

ख) समस्या समाधान [15]

व्यवस्थापकीय कार्यसँग 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 कारणहरू दर्शाउने ।
- (२) समस्या समाधानका लागि सुझावहरू दर्शाउने ।
- (३) प्रस्तुत सुझावहरू कार्यान्वयन गर्दा त्यसबाट पर्न सक्ने सकारात्मक प्रभावहरू उल्लेख गर्ने ।

द्रष्टव्य: पाठ्यक्रममा राखिएका संविधान, ऐन, नियम र विनियमहरू परीक्षा हुनु भन्दा ३ महिना अगाडिसम्म संशोधन वा खारेज भई त्यसको सट्टा प्रचलनमा रहेकालाई सोही अनुरूप पाठ्यक्रममा समावेश भएको मानिने छ ।

