

नेपाल विद्युत प्राधिकरण

प्राविधिक सेवा, सिभिल समूह, सिभिल उपसमूह, तह-४, फोरमेन पदको

खुल्ला प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

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

पत्र	विषय	पूर्णाङ्क	उत्तिर्णाङ्क	परीक्षा प्रणाली	प्रश्न संख्या	प्रति प्रश्न अंकभार	समय	
प्रथम	आधारभूत सामान्य ज्ञान र सेवा सम्बन्धी	१००	४०	वस्तुगत बहु बैकल्पिक प्रश्न	खण्ड (क) आधारभूत सामान्य ज्ञान	२०	२	४५ मिनेट
					खण्ड (ख) सेवा सम्बन्धी	३०	२	
द्वितीय	सेवा सम्बन्धी	१००	४०	विषयगत प्रश्न	छोटो उत्तर आउने प्रश्न	१०	५	२ घण्टा
					लामो उत्तर आउने प्रश्न	५	१०	३० मिनेट

- प्रथमपत्रको खण्ड क सबै समूहको लागि एउटै हुनेछ । प्रथमपत्रको खण्ड क समाप्त भएपछि एकै सिटिङ्ग खण्ड ख को परीक्षा हुनेछ । प्रथमपत्रको खण्ड ख र द्वितीयपत्रको पाठ्यक्रम एउटै हुनेछ ।
- वस्तुगत प्रश्नमा प्रत्येक प्रश्नका चार वटा सम्भाव्य उत्तर दिइने छ । जस मध्ये एउटा सही उत्तरमा (लोकसेवा आयोगले तोके बमोजिम) चिन्ह लगाउने वा लेख्नु पर्नेछ । गलत उत्तर बापत प्रति गलत उत्तर २० प्रतिशतका दरले अंक घटाइनेछ ।
- प्रथमपत्र र द्वितीयपत्रको परीक्षा फरक फरक हुनेछ ।
- परीक्षाको माध्यम नेपाली वा अंग्रेजी भाषा हुनेछ ।
- सामान्यतः प्रत्येक इकाईबाट प्रश्नहरू सोधिनेछन् । इकाईको अंकभार तोकिए बमोजिम हुनेछ । लामो उत्तर दिनुपर्ने प्रश्न एकै वा खण्ड खण्ड गरी (दुई वा सो भन्दा बढी) सोध्न सकिनेछ ।

प्रथमपत्र:

खण्ड (क) आधारभूत सामान्य ज्ञान (प्राविधिक सेवा, तह-४ का सबै समूहका लागि):

- नेपालको भूगोल: धरातलीय स्वरूपको किसिम र विशेषता, नदीनाला, तालतलैया र खनिज पदार्थ ।
- नेपाल विद्युत प्राधिकरण सम्बन्धि जानकारी: स्थापना, संचालक समिति, निर्देशनालयहरू, प्राधिकरणका उत्पादन केन्द्र तथा प्रमुख आयोजनाहरू ।
- राष्ट्रिय महत्वका समसामयिक घटना तथा नविनतम गतिविधिहरू ।
- सामान्य गणितिय अभ्यास: प्रतिशत, अंकगणितिय तर्क, नाफा-नोक्सान, श्रेणीक्रम ।
- विद्युत चोरी नियन्त्रण ऐन, २०५८ अनुसार विद्युत चोरी मानिने अवस्था, विद्युत चोरी नियन्त्रण नियमावली, २०५९ अनुसार विद्युत आपूर्ति बन्द गर्न सक्ने, पूनः जडान गर्ने अवस्था र पुरस्कार व्यवस्था ।

प्रथमपत्र खण्ड ख र द्वितीयपत्रको पाठ्यक्रम (सिभिल समूह)**1. DRAWING****(2x2=4)**

- 1.1 Importance of Drawing in Engineering
- 1.2 Drawing sheet and their standard sizes, scales and different types of lines
- 1.3 Construction of different regular geometrical figures,
- 1.4 Draw isometric view, oblique view, section and developments
- 1.5 Draw Plan and Sections of Simple buildings, Prepare site plan and location plan.
- 1.6 Draw Plan, Elevation and Section of Staircase, Door and Windows.
- 1.7 Understanding of different types of drawing such as tender drawing and construction drawing

2. SURVEYING**(2x2=4, 1x5=5)**

- 2.1 Definition of Surveying and Importance of Surveying in Engineering
- 2.2 Classification, types and Objectives of surveying
- 2.2 Precision, accuracy, errors and tolerance
- 2.3 Tools and equipment used for measurement
- 2.4 Linear and angular measurement.
- 2.5 Method of Surveying: Levelling-Abney level, Auto level; Tachometric survey and its calculation.
- 2.6 Simple curves, contour map and introduction to Total Station

3. CONSTRUCTION MATERIALS**(4x2=8, 1x5=5, 1x10=10)**

- 3.1 Stone: Formation of rocks; Igneous, Sedimentary and Metamorphic ; Source; River boulders, Stone Quarry; Characteristics of good building stones; Shape: Rounded, irregular, angular and flaky; Selection and use of stones for various construction; Dressing, seasoning and stacking (Extraction and preparation for use)
- 3.2 Aggregate: Classification according to nature of formation, size and shape; Test (concept only) Testing of sand: Silt content; Sieve Analysis.
- 3.3 Brick and Tiles: Composition (mud, cement); Manufacturing : Soil/mortar preparation, Molding, Drying, Burning; Brick types and their uses ; Machine made and locally made bricks and their sizes.
- 3.4 Testing of bricks; Types of tiles and Test of tiles.
- 3.5 Cement: Composition, Manufacturing process, Types, Test, Storage and Setting
- 3.6 Mortar: Definition, Types, Water Cement Ratio, batching, mixing, transporting and placing, Curing processes.
- 3.7 Concrete: Definition, Types: PCC & RCC, Water Cement Ratio, Preparation: Batching and Mixing, Transporting, Placing, Compacting, Curing , Grade/Strength, Tests (Concept only): Slump test, Compression test.

4. CONSTRUCTION TECHNOLOGY**(4x2=8, 1x5=5, 1x10=10)**

- 4.1 Stone Masonry: Types, Tools and Equipment, Dressing, Wall and their Types
- 4.2 Brick Masonry: Types of Brick Bond, tools and Equipment, procedure of making bonds
- 4.3 Wall: Definition and types of walls

- 4.4 Protective Measures in Building: Dampness its causes and effects, method of damp proofing, anti termite treatments.
- 4.5 Concrete Works: PCC and RCC and their ingredients, water cement ratio and strength, Batching, mixing, transporting, compacting and curing, Roles of steel reinforcement.
- 4.6 Flooring and Finishing: Types of flooring, Plastering, Pointing, Cladding etc.
- 4.7 Building and Components: Types of Building, Components of Buildings, Foundation, Stairs, doors and windows, roof and roof covering, false ceiling.
- 4.8 Common problems in Building: Cracks and its causes, floor shrinking and its remedies
- 4.9 Earthquake resistant Buildings: Earthquake resistant design of load bearing and frame structure buildings, retrofitting techniques.
- 4.10 Temporary Construction: Shoring, Scaffolding, Formwork
- 5. ESTIMATING AND COSTING (2x2=4, 1x5=5, 1x10=10)**
- 5.1 Introduction and purpose of estimating
- 5.2 Types of estimate, Unit of measurement for different items and data required for estimating
- 5.3 Estimate of Earthwork, masonry footing, wall of building, RCC works, plastering, punning, pointing works,
- 5.4 Rate Analysis: Definition, Current district rate, Format for rate analysis, Factor affecting rate analysis, Rate of material, Transportation rate related to capacity of vehicle and Procedure of rate analysis
- 5.5 Analysis of rate of Brickwork, PCC, Steel reinforcement
- 6. CONSTRUCTION SUPERVISION (4x2=8, 1x5=5, 1x10=10)**
- 6.1 Role of Supervisor: Supervisor as a builder's/employee's agent, Duties of supervisor, Relationships between client, consultant and contractor.
- 6.2 Manage Construction sites: Major component of construction site (site office, site store, fabrication yard, perishable item stock yard, workers' & technicians' accommodation etc.) , List of site logistics, Arrangement of utilities (water supply, electricity, telephone etc.) , Surface water control, Maintaining good sanitary condition/Effect of unsanitary condition , Arrangement of equipment, Necessity of safety construction, Safety rules
- 6.3 Prepare Progress report and builders diary: Daily work progress report, Monthly progress report, Definition of builder's diary, Supervisor's daily diary, Methods to entry diary.
- 6.4 Log book, Muster roll, Measurement Book, Running bill, Final Bill
- 6.5 Tender notice, tender evaluation, award and signing of contract, contract document and conditions of contract
- 6.6 Completion certificate and post construction activities.
(Concept of gabion protection works.)
- 7 GEO-TECHNICAL (2x2=4)**
- 7.1 Methods of excavation and measurements.
- 7.2 Methods of soil compaction for preparing foundation.
- 7.3 Different types of rock in general
- 7.4 Different types of soil in general.

8 HYDRAULIC STRUCTURES**(2x2=4, 1x5=5)**

- 8.1 Types of headwork.
- 8.2 Design parameters of headwork structure.
- 8.3 Hydropower plants, type and components.
- 8.4 General knowledge of power station, substation, penstocks, turbine, surge tank, the draft tube, the tail- race and energy dissipaters.
- 8.5 Causes of failures of dams.
- 8.6 Functions of hydraulic structures. (Dams, spillways, intake, canal, tunnel.
- 8.7 River training works, types, functions and layouts.
- 8.8 Heavy equipment and their utilities for the construction of hydropower projects.

9 TRANSMISSION LINES AND TOWERS**(2x2=4, 1x5=5)**

- 9.1 General knowledge of types of electrical towers and transmission conductors.
- 9.2 General concept of design parameters of transmission lines and towers.
- 9.3 General understanding of power station, substation.

10 DISTRIBUTION LINES**(2x2=4, 1x5=5)**

- 10.1 General knowledge of types and categories of distribution (transmission) cables with reference to distribution.
- 10.2 General knowledge about technical problems, such as, power loss and leakage etc.
- 10.3 General knowledge of house wiring, connection and installations.
- 10.4 General acquaintance with the social problems such as the cases of thefts and issues in reference with distribution system.

11. ENGINEERING SERVICE**(2x2=4, 1x5=5, 1x10=10)**

- 11.1 General mechanical features of the transmission lines.
- 11.2 General knowledge of types of conductors and fittings.
- 11.3 General idea about line insulator materials.
- 11.4 General idea about insulator protective fittings.
- 11.5 General knowledge about truss structure.
- 11.6 General idea about the safety factors on design and fitting/ construction of transmission/ distribution wires and towers.

12. INSTITUTIONAL KNOW-HOW (संस्थागत जानकारी)**(2x2=4, 1x5=5)**

- 12.1 General knowledge of Nepal Electricity Authority
- 12.2 General knowledge regarding capacities of various power plants of Nepal and their locations

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

