

नेपाल दूरसञ्चार कम्पनी लिमिटेड
(नेपाल टेलिकम)

खुला तथा आन्तरिक प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

सेवा:- प्राविधिक
तह:-७

समूह:-सिभिल इन्जिनियरिङ
पद:- आर्किटेक्ट इन्जिनियर

उप समूह:-सिभिल
किसिम:- खुला तथा आ.प्र.

पाठ्यक्रम योजनालाई दुई चरणमा विभाजन गरिएको छ

प्रथम चरण :- लिखित परीक्षा

पूर्णाङ्क :- २००

द्वितीय चरण :- अन्तर्वार्ता

पूर्णाङ्क :- ३०

परीक्षा योजना (Examination Scheme)

१ प्रथम चरण - लिखित परीक्षा (Written Exam)

पूर्णाङ्क :- २००

पत्र	विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली	प्रश्न संख्या X अङ्क	समय
प्रथम	General Awareness, Management & Institutional Awareness Test	१००	४०	वस्तुगत	बहुवैकल्पिक प्रश्न (MCQs)	५० प्रश्न X १ अङ्क
				विषयगत	छोटो उत्तर आउने प्रश्न	६ प्रश्न X ५ अङ्क
					लामो उत्तर आउने प्रश्न	२ प्रश्न X १० अङ्क
द्वितीय	Technical Subject (Service Specific)	१००	४०	विषयगत	छोटो उत्तर आउने प्रश्न	४ प्रश्न X ५ अङ्क
					लामो उत्तर आउने प्रश्न	८ प्रश्न X १० अङ्क

२ द्वितीय चरण - अन्तर्वार्ता (Interview)

पूर्णाङ्क :- ३०

विषय	पूर्णाङ्क	परीक्षा प्रणाली
अन्तर्वार्ता	३०	मौखिक

द्रष्टव्य:

- प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ।
- लिखित परीक्षाको प्रश्नपत्रको भाषा नेपाली वा अंग्रेजी हुनेछ।
- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी वा दुवै हुन सक्नेछ।
- वस्तुगत बहुवैकल्पिक (Multiple Choice) प्रश्नहरूको गलत उत्तर दिएमा प्रत्येक गलत उत्तर बापत २० प्रतिशत अङ्क कटौत गरिनेछ। तर उत्तर नदिएमा त्यस बापत अङ्क दिइने छैन र अङ्क कटौत पनि गरिने छैन।
- वस्तुगत बहुवैकल्पिक हुने परीक्षामा परीक्षार्थीले उत्तर लेखदा अंग्रेजी ठूलो अक्षर (Capital letter) A,B,C,D मा लेख्नुपर्नेछ। सानो अक्षर (Small letter) a, b, c, d लेखेको वा अन्य कुनै सङ्केत गरेको भए सबै उत्तरपुस्तिका रद्द हुनेछ।
- बहुवैकल्पिक प्रश्नहरू हुने परीक्षामा कुनै प्रकारको क्याल्कुलेटर (Calculator) प्रयोग गर्न पाइने छैन।
- विषयगत प्रश्नहरूको हकमा एउटा लामो प्रश्न वा एउटै प्रश्नका दुई वा दुई भन्दा बढी भाग (Two or more parts of a single question) वा एउटा प्रश्न अन्तर्गत दुई वा बढी टिप्पणीहरू (Short notes) सोध्न सकिनेछ।
- विषयगत प्रश्न हुने पत्र/विषयका प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन्। परीक्षार्थीले प्रत्येक खण्डका प्रश्नहरूको उत्तर सोही खण्डको उत्तरपुस्तिकामा लेख्नुपर्ने छ।
- 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 हटाइएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ।
- प्रथम चरणको परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराइनेछ।
- पाठ्यक्रम स्वीकृत मिति २०८१/१०/२१

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प्रथम पत्र :

General Awareness, Management & Institutional Awareness Test

Section (A):- General Awareness

MCQs (50 Questions × 1 Mark = 50 Marks)

1. General Awareness and Contemporary Issues (30 Marks)

1.1 Geography, History and Culture

- 1.1.1 Physical geography of Nepal and the world
- 1.1.2 Socio-cultural and economic geography and demography of Nepal
- 1.1.3 Major natural resources of Nepal
- 1.1.4 Geographical diversity, climatic conditions, livelihood and lifestyle of people
- 1.1.5 Major Historical Events of Nepal and the World
- 1.1.6 Notable Events, Personalities and Socio-Cultural Aspects of Ancient, Medieval and Modern History of Nepal
- 1.1.7 Customs, Traditions, Values, Religions, Ethnicity, Languages, Cultures, Arts, Literature, Music and Heritages of Nepal

1.2 Economic Aspects of Nepal

- 1.2.1 Economic Indicators (Economic Growth, GDP, GNP, Per Capita Income, Remittance, Foreign aid & Investment)
- 1.2.2 Infrastructures of Development (Agriculture, Industry, Trade, Tourism, Transportation, Communication, Health, Electricity)
- 1.2.3 Government Planning and Budgeting
- 1.2.4 Current periodical plan of Nepal

1.3 Governance & Organizations

- 1.3.1 The Constitution of Nepal; Federal, Provincial and local Governments
- 1.3.2 General Information on the UNO, WTO, ITU, WB, ADB, AIIB, SAARC & BIMSTEC
- 1.3.3 Public Service Charter and scope of public services

1.4 Contemporary Issues

- 1.4.1 Information on Sustainable Development, Environment, Pollution, Climate Change, Biodiversity, Demography, Urbanization, Science and Technology.
- 1.4.2 Recent Advance and Major Achievements in Telecommunication Sectors.
- 1.4.3 Major Events and Current Affairs of National and International Importance
- 1.4.4 Concept of Good Governance

2. Mathematics and Statistics (20 Marks)

3.1 Mathematics

- 2.1.1 Arithmetical Reasoning, Percentage, Ratio, Average, Profit & Loss, Time & Work, Data interpretation & Data verification
- 2.1.2 Function and Limit, Maxima and Minima, Differentiation and Integration Equations of Straight Lines, Circle, Parabola, Hyperbola, Spheres, Cylinders and Cones

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2.1.3 Linear Differential Equations, Fourier Series, Fourier Transforms, Fourier Integral, Odd and Even Function, Laplace Transforms, Taylor Series, Z-Transforms

3.2 Statistics

2.2.1 Introduction of Statistics, Mean, Median, Mode, Dispersion, Variance, Correlation and Regression

2.2.2 Probability, Random Variables and Probability Distributions, Samples and Sampling

Section (B):- Management and Institutional Awareness Test

Subjective (6 Questions × 5 Marks + 2 Questions × 10 Marks = 50 Marks)

3. General Management and Marketing

3.1 Management : Concept and Modern Approaches

3.2 Motivation, Leadership, Control, Coordination, Teamwork and Group Dynamics

3.3 Management Information System

3.4 Corporate and Strategic Planning and Management

3.5 Corporate Social Responsibility

3.6 Ethics, Integrity and Responsibility in Business /Service Like Institution

3.7 Business Strategic Planning, Marketing Process, Product Planning, Developing the Marketing Program

4. Project Management & Financial Management

4.1 Project life Cycle

4.2 Network Models: CPM & PERT, Gantt Chart

4.3 Project Scheduling, Resource Leveling, Systems of Project Control, Cost Control, Preparation of Operational Budget, Planning of Quality, Time & Cost Dimensions, Negotiating for Materials, Supplies & Services, Project Monitoring and Evaluation,

4.4 Quality Management & TQM Techniques

4.5 Essential Business & Accounting Terminology, Cost Classification & Analysis, Interest & Time Value of Money, Basic Methodology of Engineering Economics, Cost and Benefit Analysis, Risk Analysis, Investment Decisions, Demand Analysis and Sales Forecasting, Concept of EIRR (Economic Internal Rate of Return) and FIRR (Financial Internal Rate of Return)

4.6 Basic Knowledge of Trial Balance & Balance Sheet, Income Statements, Revenue and Capital Expenditure, Budgeting and Capitalization, Depreciation and Subsidy, Procurement Procedures (FOB, CIF, Liquidated Damages, Letter of Credit, Insurance, Invoice, Bid Security, Performance Bond), Competitive Bidding

5. संस्थागत ज्ञान र सम्बद्ध कानूनहरू

5.1 नेपाल दूरसञ्चार कम्पनी लिमिटेड सम्बन्धी जानकारी: उद्देश्य, संगठनात्मक संरचना र कार्यक्षेत्र

5.2 नेपाल दूरसञ्चार कम्पनी लिमिटेडले सेवा प्रवाहमा अवलम्बन गरिएका प्रविधि

5.3 सेवाको महशूल दर निर्धारण सम्बन्धी व्यवस्था

5.4 नेपाल दूरसञ्चार प्राधिकरण: स्थापना, लक्ष्य, उद्देश्य, कार्यहरू र भूमिका

5.5 नेपाल सरकारको चालु आवधिक योजनामा दूरसञ्चार सेवा

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- 5.6 नेपाल दूरसञ्चार कम्पनी र नेपाल सरकार तथा अन्य सरोकारवाला निकायहरूसँगको सम्बन्ध
- 5.7 दूरसञ्चार ऐन, २०५३ तथा दूरसञ्चार नियमावली, २०५४
- 5.8 नेपाल दूरसञ्चार कम्पनी लिमिटेडको प्रवन्धपत्र र नियमावली
- 5.9 नेपाल दूरसञ्चार कम्पनी लिमिटेडको कर्मचारी विनियमावली, २०७८ को परिच्छेद-७ बिदा, परिच्छेद-९ आचरण तथा अनुशासन, परिच्छेद-१० सजाय र पुनरावेदन , परिच्छेद-११ अवकाश, उपदान, निवृत्तिभरण तथा अन्य सुविधा
- 5.10 नेपाल दूरसञ्चार कम्पनी लिमिटेडको आर्थिक विनियमाली, २०७१को भाग -२ को खरिद सम्बन्धी कार्यविधि, भाग ३ को परिच्छेद -१ योजना तर्जुमा वार्षिक कार्यक्रम र बजेट, परिच्छेद-३ कम्पनीको सम्पत्तिको जिम्मा, त्यसको लगत, संरक्षण र बरबुझारथ सम्बन्धी व्यवस्था
- 5.11 कम्पनी ऐन, २०६३ को परिच्छेद -२ कम्पनीको संस्थापना, परिच्छेद-३ प्रवन्धपत्र, विनियमावली र विवरणपत्र र परिच्छेद -५ कम्पनीको साधारण सभा
- 5.12 दूरसञ्चार नीति, २०६०
- 5.13 डिजिटल नेपाल फ्रेमवर्क, २०७६ (डिजिटल फाउण्डेसन बुँदा १ देखि १९ सम्म)
- 5.14 सूचना तथा सञ्चार प्रविधि नीति, २०७२
- 5.15 राष्ट्रिय साइबर सुरक्षा नीति, २०८०

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द्वितीय पत्र :

Technical Subject (Service Specific)

Section (A):- 50 Marks

(2 Questions × 5 Marks + 4 Questions × 10 Marks)

1. Structural Analysis and Design

- 1.1 Types of Load and load combinations
- 1.2 Types of structural elements and their behavior under various loadings and conditions
- 1.3 Design codes for safety, serviceability and durability of RCC structures (NBC and IS)
- 1.4 Working Stress Method and Limit State Method
- 1.5 Basic concepts / Steps to design of RCC footings, column, slabs, beams
- 1.6 Common structural problems of RCC buildings in Nepal
- 1.7 Requirements of Earthquake resistant building construction
- 1.8 Mandatory Rules of the Thumb in building design

2 Estimating, Costing, Valuation and Specification

- 2.1 Types of estimates, specific uses and methods
- 2.2 Estimation and rate analysis
- 2.3 Preparation of detailed quantity and cost estimates
- 2.4 Purpose, types and importance of specifications
- 2.5 Purpose, principles and methods of valuation

3 Engineering Drawings

- 3.1 Different types of drawings
- 3.2 Drawing sheet composition and suitable scales
- 3.3 Projection drawings : Perspective, Orthographic and Axonometric
- 3.4 Drafting tools, equipment, conventions and symbols
- 3.5 Use of AutoCAD

4 Engineering Survey

- 4.1 Introduction and basic principles, classification of surveys
- 4.2 Linear measurement techniques, representation of measurement and common scales, sources of errors, Abney level and clinometers
- 4.3 Plane table surveying: principles and methods of plane tabling
- 4.4 Principle of leveling, reciprocal leveling, trigonometric leveling
- 4.5 Contouring: characteristics, methods of contouring, interpolation and uses
- 4.6 Theodolite Traversing: principle of traverse, computation of coordinates; adjustment of closed traverse and linked traverse, closing errors
- 4.7 Tacheometry: principle, Tacheometric formula, relation of distance and elevation

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4.8 Uses of total station and electronic distance measuring instruments

5 Construction Management

5.1 Construction scheduling and planning

5.2 Contractual procedure and management: types of contract, bid and bid notice, preparation of bidding document, contractors pre-qualification, evaluation of tenders and selection of contractor, bid acceptance, condition of contract, quotation and direct purchase, classifications of contractors, dispute resolution

5.3 Material management: procurement procedures and materials handling

5.4 Cost, quality and time control

5.5 Occupational health and safety

5.6 Variation, alteration and omissions

Section (B):- 50 Marks

(2 Questions × 5 Marks + 4 Questions × 10 Marks)

6 Building Construction, Services and Technology

6.1 Traditional and modern construction techniques

6.2 Properties of building materials: physical, chemical, constituents, thermal

6.3 Stones: characteristics and requirements of stones as a building materials

6.4 Ceramic materials: types and testing

6.5 Cementing materials: types and properties of lime and cement; cement mortar tests

6.6 Iron and Steel: types, properties, joints (weld, rivet, bolt and pin), TMT /TOR bars, Truss systems and uses

6.7 Timber and wood: timber trees, types, properties, seasoning and uses of wood

6.8 Miscellaneous materials: asphaltic materials (asphalt, bitumen and tar), paints and varnishes, polymers

6.9 Coarse and fine aggregates' properties and its parameters

6.10 Constituents and properties of concrete (physical and chemical)

6.11 Water cement ratio, Grade and strength of concrete, concrete mix design, testing of concrete, Mixing, transportation pouring and curing of concrete, Admixtures, High strength concrete, Pre-stressed concrete

6.12 Prefabricated construction materials: types, uses, advantages and disadvantages

6.13 Insulation (heat, water, fire, sound) materials: types, properties and uses

6.14 Local and modern building construction material in Nepal

6.15 Ductwork design, air flow consideration, controls and automation

7 Architecture and Built Environment

7.1 History of architecture, traditional architecture and architectural landmarks in Nepal

7.2 Architecture, built environment and the society

7.3 Socio-culture and religious context of architecture

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- 7.4 Contemporary world architecture and Nepalese architecture
- 7.5 Principles of architectural design/composition, ergonomics, anthropometry and color schemes
- 7.6 Standards to be considered while designing buildings in Nepal
- 7.7 Conservation of historic buildings
- 7.8 Landscape design

8 Energy Efficient and Sustainable Design / Practices

- 8.1 Energy efficiency in building, renewable energy integration (modern and vernacular concepts)
- 8.2 Concept of sustainability in design, green practices, waste management and recycling technologies
- 8.3 Green building certification programs (e.g., LEED)
- 8.4 Efficient lighting design (Natural and Artificial)
- 8.5 Emerging technologies and innovations (Smart building technologies, Internet of Things (IoT) in buildings, Building automation systems)

9 Urban Development and Housing

- 9.1 Hierarchy of urban settlements and types of urban settlements in Nepal
- 9.2 Principles of land use planning, Different models of land development
- 9.3 Environmental issues in urban development.
- 9.4 Institutions involved in urban planning and development in Nepal.
- 9.5 Urban design, urban resilience and urban regeneration
- 9.6 Prospects and issues of apartments, group housing and real estate development in Nepal

10 Professional Ethics

- 10.1 Ethics, integrity and professionalism: code of conduct and guidelines for professional engineering practices
- 10.2 Legal aspects of Engineering Profession in Nepal
- 10.3 Nepal Engineering Council Act, 2055 and Rules, 2056
- 10.4 Building Act 2055, National Building Code 2060: Hierarchy of building codes and its application, procedure for implementation of building code in Nepal
- 10.5 Building Bylaws, Design norms and standards (DUDBC)