प्रदेश लोक सेवा आयोग

कोशी प्रदेश, विराटनगर

प्रदेश निजामती सेवा तथा स्थानीय सरकारी सेवा अन्तर्गत इञ्जिनियरिङ सेवा, सिभिल समूह, जनरल, हाइवे, स्यानिटरी, इरिगेशन, हाइड्रोपावर उपसमूह, सहायकस्तर पाँचौं तह, सव-इञ्जिनयर वा सो सरह पदको प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

पाठ्यक्रमको रुपरेखाः यस पाठ्यक्रमको आधारमा निम्नानुसार दुई चरणमा परीक्षा लिइने छ :

प्रथम चरणः लिखित परीक्षा पूर्णाङ्कः २००

द्वितीय चरणः अन्तर्वार्ता पूर्णाङ्कः ३०

परीक्षा योजना (Examination Scheme)

प्रथम चरणः लिखित परीक्षा

पत्र	विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली	प्रश्न संख्या अङ्कभार	समय
प्रथम	सेवासँग सम्बन्धित कार्य-ज्ञान (Job based-knowledge)	१००	४०	वस्तुगत बहुवैकल्पिक प्रश्न (MCQs)	Section A: २० प्रश्नx२ अङ्क=४० अङ्क Section B: २० प्रश्नx२ अङ्क=४० अङ्क Section C: १० प्रश्नx२ अङ्क=२० अङ्क	४५ मिनेट
द्वितीय		१००	४०	विषयगत (Subjective)	Section A: २ प्रश्नx १० अङ्क=२०अङ्क ४ प्रश्नx ५ अङ्क=२० अङ्क Section B: २ प्रश्नx १० अङ्क=२०अङ्क ४ प्रश्नx ५ अङ्क=२० अङ्क Section C: ४ प्रश्नx ५ अङ्क=२० अङ्क	२ घण्टा ३० मिनेट

द्वितीय चरणः अन्तर्वार्ता

विषय	पूर्णाङ्क	परीक्षा प्रणाली	समय
अन्तर्वार्ता	३०	मौखिक	

द्रष्टव्य :

१. यो पाठ्यक्रमको योजनालाई प्रथम चरण र द्वितीय चरण गरी दुई चरणमा विभाजन गरिएको छ।

२. लिखित परीक्षाको प्रश्नपत्रको माध्यम भाषा पाठ्यक्रमको विषयवस्तु जुन भाषामा दिइएको छ, सोही भाषाको आधारमा नेपाली वा अंग्रेजी मध्ये कुनै एक भाषा हुनेछ। तर विषयवस्तुलाई स्पष्ट गर्नुपर्ने अवस्थामा दुवै भाषा समेत प्रयोग गर्न सकिने छ।

३. लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुनेछ।

४. प्रथम पत्र र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ।

५. वस्तुगत बहुवैकल्पिक (Multiple Choice) प्रश्नको गलत उत्तर दिएमा प्रत्येक गलत उत्तर बापत २० प्रतिशत अङ्क कट्टा गरिनेछ। तर उत्तर नदिएमा त्यस बापत अङ्क दिइने छैन र अङ्क कट्टा पनि गरिने छैन।

६. वस्तुगत बहुवैकल्पिक प्रश्न हुने परीक्षामा OMR उत्तरपुस्तिका प्रयोग भएकोमा निर्देशित स्थानमा निर्देशन बमोजिम Bubble लगाउने र OMR बाहेकको उत्तरपुस्तिका प्रयोग भएकोमा परीक्षार्थीले उत्तर लेख्दा अंग्रेजी Capital letters: A, B, C, D मा लेख्नुपर्नेछ। Small letters: a, b, c, d मा लेखेको वा अन्य कुनै सङ्केत गरेको भए त्यस्तो उत्तरपुस्तिका रद्द हुनेछ।

७. बहुवैकल्पिक प्रश्न हुने परीक्षामा कुनै प्रकारको क्यालकुलेटर (Calculator) प्रयोग गर्न पाइने छैन।

८. विषयगत प्रश्नहरूको हकमा तोकिएको अङ्कको एउटा लामो प्रश्न वा एउटै प्रश्नका दुई वा दुईभन्दा बढी भाग (Two or more parts of a single question) वा एउटा प्रश्न अन्तर्गत दुई वा बढी टिप्पणीहरू (Short notes) सोध्न सकिने छ।

९. विषयगत प्रश्न हुने पत्रमा प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन्। परीक्षार्थीले प्रत्येक खण्डका प्रश्नको उत्तर सोही खण्डको उत्तरपुस्तिकामा लेख्नुपर्नेछ।

१०. परीक्षामा सोधिने प्रश्नसंख्या, अङ्क र अङ्कभार यथासम्भव परीक्षा योजनामा उल्लेख भए अनुसार हुनेछ।

११. यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जुनसुकै कुरा लेखिएको भए तापनि पाठ्यक्रममा परेका ऐन, नियम तथा नीतिहरू परीक्षाको मितिभन्दा तीन महिना अगाडि संशोधन भएका वा संशोधन भई हटाइएका वा थप गरी संशोधन भई कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ।

१२. **प्रथम चरण (First Phase) अन्तर्गत प्रथम पत्रको लिखित परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीय पत्रको लिखित परीक्षामा सम्मिलित गराउन सकिने छ। ***

१३. प्रथम चरणको परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराइने छ।

पाठ्यक्रम लागू मितिः २०८२/४/१ (*आयोगको मिति २०८२/८/२८ को निर्णय बमोजिम परिवर्द्धित)

प्रदेश लोक सेवा आयोग

कोशी प्रदेश, विराटनगर

प्रदेश निजामती सेवा तथा स्थानीय सरकारी सेवा अन्तर्गत इञ्जिनियरिङ सेवा, सिभिल समूह, जनरल, हाइवे, स्यानिटरी, इरिगेशन, हाइड्रोपावर उपसमूह, सहायकस्तर पाँचौं तह, सव-इञ्जिनयर वा सो सरह पदको प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

प्रथम र द्वितीय पत्र

सेवा सम्बन्धित कार्य-ज्ञान (Job based knowledge)

खण्ड (Section) (A)- ४० अङ्क

1. Surveying:

- 1.1. General
  - 1.1.1. Classifications
  - 1.1.2. Principle of surveying
  - 1.1.3. Units of Measurements
  - 1.1.4. Selection of suitable method
  - 1.1.5. Scales, plans and maps
  - 1.1.6. Entry into survey field books and level books
  - 1.1.7. Linear distance measurement
  - 1.1.8. Chain and Compass surveying
- 1.2. Levelling
  - 1.2.1. Methods of levelling
  - 1.2.2. Levelling instruments and accessories
  - 1.2.3. Principles of levelling
  - 1.2.4. Types of level
  - 1.2.5. Errors, accuracy and correction
  - 1.2.6. Field procedures, problems and plotting in graph
  - 1.2.7. Two peg tests, curvature and Refraction
- 1.3. Plane Tabling
  - 1.3.1. Principle of Plane Tabling
  - 1.3.2. Equipment required
  - 1.3.3. Working operation of Plane Tabling
  - 1.3.4. Methods of plane tabling
  - 1.3.5. Two- and three-point problems
  - 1.3.6. Resection method
- 1.4. Theodolite and Traverse surveying
  - 1.4.1. Basic difference between different theodolites
  - 1.4.2. Essentials of theodolite
  - 1.4.3. Working principle of Theodolite
  - 1.4.4. Temporary adjustments of theodolites
  - 1.4.5. Fundamental lines and desired relations
  - 1.4.6. Tacheometry: stadia method
  - 1.4.7. Trigonometrical levelling
  - 1.4.8. Types of Traverse
  - 1.4.9. Purpose of Traversing
  - 1.4.10. Traverse Adjustment
- 1.5. Total Station Surveying
  - 1.5.1. Introduction
  - 1.5.2. Total station features
  - 1.5.3. Procedure for field surveying
- 1.6. Contouring
  - 1.6.1. Characteristics of contour lines
  - 1.6.2. Criteria for the selection of Contour intervals
  - 1.6.3. Method of contouring
  - 1.6.4. Interpolation of Contour

1.6.5. Contour plotting and use of contour maps

1.7. Setting Out

1.7.1. Small buildings

1.7.2. Simple curves

1.8. Basics about Geographic Information System (GIS) and Global Positioning System (GPS)

2. Construction Materials

2.1. Stone

2.1.1. Formation/Geological classification of stones and availability of stones in Nepal

2.1.2. Quarrying of stones and stone testing

2.1.3. Methods of laying and construction with various stones

2.2. Cement

2.2.1. Different cements: Ingredients, properties and manufacture

2.2.2. Storage and transport

2.2.3. Admixtures

2.2.4. Cement tests

2.3. Clay and Clay Products

2.3.1. Brick: type, manufacture, laying, bonds, Brick tests

2.4. Paints and Varnishes

2.4.1. Type and selection

2.4.2. Preparation techniques

2.4.3. Use and methods of application of various paints

2.5. Bitumen

2.5.1. Type

2.5.2. Selection

2.5.3. Use

2.5.4. Test of Bitumen

2.6. Hollow bricks/cement concrete bricks, tiles, lime and other new construction materials like glass, plaster of paris, insulation board, prefabricated materials, structural steel, etc.

2.7. Timber

2.7.1. Timber source

2.7.2. Characteristics of soft and hard wood

2.7.3. Defects in timber and importance of timber seasoning

2.7.4. Timber products

3. Mechanics of Materials and Structures

3.1. Mechanics of Materials

3.1.1. Internal effects of loading

3.1.2. Ultimate strength and working stress of materials

3.2. Mechanics of Beams

3.2.1. Relation between shear force and bending moment

3.2.2. Thrust, shear and bending moment diagrams for statically determinate beams under various types of loading

3.3. Axial force, shear force and bending moment diagrams for statically determinate plane frame under various types of loading

3.4. Simple Strut Theory and Torsion

4. Hydraulics

4.1. General

4.1.1. Properties of fluid: mass, weight, specific weight, density, specific volume, specific gravity, viscosity, types of fluid.

4.2. Hydrostatics, Hydro-Kinematics and Hydro-Dynamics

4.3. Measurement of Discharge

- 4.3.1. Orifice
- 4.3.2. Venturi meter
- 4.3.3. Weirs and notches
- 4.3.4. Discharge measurement in open channel flow

4.4. Flows
- 4.4.1. Characteristics and difference of pipe flow and open channel flow
- 4.4.2. Head losses in pipes
- 4.4.3. Velocity distribution in open channel flow
- 4.4.4. Most efficient and economic section in open channel flow
- 4.4.5. Specific energy

5. Soil Mechanics

5.1. General
- 5.1.1. Soil types and classification
- 5.1.2. Three phase system of soil
- 5.1.3. Unit Weight of soil mass: bulk density, saturated density, submerged density and dry density
- 5.1.4. Interrelationship between specific gravity, void ratio, porosity, degree of saturation, percentage of air voids, air content and density index
- 5.1.5. Particle size distribution
- 5.1.6. Determination of field density

5.2. Soil Water Relation
- 5.2.1. Terzaghi's principle of effective stress
- 5.2.2. Seepage through soils
- 5.2.3. Darcy's law
- 5.2.4. Factors affecting permeability
- 5.2.5. Laboratory methods of determining coefficient of permeability
- 5.2.6. Quick sand condition

5.3. Compaction of soil
- 5.3.1. Purpose
- 5.3.2. Factors affecting soil compaction
- 5.3.3. Field compaction methods
- 5.3.4. Optimum moisture content
- 5.3.5. Relation between dry density and moisture content

5.4. Consolidation
- 5.4.1. Introduction
- 5.4.2. Primary and secondary consolidation
- 5.4.3. Settlement
- 5.4.4. Consolidation test

5.5. Shear Strength of Soils
- 5.5.1. Mohr-Coulomb failure theory
- 5.5.2. Shear strength parameter and its determination

5.6. Earth Pressures
- 5.6.1. Active and passive earth pressures
- 5.6.2. Lateral earth pressure theory
- 5.6.3. Rankine's earth pressure theory
- 5.6.4. Design principle of retaining walls

5.7. Foundation Engineering
- 5.7.1. Foundation types
- 5.7.2. Terzaghi's general bearing capacity formulas and their application
- 5.7.3. water table effect on bearing capacity and foundation settlement

6. Structural Design

- 6.1. Working stress and limit stress method
- 6.2. R.C. Sections in Bending
  - 6.2.1. Under reinforced, over reinforced and balanced sections
  - 6.2.2. Analysis of single and double reinforced rectangular sections
- 6.3. Shear and Bond for R.C. Sections
  - 6.3.1. Shear resistance of a R.C. section
  - 6.3.2. Types of Shear reinforcement and their design
  - 6.3.3. Determination of anchorage length
- 6.4. Axially Loaded R.C. Columns
  - 6.4.1. Short and long columns
  - 6.4.2. Design of a rectangular column section
- 6.5. Design and drafting of R.C. Structures
  - 6.5.1. Singly and doubly reinforced rectangular beams
  - 6.5.2. Simple one-way and two-way slabs
  - 6.5.3. Axially loaded short and long columns
- 6.6. Pre-stressed concrete
  - 6.6.1. Materials used in pre-stressed concrete and their requirements
  - 6.6.2. Method of pre-stressing, pre-tensioning and post-tensioning
  - 6.6.3. Advantage and disadvantage of pre-stressing and post-tensioning

खण्ड (Section) (B)- ४० अङ्क

7. Building Construction Technology

- 7.1. Foundations
  - 7.1.1. Subsoil exploration
  - 7.1.2. Type and suitability of different foundations: Shallow, deep
  - 7.1.3. Layout for surface excavation, cutting and filling
  - 7.1.4. Shoring, timbering and dewatering
  - 7.1.5. Design of simple brick or stone masonry foundations
  - 7.1.6. Components of Building construction
- 7.2. Walls
  - 7.2.1. General classification
  - 7.2.2. Type of walls and their functions
  - 7.2.3. Choosing wall thickness, Height to length relation
  - 7.2.4. Mortars, types, selection and preparation
  - 7.2.5. Use of scaffolding
- 7.3. Damp Proofing
  - 7.3.1. Source of Dampness
  - 7.3.2. Effects of dampness
  - 7.3.3. Materials and method used for damp proofing
- 7.4. Concrete Technology
  - 7.4.1. Constituents of cement concrete
  - 7.4.2. Grading of aggregates
  - 7.4.3. Concrete mixes
  - 7.4.4. Concreting processes
  - 7.4.5. Water cement ratio
  - 7.4.6. Factors affecting strength of concrete
  - 7.4.7. Concreting under water and under different weather conditions
  - 7.4.8. Form work

7.4.9. Curing, methods of curing and its importance
7.4.10. Water proofing
7.4.11. Causes of failure of reinforced concrete structures
7.4.12. Concreting equipment and accessories

7.5. Door and windows
7.5.1. Door classification as per materials (wood, metal, UPVC, Aluminum, etc.)
7.5.2. Windows: glazed window, panel window, sky light window, UPVC, Aluminum windows, etc.
7.5.3. Frames of door and window
7.5.4. Sill, lintel and arches

7.6. Stairs and roof
7.6.1. Landing, riser, tread, width of staircase, handrail, baluster, newel, winders, nosing
7.6.2. Staircase types as per materials selection
7.6.3. Various types of staircase layout
7.6.4. Planning and design of staircase
7.6.5. Type of roofs
7.6.6. False ceiling using different new technologies

7.7. Earthquake
7.7.1. Earthquake cause
7.7.2. Seismicity of Nepal
7.7.3. Effects of Earthquake on building
7.7.4. Earthquake resistance building construction

7.8. Flooring and Finishing
7.8.1. Floor finishes: brick, concrete, flagstone, terrazzo tiles flooring, PVC flooring, Timber/wood flooring, etc.
7.8.2. Floor slope/level/reverse slope planning at bathroom, toilet, kitchen, balcony and staircase
7.8.3. Plastering

7.9. Building planning, construction and maintenance work

8. Water Supply and Sanitation Engineering

8.1. General
8.1.1. Objectives of water supply system
8.1.2. Source of water and its selection: gravity and artesian springs, shallow and deep wells; infiltration well and galleries
8.1.3. Components of water supply system

8.2. Gravity Water Supply System
8.2.1. Types of gravity flow systems and it's main components
8.2.2. Design period
8.2.3. Different types of water demand
8.2.4. Population forecasting
8.2.5. Determination of storage tank capacity
8.2.6. Intake types and it's selection
8.2.7. Selection of pipe type, pipe diameter for transmission and distribution, pipe joint testing, velocity limits
8.2.8. Pipe line construction
8.2.9. Hydraulic gradient line, pipeline design, break pressure tank
8.2.10. BPT, washout, valves and fittings (operation and maintenance), chambers, private connection and public stand posts

8.3. Pumping/ Lifting water supply system
8.3.1. Pipe and fittings used in Pumping/ Lifting system

8.3.2. Basic knowledge on Electromechanical equipment (Type of Pump, motor, panel board, High tension line etc.) used in lifting water supply system.
8.3.3. Basic knowledge on alternative energy (eg. Solar, Generator etc.)
8.4. Water Quality and Water Treatment System
8.4.1. Quality of water: Types and sources of water pollution, pollution of ground water, living organism in water, water borne diseases, physical, chemical, and biological test of water, water quality standard: Nepal standard (NS) and WHO
8.4.2. Water treatment system (Screening, Sedimentation tank, Roughing Filter, Slow Sand/Rapid Sand Filter/Pressure filter, Disinfection, Miscellaneous treatment), Bio-sand filter, Chlorine dosing, miscellaneous treatments
8.5. Design of Sewer
8.5.1. Quantity of storm and sanitary sewage, sewer shapes
8.5.2. Maximum, Minimum and self-cleaning velocity, sewer gradient, sewer size range
8.6. Excreta Disposal and Unsewered Area, solid waste management
8.6.1. Pit latrine, VIP larine
8.6.2. Design of septic tanks and soak pits, Decentralized waste water treatment system (DEWATS)
8.6.3. Methods of solid waste disposal: dumping, sanitary landfill, incineration and composting
8.7. Role of Water User's Committee and Operation and maintenance of water supply system

9. Irrigation Engineering

9.1. General types of irrigation systems
9.1.1. Irrigation Act 2075 (Koshi Province)
9.1.2. Advantages and Disadvantages of irrigation
9.1.3. Surface, sub-surface Irrigation, New technologies in irrigation i.e. drip, sprinkler etc.
9.2. Water Requirement
9.2.1. Crop season and principal crops
9.2.2. Commanded areas
9.2.3. Base period, crop water requirements, delta and duty
9.3. Diversion headworks
9.3.1. Component layout
9.3.2. Diversion barrage/weir
9.3.3. Silt control
9.3.4. Head regulator
9.4. Flow irrigation Canals
9.4.1. Canal losses and their minimization
9.4.2. Canal alignment, sediment transport
9.4.3. Maximum and minimum velocities
9.4.4. Design of irrigation canal section based on manning's formula
9.4.5. Need and location of spillways
9.4.6. Seepage of canals and lining
9.4.7. Design criteria for hill irrigation
9.4.8. Water logging and drainage
9.4.9. Farmer managed irrigation system
9.4.10. Irrigation management
9.4.11. Components of Irrigation system

10. Highway Engineering

10.1. General
10.1.1. Introduction to transportation systems
10.1.2. Historic development of roads

10.1.3. Classification of road in Nepal
10.1.4. Provincial Public Road Act, 2077 of Koshi Province
10.1.5. Basic requirements of road alignment
10.1.6. Factors affecting road alignment
10.1.7. Engineering survey for highway alignment
10.1.8. Components of Road network
10.1.9. Transport Master Plan (Province, Local)

10.2. Geometric Design
10.2.1. Basic design control and criteria for design
10.2.2. Elements of cross section, typical cross-section for all roads in filling and cutting
10.2.3. Camber
10.2.4. Highway curves: Vertical and Horizontal curves
10.2.5. Super elevation
10.2.6. Sight distances
10.2.7. Extra Widening
10.2.8. Gradient
10.2.9. Use of Nepal Road Standard and subsequent revision in road design

10.3. Drainage System: Importance of drainage system and requirements of a good drainage system, classification of drainage system, energy dissipating structures
10.4. Road Pavement: Pavement structure and its components: subgrade, sub-base, base and surface courses, different tests for highway materials
10.5. Road Machineries: Earth moving and compacting machines and its suitability
10.6. Road Construction Technology
10.7. Bridge
10.7.1. T-beam bridge, slab bridge, box culverts
10.7.2. Timber bridges
10.7.3. Trail bridges (suspension, suspended, truss)
10.8. Road Maintenance and Repair: Type of maintenance Works, drainage structure maintenance
10.9. Hill road, Tracks and Trails
10.10. Low-cost roads

11. Estimating and Costing

11.1. General
11.1.1. Main items of work
11.1.2. Units of measurement and payment of various items of work and material
11.1.3. Standard estimate formats of government offices
11.1.4. Estimate types
11.1.5. Long wall and short wall method, center line method
11.1.6. Estimate of Repair and maintenance of civil works

11.2. Estimating and Rate Analysis: Importance of rate analysis, preparation of rate analysis based on district rate and norms approved by authorized body
11.3. Specifications: Specifications for different types of works and its interpretation
11.4. Valuation
11.4.1. Methods, principle and purpose of valuation
11.4.2. Factor affecting valuation of property
11.4.3. Basic knowledge on standard formats and different terms used for valuation
11.4.4. Depreciation method

12. Construction Management

12.1. Organization
12.1.1. Need and types of organization
12.1.2. Responsibilities of a civil sub engineer

12.1.3. Relation between Owner, Contractor and sub-Engineer

12.2. Site Management
- 12.2.1. Importance of management
- 12.2.2. Preparation of site plan
- 12.2.3. Organizing labour
- 12.2.4. Measures to improve labor efficiency
- 12.2.5. Accident prevention, labour camps, primary health care

12.3. Contract Procedure
- 12.3.1. Contracts
- 12.3.2. Departmental works and day-work
- 12.3.3. Types of contracts, Standard bid documents, preparation of bid documents
- 12.3.4. Tender notice and tender
- 12.3.5. Earnest money and security deposit
- 12.3.6. Preparation before inviting tender
- 12.3.7. Agreement
- 12.3.8. Conditions of contract (GCC, SCC)
- 12.3.9. Construction planning and supervision

12.4. Accounts
- 12.4.1. Need and importance of accounting
- 12.4.2. Administrative approval and technical sanction
- 12.4.3. Familiarity with standard account keeping formats used in governmental organizations
- 12.4.4. Muster roll
- 12.4.5. As built drawing, Completion report (Works, Projects)

12.5. Planning and Control
- 12.5.1. Construction schedule and its importance
- 12.5.2. Equipment and materials schedule
- 12.5.3. Construction stages and operations
- 12.5.4. Basic knowledge of project planning Tools (Bar chart, CPM, PERT, MS etc.)

13. Airport Engineering

13.1. General
- 13.1.1. Introduction to Air Transport System
- 13.1.2. Historic development of Airports in Nepal
- 13.1.3. Classification of Airports
- 13.1.4. Airport terminologies

13.2. Design
- 13.2.1. Basic design control and criteria for design
- 13.2.2. General items contained in ANNEX 14 (ICAO Publication)
- 13.2.3. Planning of Airport and its elements
- 13.2.4. Terminal Building and Control Tower
- 13.2.5. Drainage System
- 13.2.6. Geometric design, pavement structure and its component
- 13.2.7. Basic knowledge of Heliport and Hangers

13.3. Airport Maintenance
- 13.3.1. Types of maintenance
- 13.3.2. Methods of maintenance

प्रदेश लोक सेवा आयोग

कोशी प्रदेश, विराटनगर

प्रदेश निजामती सेवा तथा स्थानीय सरकारी सेवा अन्तर्गत इञ्जिनियरिङ सेवा, सिभिल समूह, जनरल, हाइवे, स्यानिटरी, इरिगेशन, हाइड्रोपावर उपसमूह, सहायकस्तर पाँचौं तह, सव-इञ्जिनयर वा सो सरह पदको प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

खण्ड (Section) (C):- २० अङ्क

१. नेपालको संविधानको भाग १ देखि ५ र भाग १३ देखि २२ सम्म तथा अनुसूची ५ देखि ९ सम्म

२. प्रदेश निजामती सेवा ऐन, २०७९ (कोशी प्रदेश)

३. प्रदेश निजामती सेवा नियमावली, २०८१ (कोशी प्रदेश)

४. स्थानीय सरकारी सेवा (गठन तथा सञ्चालन) ऐन, २०८० (कोशी प्रदेश)

५. प्रदेश सुशासन (व्यवस्थापन तथा सञ्चालन) ऐन, २०७६ (कोशी प्रदेश)

६. प्रदेश सुशासन (व्यवस्थापन तथा सञ्चालन) नियमावली, २०७७ (कोशी प्रदेश)

७. प्रदेश लोक सेवा आयोग ऐन, २०७६ (कोशी प्रदेश)

८. प्रदेश लोक सेवा आयोग नियमावली, २०८१ (कोशी प्रदेश)

९. प्रदेश आर्थिक कार्यविधि तथा वित्तीय उत्तरदायित्व ऐन, २०७८ (कोशी प्रदेश) को परिच्छेद १ र परिच्छेद ६ सम्बन्धी जानकारी

१०. कोशी प्रदेशको योजनावद्ध विकास तथा चालु आवधिक योजना सम्बन्धी सामान्य जानकारी

नोटः प्रथमपत्रको वस्तुगत प्रश्न सामान्यतया देहाय अनुसारका इकाइबाट देहाय अनुसार प्रश्न सोधिने छ।

विवरण	खण्ड A						खण्ड B							खण्ड C						
इकाइ	१	२	३	४	५	६	७	८	९	१०	११	१२	१३	१	२-३	४	५-६	७-८	९	१०
प्रश्न संख्या	४	४	२	३	४	३	४	३	३	३	२	३	२	२	१	१	२	२	१	१

द्वितीय पत्रको विषयगत प्रश्न सामान्यतया देहाय अनुसारका इकाइबाट देहाय अनुसार प्रश्न सोधिने छ।

विवरण	खण्ड A						खण्ड B						खण्ड C			
इकाइ	१	२	३	४	५	६	७	८	९	१०	११	१२-१३	१	२-३-४	५-६-७-८	९-१०
पूर्णाङ्क	१०	१०	५	५	५	५	१०	१०	५	५	५	५	५	५	५	५
प्रश्न संख्या	१	१	१	१	१	१	१	१	१	१	१	१	१	१	१	१

Model Questions (MCQs)

1. The hardest rock is
   A. Marble B. Talc C. Diamond D. Quartz
2. Hooke's Law holds good up to:
   A. Yield point B. Elastic limit C. Plastic Limit D. Breaking point
3. A Lysimeter is used to measure
   A. Infiltration B. Evaporation C. Evapotranspiration D. Radiation
4. The grade of concrete M20 Means that the compressive strength of a 15 cm cube after 28 days would
   A. 5N/sq mm B. 10 N/sq mm C. 15N/sq D. 20N/sq mm
5. The slump test is used to determine which of the following properties of concrete
   A. Shrinkage B. Strength C. Workability D. Durability

Model Question (Subjective)

1. What are the principles of surveying? Write short notes on different methods of levelling? [5+5 Marks]
2. What are the differences between pipe flow and open channel flow? [5 Marks]
3. How do you treat turbid water especially in rainy season from stream intake? which method is applied for pathogen removal before distribution? [8+2 Marks]
4. What are the methods of minimizing losses of water in canal? Briefly describe the location and need of spill way? [5+5 Marks)