

नेपाल सरकार
गृह मन्त्रालय
नेपाल प्रहरी प्रधान कार्यालय
(मानवश्रोत विकास विभाग, भर्ना छनौट शाखा)
नक्साल, काठमाण्डौ ।

प्राविधिक प्रहरी नायव निरीक्षक (आर्किटेक्ट) पदको खुला प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

सेवा: नेपाल प्रहरी

उपसमूह: इन्जिनियरिङ, आवास तथा भौतिक इन्जिनियरिङ

समूह: प्राविधिक प्रहरी

श्रेणी: राजपत्र अनङ्कित प्रथम

परीक्षा योजना (Examination Scheme)

क्र.सं.	परीक्षा चरण	विवरण	पूर्णाङ्क
१.	प्रथम चरण	प्रारम्भिक तथा विस्तृत स्वास्थ्य परीक्षण	-
२.	द्वितीय चरण	लिखित परीक्षा	२००
३.	तृतीय चरण	विशेष स्वास्थ्य परीक्षण	-
४.	चतुर्थ चरण	अन्तरवार्ता	३०

प्रथम चरण:- प्रारम्भिक तथा विस्तृत स्वास्थ्य परीक्षण

- प्रहरी सेवाको पदमा नियुक्ति र बढुवा गर्दा अपनाउनु पर्ने सामान्य सिद्धान्त, २०६९ को अनुसूची-६ र ८ बमोजिम हुने ।

द्वितीय चरण:- लिखित परीक्षा योजना (Written Examination Scheme)

पत्र	विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली	प्रश्न संख्या अङ्कभार	समय
प्रथम	Professional and Service Specific Test (PSST)	१००	४०	वस्तुगत बहुवैकल्पिक प्रश्न (Multiple Choice)	५० प्रश्न×२ अंक = १००	४५ मिनेट
द्वितीय		१००	४०	विषयगत (Subjective)	<u>छोटो उत्तर</u> ८ प्रश्न×५ अंक = ४० <u>लामो उत्तर</u> ६ प्रश्न ×१० अंक = ६०	२ घण्टा ३० मिनेट

तृतीय चरण:- विशेष स्वास्थ्य परीक्षण

- प्रहरी सेवाको पदमा नियुक्ति र बढुवा गर्दा अपनाउनु पर्ने सामान्य सिद्धान्त, २०६९ को अनुसूची-९ बमोजिम हुने ।

चतुर्थ चरण:- अन्तरवार्ता (Interview)

विषय	पूर्णाङ्क	परीक्षा प्रणाली
अन्तरवार्ता	३०	मौखिक

१. यो पाठ्यक्रमको योजना अनुसार दुई पत्रको लिखित परीक्षा हुनेछ ।
२. लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुनेछ ।
३. पाठ्यक्रमको प्रथम र द्वितीय पत्रको विषयवस्तु एउटै हुनेछ ।
४. प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।
५. लिखित परीक्षाको प्रथम तथा द्वितीय पत्रको पाठ्यक्रमका इकाइहरूको प्रश्नहरूको संख्या निम्नानुसार हुनेछ ।

प्रथम पत्रका इकाइ	१	२	३	४	५	६	७	८	९	१०	११	१२
प्रथम पत्रका प्रश्न संख्या	५	५	२	३	३	५	२	५	५	५	५	५
द्वितीय पत्रका खण्ड	खण्ड-क (A)					खण्ड-ख (B)					खण्ड-ग (C)	
द्वितीय पत्रका इकाइ	१	२	३	४	५	६	७	८	९	१०	११	१२
द्वितीय पत्रका प्रश्न	छोटो	३					३					२
संख्या	लामो	३					३					-

६. यस पाठ्यक्रममा जे सुकै कुरा लेखिएको भए तापनि पाठ्यक्रममा परेका ऐन नियमहरू तथा नीतिहरू परीक्षाको मिति भन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाईएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा रहेको सम्झनु पर्छ ।
७. वस्तुगत बहुवैकल्पिक (Multiple Choice) प्रश्नहरूको उत्तर सही दिएमा प्रत्येक सही उत्तर बापत २ (दुई) अंक दिईने छ भने गलत उत्तर दिएमा प्रत्येक गलत उत्तर बापत २०% अंक कट्टा गरिने छ । तर उत्तर नदिएमा त्यस बापत अंक दिईने छैन र अंक कट्टा पनि गरिने छैन ।
८. द्वितीय पत्रको विषयगत प्रश्नका लागि तोकिएका १० अङ्कका प्रश्नहरूको हकमा १० अङ्कको 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 ।
९. द्वितीय पत्रको पाठ्यक्रमलाई ३ वटा खण्डमा विभाजन गरिएको छ । ३ वटा खण्डको लागि ३ वटै उत्तरपुस्तिका दिईनेछ र परीक्षार्थीले प्रत्येक खण्डका प्रश्नहरूको उत्तर सोही खण्डको उत्तरपुस्तिकामा लेख्नुपर्नेछ ।
१०. यस भन्दा अगाडि लागू भएको माथि उल्लेखित समूहको पाठ्यक्रम खारेज गरिएको छ ।

पाठ्यक्रम लागू मिति:- २०७९/१०/१९ गते ।

लिखित परीक्षा (Written Examination)

प्रथम र द्वितीय पत्र :- Professional and Service Specific Test (PSST)

खण्ड “क” (Section A)

1. **Drawing**

- 1.1 Importance, aims and objectives of drawing; Drawing equipment's; Architectural discipline; Standard drawing sheets sizes; Drafting techniques and methods in common practice; Scales - Choice, use and conversion
- 1.2 Measured Drawing: Methods of measurement of horizontal and vertical dimensions; Sectional measurements; Dimensioning of sketches; Checking for missing details in field
- 1.3 Working Drawing: Role of working drawing; Interrelationship with estimate and specification; Construction detailing in plan and section; Significance of detailing in terms of accuracy of estimation, bill of quantities and construction supervision; Working drawing for private and public buildings, sanitary installation, electrification; Structural working drawings

2. **Estimating and Costing**

- 2.1 Purpose of estimating; Main items of work; Units of measurement and payment of various items of work and materials; Degree of accuracy; Standard estimate formats of Government of Nepal; Data for estimate; Preliminary estimate; Approximate quantity estimate; Detailed estimate; Revised estimate
- 2.2 Rate Analysis: Manufactures' cost; Transportation cost; Overheads; Need for contingencies; Use of Government Rate Analysis Norms
- 2.3 Specifications: Purpose, Types, Necessity and Interpretation of Specifications
- 2.4 Estimating: Earthwork; Estimate of buildings; Estimate of sanitary installations; Estimate of electrical wiring and sanitary works; Annual maintenance
- 2.5 Valuation; Purpose and Methods of valuation; Standard formats used for Property Valuation in Nepal

3. **Management**

- 3.1 Organization: Need for organization; Building agencies; Structure of the Department of Urban Development and Building construction; Responsibilities of a building sub-engineer; Relation between owner, contractor and consultants
- 3.2 Accounts: Familiarity with related Nepalese accounting system; Administrative approval and technical sanction
- 3.3 Planning and Control: List of activities; Construction schedule; Equipment and materials schedule; Construction stages and operations; Bar Chart
- 3.4 Building By-laws: Sheet sizes; Scales; Setback; Height controls; Other requirements specifies by the municipalities; FAR

4. **Building Service**

- 4.1 Water Supply: General principle of water supply; Water requirement standard for different buildings; Storage and distribution of water; Heating of water, storage and distribution requirements
- 4.2 Disposal system: Septic tank, soak pit, vent and manhole; Pipes for different sewage; Incinerators
- 4.3 Electricity: General principles of electrical installation and distribution; Wiring systems in private and public building; Ducts for electrical distribution; Safety precautions
- 4.4 Lighting: General principles of lighting; Illumination requirements and standards; Combination of artificial and natural light; Lighting fixtures

5. **Surveying**

- 5.1 Primary divisions of survey; Classification based on instruments and on methods
- 5.2 Basic principle of surveying
- 5.3 Scales, plans and maps; System of field booking of surveying and leveling data
- 5.4 Theodolite survey
- 5.5 Leveling: Classification of leveling work; Methods of leveling; Leveling instruments and accessories; Principles of leveling; Temporary and permanent adjustments of a level; Profile leveling; Booking and reducing levels
- 5.6 Errors and their effects: Kinds of errors; Source of errors in chaining, leveling, plane tabling and compass surveying; Effects of errors
- 5.7 Plane Tabling; Equipments used; Working operations; Methods of plane tabling; Merits and demerits of plane tabling
- 5.8 Contouring: Definitions of terms; Use contour maps
- 5.9 Setting out: Small buildings; Simple curves; Locating the boundaries of farm lands

खण्ड “ख” (Section B)

6. **Construction Materials**

- 6.1 Stones: Rocks and their characteristics; Formation and availability of stones in Nepal; Quarrying - excavation, Wedging and blasting; Methods of laying and construction with various stones
- 6.2 Aggregates: Fine and Coarse aggregates; Availability and practice in Nepal
- 6.3 Cement: Different cements -ingredients, properties and manufacture; Storage and transport; Admixtures
- 6.4 Metals and Alloys: Wrought iron - properties and use; Steel - composition, properties, appearance, strength, constructional forms and manufacture; Corrosion and its prevention; Brass- uses
- 6.5 Brick: Type; Manufacture; Laying; Availability and practice in Nepal
- 6.6 Lime: Manufacture; Types and properties; Uses
- 6.7 Paints and Varnishes: Type and selection; Preparation techniques; Uses
- 6.8 Floor Finishes: Punning, Tiles - mosaic, clay, concrete, vinyl; Marble and flagstones; Wooden boarding and parqueting
- 6.9 Wall Finishes; Plasters - cement, lime, mud; Punning - cement, lime; Cladding: wood, stone, tiles
- 6.10 Roofing Materials: Clay tiles, ceramic tiles and states; CGI and UPVC
- 6.11 Miscellaneous Materials: Glass; Plastics; Asphalt and Bitumen; Surkhi

7. **Structural Design**

- 7.1 Timber Structures: Allowable stresses; Design of compression members; Design of solid rectangular beams, design of simple steel beams; Types of joints and their connections
- 7.2 Steel Structures: Rivetted and welded connections: types, uses, detailing; Detailing of simple roof trusses; Detailing of rolled steel beams; Detailing of column bases
- 7.3 R.C. Sections in Bending: Basis assumptions; Position of neutral axis; Moment of resistance; Under reinforced, over reinforced and balanced sections; Analysis of singly and doubly reinforced rectangular sections; Analysis of singly reinforced flanged sections
- 7.4 Shear and Bond for Reinforced Concrete (RC) Sections: Behaviour of R.C. section in shear; Shear resistance of R.C. section; Types of shear reinforcement and their design; Local and anchorage bond; Determination of anchorage length; Bar curtailment
- 7.5 Axially Loaded R.C: Short and long columns; Design of a rectangular column section; Reinforcement detailing

- 7.6 Design and Detailing of R.C Structures: IS code requirements; Methods of design; Singly reinforced T and L beams; Simple one-way and two-way slabs; Simple pad footings for columns; Preparation of bar bending for RC design
- 7.7 Earthquake Resistant Design of Non-engineered Structures: History of Earthquake in Nepal and damages; Weakness of existing building; Site consideration; Building form, shape and size; Size and location of openings; Selection of materials; Construction technology
- 7.8 Seismic resistant components: through stone, vertical and horizontal reinforcement, diaphragm, boxing of building, lateral restrainers, unsupported length of wall, corner and junction of wall/connection of building components

8. **Building Construction Technology**

- 8.1 Foundations: Function and necessity; Subsoil exploration: test pit; Safe bearing capacity of soils and its improvement; Type and suitability of different foundations: shallow, deep (pile and well); Methods of excavating; Shoring and dewatering; Elements of simple spread foundation; Stone masonry foundations; Raft foundation
- 8.2 Walls: Types of walls - solid wall, partition wall, cavity wall, curtain wall; Features and their functions; Types of stone masonry- rubble, hammer dressed and ashlar masonry; Brick Masonry -English, Flemish, garden rat trap, monk; Types of concrete blocks; Choosing wall thickness, height to length relation; Use of scaffolding; Procedure of constructing various masonry walls
- 8.3 Damp Proofing: Source of dampness; Remedial measures to prevent dampness; Vertical and horizontal damp proofing; Damp proofing materials
- 8.4 Concrete Technology: Constituents, mixing and use of lime concrete; Constituents of cement concrete; Grading of aggregates; Concrete mixes; Water cement ratio; Workability; Concrete laying; Factors affecting strength of concrete; Form work; Vibrators; Curing; General introduction to Precast RC units; Hydration and segregation
- 8.5 Wood Work: Frame and shutters of doors and windows; Timber construction of upper floors; Design and construction of stairs; Double timber roofs; False ceiling; Sky-light: elements, functions and construction details
- 8.6 Steel Work: Steel work in windows: Standards, elements and functions; Tubular and angle steel roofs; Iron grill and lattice work

9. **Building Design**

- 9.1 Analysis of Building Elements: Bed, Kitchen/Dining, Living Hall, Class Room, Working Office Space, Library
- 9.2 Design Consideration: Specific program- space requirements; Site - topography, orientation, environment; Functional relationship between activities; Culture - tradition, values, taste; Economics- efficient use of space and materials; Availability to technology and material; Structure type and efficiency; Optimum use of natural light and ventilation; Aesthetics
- 9.3 Climatology; Climate - sun, wind, rain, humidity; Orientation of the building with respect to the sun and wind: best, optimum, bad; Determination of length of roof projection to act as sunshade

10. **Architectural Modelling**

- 10.1 Modelling Materials and Practices: Use of models; Choice of materials; Modelling techniques; Accuracy of models; Determination of degree of detailing; Model construction of multi-storey buildings; Contour models of sites
- 10.2 Equipments Required: Choice of - cutting tools; adhesives; colour and tone; paint and brushes; Miscellaneous tools

11. Graphics and Presentation

- 11.1 Principles of Composition: Balance, Scale, Rhythm, Monotony, Contrast, Unity, Focal point
- 11.2 Tone: Light, Medium, Dark, Flat, Graded
- 11.3 Free Hand Works: Drawing lines, Drawing letters, Three dimensional objects
- 11.4 Presentation: Textures, Exterior and interior objects, Human figures, Shadows
- 11.5 Medium for Presentation: Pencil techniques; Colour history and type - pencil colour, water colour, Poster colour; Primary, secondary and tertiary colours; Warm and cool colours; Properties of colour; Colour circle; Colour scheme: monochromatic, analogous, complementary and triad
- 11.6 Data Presentation in Graphical Forms: Translation of numerical data into diagrams and vice versa; Pie chart, bar chart and XY graphs
- 11.7 Cartography: Tracing of land-use maps; Presentation of land-use maps

खण्ड “ग” (Section-C)

12. सामान्य ज्ञान तथा नेपाल प्रहरी सेवा सम्बन्धी

- क. नेपालको भूगोल सम्बन्धी सामान्य जानकारी (भौगोलिक अवस्था, स्वरूप, किसिम र विशेषताहरू, हावापानीको किसिम र विशेषता, जल सम्पदा: स्थिति र महत्व, वन सम्पदा: अवस्था र महत्व, नेपालका प्रमुख हिमशिखरहरू, तालतलैया, झरना, भञ्ज्याङ।
- ख. इतिहास र संस्कृति सम्बन्धी सामान्य जानकारी (आधुनिक नेपालको इतिहास (पृथ्वीनारायण शाह देखी हालसम्म), नेपालको सांस्कृतिक, धार्मिक एवं मौलिक परम्परा, जातजाति, भाषाभाषी, कला र साहित्य सम्बन्धी सामान्य जानकारी।
- ग. नेपालको वर्तमान संविधान २०७२ (भाग १, ३, ४, ५, २८ र अनुसूचीहरू)
- घ. जनसंख्या र वातावरण सम्बन्धी सामान्य जानकारी (जनसंख्या, शहरीकरण, बसोवास (बँसाईसराई), जैविक विविधता, जलवायु परिवर्तन, वातावरण तथा प्रदुषण)
- ङ. समसामयिक घटना तथा नविनतम् विषयवस्तुहरू: (राष्ट्रिय तथा अन्तर्राष्ट्रिय महत्वका राजनैतिक, सामाजिक, आर्थिक, वैज्ञानिक, सांस्कृतिक, खेलकूद, पुरस्कार, कला साहित्य, संगीत सम्बन्धी)
- च. नेपाल प्रहरीको पृष्ठभूमि (वि.स. २००७ साल देखि हालसम्म) र वर्तमान अवस्था
- छ. प्रहरी ऐन, २०१२ र प्रहरी नियमावली, २०७१ (संशोधन सहित) का मुख्य-मुख्य व्यवस्थाहरू (संगठनात्मक स्वरूप, सेवाको प्रकार, दर्ज्यानी चिन्ह, पद तथा श्रेणी सेवा, शर्त र सुविधा, प्रहरी आचरण, नियुक्ति र अवकाश सम्बन्धी व्यवस्था)
- ज. विविध:- नेपाल प्रहरी र अन्य सुरक्षा निकायहरू (नेपाली सेना, सशस्त्र प्रहरी बल नेपाल र राष्ट्रिय अनुसन्धान विभाग) संगको सम्बन्ध, सार्क, संयुक्त राष्ट्रसंघ र इन्टरपोल सम्बन्धी जानकारी।

लिखित परीक्षाको नमूना प्रश्नपत्र

वस्तुगत बहुवैकल्पिक प्रश्न (Multiple Choice Question)

1. Architectural dimensioning standards allow for the placement of dimensions inside the floor plan. These inside dimensions locate interior _____.
 - a. door openings and walls
 - b. centers of cabinets
 - c. windows
 - d. all of the above
2. Architectural dimensioning is usually done in _____.
 - a. Even numbers
 - b. Feet and inches
 - c. Feet only
 - d. Inches only
3. Some of the standard AutoCAD text styles used in architectural drawings includes _____.
 - a. City Blueprint
 - b. Country Blueprint
 - c. Stylus BT
 - d. All of the above
4. Dimension text is generally placed above the _____ line.
 - a. Dimension
 - b. extension
 - c. center
 - d. leader
5. The rate of payment is made for 100 cu m (per % cu m) in case of
 - a. Earth work in excavation
 - b. Rock cutting
 - c. Excavation in trenches for foundation
 - d. All the above

छोटो प्रश्न (Short Question)

1. Describe different types of foundation briefly.
2. Draw the construction of roof of traditional buildings of Kathmandu Valley.

लामो प्रश्न (Long Question)

1. How do you define a load bearing wall in a building? Draw a neat, well-illustrated section of load-bearing wall showing its foundation, sill, lintel band, window section and parapet wall for a one-storied building.
2. Describe major sources of Dampness and remedial measures to prevent dampness.

-समाप्त-