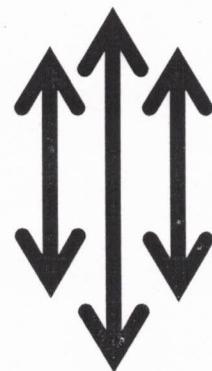
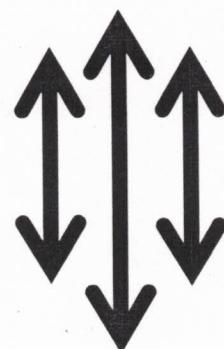


नेपाली सेना

श्री भर्ना छनौट निर्देशनालय, कार्यरथी विभाग,
जंगी अड्डा



प्रा.उ.से. आर्किटेक्चर (आन्तरिक) पदको
लिखित परीक्षाको पाठ्यक्रम



२०७९

प्रा.उ.से. आर्किटेक्चर (आन्तरिक) पदको
लिखित परीक्षाको पाठ्यक्रम

समय:- ४ घण्टा १५ मिनेट

पूर्णाङ्क:- १५०

उत्तीर्णाङ्क:- ६०

यो पाठ्यक्रम नेपाली सेनाको सैनिक प्राविधिक सेवा, सैनिक ईन्जिनियरिङ समूह, सिभिल तथा आर्किटेक्चर उप-समूह अन्तर्गत प्रा.उ.से. आर्किटेक्चर (आन्तरिक) पदका उम्मेदवार छनौट परीक्षाको लागि निर्धारण गरिएको हो । लिखित परीक्षामा सरिक हुने उम्मेदवारहरूको पेशा सम्बन्धी विषय र पेशागत विषयको प्रयोगात्मक परीक्षाको लागि निम्न विषयहरूलाई आधार मानि प्रश्नहरू सोधिनेछ ।

- (क) लिखित परीक्षाको माध्यम नेपाली/अंग्रेजी वा दुवै भाषा हुनेछ ।
- (ख) लिखित परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र अर्को चरणको परीक्षामा सम्मिलित गराइनेछ ।
- (ग) प्रश्नपत्र निर्माण गर्दा पाठ्यक्रममा समावेश भएका सबै विषयहरूलाई यथासंभव समेटिनेछ ।
- (घ) बस्तुगत र विषयगत विषयको संयुक्त रूपमा पूर्णाङ्क र उत्तीर्णाङ्क कायम गरिनेछ ।
- (ङ) बस्तुगत र विषयगत विषयको लिखित परीक्षा एकैपटक वा छुट्टाछुट्टै गरी लिन सकिनेछ ।
- (च) यो पाठ्यक्रम मिति २०७९/११ / १५ गतेबाट लागु हुनेछ ।

लिखित परीक्षा योजना र पाठ्यक्रम

विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली		प्रश्नसंख्या X अंक	समय
पेशा सम्बन्धि	१५०	६०	बस्तुगत (Objective)	बहु बैकल्पिक प्रश्न (Objective)	७५ प्रश्न X १ अङ्क = ७५	१ घण्टा
			विषयगत (Subjective)	छोटो उत्तर	९ प्रश्न X ५ अङ्क = ४५	१५ मिनेट
				लामो उत्तर	३ प्रश्न X १० अङ्क = ३०	३ घण्टा

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नेपाली सेना
प्रा.उ.से आर्किटेक्चर (आन्तरिक) पदको
लिखित परीक्षाको पाठ्यक्रम

PART-A

OBJECTIVE TYPE

1. Drawing

- 1.1. Drafting techniques and methods in common practice
- 1.2. Standard drawing sheets sizes
- 1.3. Scales: Types, choice, use and conversion
- 1.4. Measured Drawing
- 1.5. Drawing conventions and symbols
- 1.6. Working Drawing: Working drawing for private and public buildings, sanitary installation, electrification, Structural working drawings

2. Estimating and Costing

- 2.1. Main items of work, standard estimate formats of Government of Nepal, units of measurement and payment of various items of work and materials and degree of accuracy
- 2.2. Different types of estimates: Preliminary estimate, Approximate quantity estimate, Detailed estimate, Revised estimate
- 2.3. Rate Analysis: Manufactures' cost, transportation cost, overheads, need for contingencies, use of Government Rate Analysis Norms
- 2.4. Types of specifications and its interpretation
- 2.5. Estimating: Estimate of Earthwork, buildings, sanitary installations, electrical wiring and sanitary works

3. Construction Management

- 3.1. Administrative approval and technical sanction
- 3.2. Equipment and materials schedule
- 3.3. Construction stages and operations
- 3.4. Construction planning and scheduling (Bar Chart)
- 3.5. Variation, alteration and omissions

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4. Building Service

- 4.1. 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, ventilation and manhole, Pipes for different sewage, Incinerators
- 4.3. Electricity: Wiring systems in private and public building, ducts for electrical distribution 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, basic principle of surveying, scales, plans and maps, system of field booking of surveying and levelling data
- 5.2. Chain Survey
- 5.3. Levelling: Classification of levelling work, methods of levelling, levelling instruments and accessories, principles of levelling, temporary and permanent adjustments of a level, profile levelling, booking and reducing levels
- 5.4. Errors and their effects: Kinds of errors, source of errors in chaining, levelling, plane tabling and compass surveying
- 5.5. Plane Tabling: Methods of plane tabling, merits and demerits of plane tabling
- 5.6. Contouring: Definition, use contour maps
- 5.7. Setting out: Small buildings, Simple curves

6. Construction Materials

- 6.1. Stone: Rocks and their characteristics, formation and availability of stones in Nepal, quarrying of stones, methods of laying and construction with various stones
- 6.2. Aggregates: Fine aggregates, coarse aggregates
- 6.3. Cement: Types of cement, storage and transportation of cement, admixtures
- 6.4. Metals and Alloys: Wrought iron, Steel
- 6.5. Corrosion and its prevention
- 6.6. Brick: Type, manufacture, laying
- 6.7. Lime: Manufacture, types and properties, uses
- 6.8. Paints and Varnishes: Type and selection, preparation techniques and uses
- 6.9. Floor Finishes: Tiles, Marble and flagstones, wooden boarding and parqueting
- 6.10. Wall Finishes: Cement, lime and mud plasters, cement and lime punning, wood, stone and tiles cladding

A series of handwritten signatures and initials are written across the bottom right corner of the page. The signatures include 'J. S. D. 2018', 'R. J.', 'A. M. 2018', 'B.', and 'G.'. There are also some smaller, less legible initials and lines.

6.11. Roofing Materials: Clay tiles, ceramic tiles and states, CGI and UPVC

6.12. Miscellaneous Materials: Glass, Asphalt and Bitumen, Surkhi

7. Structural Design

7.1. Timber Structures

7.2. R.C. Sections in Bending: Under reinforced, over reinforced and balanced sections, Analysis of singly and doubly reinforced rectangular sections, Analysis of singly reinforced flanged sections

7.3. Shear and Bond for Reinforced Concrete (RC) Sections, Types of shear reinforcement and their design, Local and anchorage bond, Determination of anchorage length, Bar curtailment

7.4. Axially Loaded R.C: Short and long columns, Design of a rectangular column section, Reinforcement detailing, Design and Detailing of R.C Structures

7.5. Simple one-way and two-way slabs

7.6. Simple pad footings for columns

7.7. Preparation of bar bending for RC design

7.8. Earthquake Resistant Design of Non-Engineered Structures

7.9. Building form, shape and size, Size and location of openings

7.10. 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: Safe bearing capacity of soils and its improvement, shallow and deep foundation, Methods of excavating, Shoring and dewatering, Elements of simple spread foundation, Stone masonry foundations, Raft foundation

8.2. Walls: Solid wall, partition wall, cavity wall, curtain wall, types of stone masonry, Different types of Bonds in Brick, Types of concrete blocks, Choosing wall thickness, height to length relation

8.3. Use of scaffolding

8.4. Damp Proofing: Source of dampness, Remedial measures to prevent dampness, Vertical and horizontal damp proofing, Damp proofing materials, Concrete Technology

8.5. Constituents, mixing and use of lime concrete, Constituents of cement concrete, Grading of aggregates, Concrete mixes, Water cement ratio, Workability, Factors affecting strength of concrete, Form work, Vibrators, Curing

8.6. Wood Work: Frame and shutters of doors and windows, Timber construction of upper floors, Design and construction of stairs

A series of handwritten signatures and initials in blue and green ink, likely belonging to students or faculty, are written across the bottom of the page.

- 8.7. Double timber roofs, False ceiling, Sky-light
- 8.8. Steel Work: Steel work in windows, Tubular and angle steel roofs, Iron grill and lattice work

9. Building Design

- 9.1. Design Consideration
- 9.2. Specific program: space requirements
- 9.3. Site: topography, orientation, environment
- 9.4. Functional relationship between activities
- 9.5. Culture: tradition, values, taste
- 9.6. Economics: efficient use of space and materials
- 9.7. Availability to technology and material
- 9.8. Structure type and efficiency
- 9.9. Optimum use of natural light and ventilation
- 9.10. Aesthetics
- 9.11. Climatology: Sun, wind, rain, humidity, Orientation of the building with respect to the sun and wind, Determination of length of roof projection to act as sunshade

10. Graphics and presentation

- 10.1. Principles of Composition: Balance, Rhythm, Monotony, Contrast, Unity, Focal point,
- 10.2. Tone: Light, Medium, Dark, Flat, Graded
- 10.3. Medium for Presentation: Pencil techniques, Pencil color, Water color, Poster color
- 10.4. Data Presentation in Graphical Forms
- 10.5. Primary, secondary and tertiary colors, Warm and cool colors, Properties of color, Color circle
- 10.6. Color scheme: monochromatic, analogous, complementary and triad

A series of handwritten signatures and initials in black and green ink, likely belonging to students or faculty, are written across the bottom of the page. The signatures are fluid and vary in style, with some including dates like '20/05' and initials like 'RJ', 'AM', and 'D'.

PART-B
SUBJECTIVE TYPE

1. Drawing

- 1.1. Drafting techniques and methods in common practice
- 1.2. Standard drawing sheets sizes
- 1.3. Scales: Types, choice, use and conversion
- 1.4. Measured Drawing
- 1.5. Drawing conventions and symbols
- 1.6. Working Drawing: Working drawing for private and public buildings, sanitary installation, electrification, Structural working drawings

2. Estimating and Costing

- 2.1. Main items of work, standard estimate formats of Government of Nepal, units of measurement and payment of various items of work and materials and degree of accuracy
- 2.2. Different types of estimates: Preliminary estimate, Approximate quantity estimate, Detailed estimate, Revised estimate
- 2.3. Rate Analysis: Manufactures' cost, transportation cost, overheads, need for contingencies, use of Government Rate Analysis Norms
- 2.4. Types of specifications and its interpretation
- 2.5. Estimating: Estimate of Earthwork, buildings, sanitary installations, electrical wiring and sanitary works

3. Construction Management

- 3.1. Administrative approval and technical sanction
- 3.2. Equipment and materials schedule
- 3.3. Construction stages and operations
- 3.4. Construction planning and scheduling (Bar Chart)
- 3.5. Variation, alteration and omissions

4. Building Services

- 4.1. 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, ventilation and manhole, Pipes for different sewage, Incinerators



- 4.3. Electricity: Wiring systems in private and public building, ducts for electrical distribution illumination requirements and standards, combination of artificial and natural light, lighting fixtures

5. Engineering Survey

- 5.1. Primary divisions of survey, classification based on instruments and on methods, basic principle of surveying, scales, plans and maps, system of field booking of surveying and levelling data
- 5.2. Chain Survey
- 5.3. Levelling: Classification of levelling work, methods of levelling, levelling instruments and accessories, principles of levelling, temporary and permanent adjustments of a level, profile levelling, booking and reducing levels
- 5.4. Errors and their effects: Kinds of errors, source of errors in chaining, levelling, plane tabling and compass surveying
- 5.5. Plane Tabling: Methods of plane tabling, merits and demerits of plane tabling
- 5.6. Contouring: Definition, use contour maps
- 5.7. Setting out: Small buildings, Simple curves

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- 6.4. Metals and Alloys: Wrought iron, Steel
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- 6.6. Brick: Type, manufacture, laying
- 6.7. Lime: Manufacture, types and properties, uses
- 6.8. Paints and Varnishes: Type and selection, preparation techniques and uses
- 6.9. Floor Finishes: Tiles, Marble and flagstones, Wooden boarding and parqueting
- 6.10. Wall Finishes: Cement, lime and mud plasters, cement and lime punning, wood, stone and tiles cladding
- 6.11. Roofing Materials: Clay tiles, ceramic tiles and slates, CGI and UPVC
- 6.12. Miscellaneous Materials: Glass, Asphalt and Bitumen, Surkhi

7. Structural Design

- 7.1. Timber Structures

Handwritten signatures and initials in black and green ink, appearing to be approvals or signatures for the document.

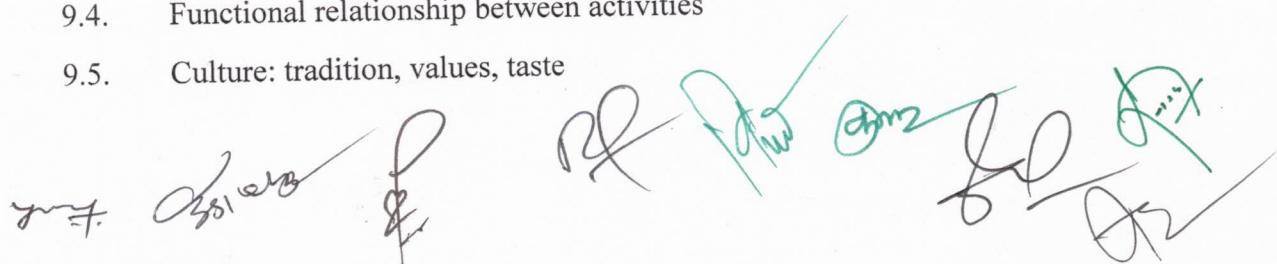
- 8
- 7.2. R.C. Sections in Bending: Under reinforced, over reinforced and balanced sections, Analysis of singly and doubly reinforced rectangular sections, Analysis of singly reinforced flanged sections
 - 7.3. Simple one-way and two-way slabs
 - 7.4. Simple pad footings for columns
 - 7.5. Preparation of bar bending for RC design
 - 7.6. Building form, shape and size, Size and location of openings
 - 7.7. 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: Safe bearing capacity of soils and its improvement, shallow and deep foundation, Methods of excavating, Shoring and dewatering, Elements of simple spread foundation, Stone masonry foundations, Raft foundation
- 8.2. Walls: Solid wall, partition wall, cavity wall, curtain wall, types of stone masonry, Different types of Bonds in Brick, Types of concrete blocks, Choosing wall thickness, height to length relation
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- 10.1. Principles of Composition: Balance
- 10.2. Scale: Rhythm, Monotony, Contrast, Unity, Focal point, Tone, Light, Medium, Dark, Flat, Graded
- 10.3. Medium for Presentation: Pencil techniques, pencil color, water color, Poster color
- 10.4. Primary, secondary and tertiary colors, Warm and cool colors, Properties of color, Color circle
- 10.5. Color scheme: monochromatic, analogous, complementary and triad
- 10.6. Data Presentation in Graphical Forms

यस विषयको पाठ्यक्रमका एकाईहरूबाट सोधिने प्रश्नहरूको संख्या निम्नानुसार हुनेछ ।

एकाई नं. (Unit No.)	अङ्कभार (Weightage)	बहुवैकल्पिक प्रश्न (MCQs) को संख्या	छोटो उत्तर दिने प्रश्नको संख्या	लामो उत्तर दिने प्रश्नको संख्या
१	१५	१०	१ प्रश्न X५ अङ्क=५	
२	१०	५	१ प्रश्न X५ अङ्क=५	
३	१५	१०	१ प्रश्न X५ अङ्क=५	
४	१०	५	१ प्रश्न X५ अङ्क=५	
५	१०	५	१ प्रश्न X५ अङ्क=५	
६	२५	१०	१ प्रश्न X५ अङ्क=५	१ प्रश्न X१० अङ्क=१०
७	१०	१०		
८	२५	१०	१ प्रश्न X५ अङ्क=५	१ प्रश्न X१० अङ्क=१०
९	२०	५	१ प्रश्न X५ अङ्क=५	१ प्रश्न X१० अङ्क=१०
१०	१०	५	१ प्रश्न X५ अङ्क=५	
जम्मा अङ्क	१५०	७५	४५	३०

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प्रा.उ.से आर्किटेक्चर (आन्तरिक) पदको
प्रयोगात्मक परीक्षाको पाठ्यक्रम

समय: १ घण्टा ३० मिनेट

पूर्णाङ्क: ५०

उत्तीर्णाङ्क: २५

क्र.सं.	विषयवस्तु शीर्षक	अंकभार	समय
१.	Artand Graphics: i) Interpenetration of Geometrical Forms a) Prismatic forms b) Pyramid forms c) Other (Cylindrical, Sphere) ii) Architectural presentation techniques a) Architectural rendering	२०	३० मिनेट
२.	Free Hand Sketching: Free hand sketching of the following in studio condition a) Simple geometry b) Complex solid figures in studio condition		
३.	Autodesk Revit: Participants are required to draw any or all of the following drawings using Revit Software pdf format of the drawings will be provided. i) Floor plan ii) Elevations iii) Sections iv) 3D views v) Opening Schedule	२०	५० मिनेट
४.	Viva	१०	१० मिनेट

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