

लोक सेवा आयोग  
नेपाल इन्जिनियरिङ्ग सेवा, सिभिल समूह, बिल्डिङ्ग एण्ड आर्किटेक्ट उपसमूहको राजपत्राङ्कित तृतीय श्रेणी पदको  
खुला र आन्तरिक प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम  
द्वितीय पत्र :- बिल्डिङ्ग एण्ड आर्किटेक्ट सम्बन्धी विषय

### Section A- 30 Marks

1. **Building Materials and Construction** 30%
- 1.1 Stone masonry: Types of stone used in stone masonry, specifications of stone masonry.
  - 1.2 Brick masonry: Classification of bricks, specifications of different types of bricks, testing of bricks, different shapes of bricks.
  - 1.3 Hollow Concrete Blocks: Various types of concrete blocks, use of concrete blocks in buildings.
  - 1.4 Sand: Requirement of good quality sand, sieve analysis, fineness modules.
  - 1.5 Lime: Different types of lime and their uses test of freshness.
  - 1.6 Mortar: Types of mortar, specifications, proportion of mortar for various types of masonry works.
  - 1.7 Paintings: Types of paints, specification for various types of painting Works.
  - 1.8 Water proofing: Water proofing at basement, ground floor and roofs, common water proofing problems in Nepal.
  - 1.9 Roofing Systems: Different types of roofing system.
  - 1.10 Doors and windows: Different types of doors and windows, door and window details, merits and demerits of metal door and windows.
  - 1.11 Walls: Different types of wall system, Load bearing walls, partition walls and curtain walls.
  - 1.12 Pre-fabrication: Principles of pre-fabrication, advantages and disadvantages of a pre-fabricated building.
  - 1.13 Flooring: Different types of flooring, specification of floorings.
  - 1.14 Plastering: Different types of plasters and coating materials.
  - 1.15 Formworks: Shoring, underpinning, scaffolding and formworks.
  - 1.16 Building Elements: Foundation, super structure, lintel, floors, roofs, sun control devices, parapet, staircase, emergency stairs, elevators and escalators
  - 1.17 Building services: water supply and sanitation, electrification, heating and ventilation and air-conditioning.
  - 1.18 National Building Code: Hierarchy of building codes and its application, procedure for implementation of building code in Nepal.
  - 1.19 Development Control System in municipalities in Nepal
  - 1.20 Maintenance and repair of buildings.
  - 1.21 Principles of low cost construction techniques.
  - 1.22 Current building norms for estimating and costing.

### Section B- 20 Marks

2. **Structural Design and Analysis** 20%
- 2.1 Design of RCC footings, columns, slabs, beams..
  - 2.2 Analysis of structural system in a building.
  - 2.3 Design of steel structure.
  - 2.4 Design of timber structure.
  - 2.5 Design of masonry structure.
  - 2.6 Common structural problems in RCC buildings in Nepal.
  - 2.7 Requirements of earthquake resistant building construction.
  - 2.8 Computer Aided Design (CAD) of building structure.
  - 2.9 Mandatory Rule of Thumb in building design.
  - 2.10 Non-engineered earthquake resistant building design.

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**Section C- 30 Marks**

**3. Housing and Urban Planning** 30 %

- 3.1 Hierarchy of urban settlements,
- 3.2 Types of urban settlements in Nepal.
- 3.3 Base Maps:
- 3.4 Hierarchy of plans
- 3.5 Principles of land use planning
- 3.6 Building byelaws
- 3.7 Periodic plans for local authorities
- 3.8 Planning legislation of Nepal
- 3.9 Environmental issues in urban development.
- 3.10 Institutions involved in urban planning and development in Nepal.
- 3.11 Types of urban development programmes in Nepal.
- 3.12 Conservation of heritage sites,
- 3.13 Settlement planning for disaster mitigation.
- 3.14 Municipalities of Nepal and their role in urban development.
- 3.15 Town Development Committees and their role in urban development.
- 3.16 Different types of housing,
- 3.17 Principles of housing design,
- 3.18 Different models of land development,
- 3.19 Squatter and slums,
- 3.20 Private housing development,
- 3.21 Rural housing, housing development programmes in Nepal,
- 3.22 Prospects of apartments and group housing in Nepal.

**Section D- 20 Marks**

**4. Architecture** 20%

- 4.1 History of architecture
- 4.2 Contemporary world architecture
- 4.3 Contemporary Nepalese architecture
- 4.4 Traditional architecture of Nepal
- 4.5 Architecture of Kathmandu Valley
- 4.6 Principles of architectural design.
- 4.7 Factors to be considered while designing buildings.
- 4.8 Standards to be followed while designing buildings in Nepal
- 4.9 Contemporary world architects and their works
- 4.10 Architectural landmarks in Nepal
- 4.11 Conservation of historic buildings.
- 4.12 Ethics of architects in professional practice.

द्वितीय पत्रको एकाईहरुको प्रश्नसंख्या निम्नानुसार हुनेछ

द्वितीय पत्रका खण्ड	A	B	C	D
द्वितीय पत्रका एकाई	1	2	3	4
प्रश्न संख्या	3	2	3	2

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**विषयगत नमूना प्रश्नहरु (Sample questions)**

1. Mention the different types of the stone walls that are used in a building. Describe their suitability in foundation and superstructure.
2. Describe the different bonds that are used in brick walls. Write their usefulness compared to hollow concrete blocks.
3. Write about the qualities of good sand used for building. Discuss the usefulness of the lime and cement sand mortar.
4. A modern building has to be painted in different colors. Describe which paints will you use in the exterior and the interior. Write about the ways of using the paint in the exterior wall.
5. What are the effects of dampness in buildings? Write how the damp proofing of a basement is carried out.
6. Differentiate between the panelled and the flush doors. Draw a section through a window having openable and fixed shutters.
7. Differentiate between a single, double and triple roofs. A room 4.5 meter wide has to be constructed using timber roof. Draw a sketch of its plan, elevation and section giving the dimensions of all the members.
8. What are the requirements of a good floor? Draw a sketch of a solid ground floor using concrete for a residence.
9. What do you understand by temporary constructions? Differentiate between shoring and underpinning. Draw a sketch of a building wall being underpinned with shoring provided to it.
10. What are the different elements of a building? Draw a wall section right from the foundation to the roof of a building. Give the names and the dimensions of all the elements such as foundation, lintel, etc.

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नेपाल आर्थिक योजना तथा तथ्याङ्क, इन्जिनियरिङ्ग, कृषि, वन, विविध र शिक्षा सेवाका सबै समूह/उपसमूह,  
राजपत्राङ्कित तृतीय श्रेणी र एवं स्वास्थ्य सेवाको सातौं र आठौं तहका पदहरूमा  
प्रथम चरणको लिखित परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र  
लिइने **सामूहिक परीक्षण (Group Test)** को लागि

**सामूहिक छलफल (Group Discussion)**

यस प्रयोजनको लागि गरिने परीक्षण १० पूर्णाङ्क र ३० मिनेट अवधिको हुनेछ जुन नेताविहिन सामूहिक छलफल (Leaderless Group Discussion) को रूपमा अवलम्बन गरिने छ। दिइएको प्रश्न वा Topic का विषयमा पालैपालोसँग निर्दिष्ट समयभित्र समूहबीच छलफल गर्दै प्रत्येक उम्मेदवारले व्यक्तिगत प्रस्तुति (Individual Presentation) गर्नु पर्नेछ। यस परीक्षणमा मूल्याङ्कनको लागि देहाय अनुसारको ३ जना भन्दा बढीको समिति रहनेछ।

आयोगका सदस्य	-	अध्यक्ष
आयोगका सदस्य	-	सदस्य
मनोविज्ञ	-	सदस्य
दक्ष/विज्ञ (१ जना)	-	सदस्य

**सामूहिक छलफलमा दिइने नमूना प्रश्न वा Topic**

उदाहरणको लागि - उर्जा संकट, गरीबी निवारण, स्वास्थ्य बीमा, खाद्य सुरक्षा, प्रतिभा पलायन जस्ता Topics मध्ये कुनै एक Topic मात्र दिइनेछ।