

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 modulus.
 - 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, steel and pre fabricated structures, LGS structures,
 - 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.
 - 1.23 Indigeneous construction techniques
 - 1.24 Modern construction materials, AAC block, Eco panel, ACP etc
 - 1.25 Building science (passive solar bulding techniques, sustainable building construction techniques)

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.

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, IEE, EIA
 - 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 Hirise building, apartments and group housing in Nepal,
 - 3.23 Principle of urban planning, problems, solutions etc,

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 Province no. 5
 - 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
 - 4.13 Relation between climate and Architecture.