

Technical Subject (Civil Engineering - General)

Section (A)

1. Building

- 1.1 Local and modern building construction materials and technology in Nepal
- 1.2 Prospects and challenges for maintenance and rehabilitation of public buildings
- 1.3 Efforts in developing indigenous technology in building design and construction
- 1.4 Housing scenario in Nepal, opportunities, and constraints
- 1.5 National shelter policy and strategies in current plan
- 1.6 Housing finance and legislation
- 1.7 Private and public partnership in housing
- 1.8 Role of private sector in housing development
- 1.9 Prospects and challenges in housing construction as an industry and strategies for cost optimization
- 1.10 Building design practices
- 1.11 National building codes
- 1.12 Aesthetic aspects of building design, and conservation of traditional architecture of Nepal
- 1.13 Development of housing and settlement in urban and rural areas

Section (B)

2. Transport Sector Plan and Policies

- 2.1 Transport sector policies and strategies in current plan
- 2.2 Concept and significance of highway planning with reference to national and international standards
- 2.3 Classification of roads and highways in Federal Structure
- 2.4 Provincial and municipal transport master plans for planning and management of provincial/local/rural roads, tracks and trails
- 2.5 Private sector involvement in transport sector
- 2.6 Trail bridge strategy
- 2.7 Planning of suspension and suspended bridges at different levels of government
- 2.8 Design standard of suspension and suspended bridges

3. Design and Construction of Roads and Bridges (Motorable and Trail Bridges)

- 3.1 Design concepts of provincial/rural/local/agriculture roads
- 3.2 Pavement types and their suitability: Otta Seals, SBST and DBST, Asphalt concrete (hot mixed, warm mixed and cold mixed)
- 3.3 Road safety, Road safety audit, measures to prevent roads accidents and immediate response to emergency situations
- 3.4 Construction technology
- 3.5 Low cost, labour intensive and capital-intensive methods of road construction

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- 3.6 Quality control and quality assurance
- 3.7 Maintenance management and challenges, and road asset management
- 3.8 Generations of maintenance fund & maintenance of provincial/rural/local/ agriculture roads in context of federal structure
- 3.9 Role of social mobilization in sub-national roads development
- 3.10 Roadside drainage and its management
- 3.11 Prevention of erosion in road corridor
- 3.12 Bio- engineering application in road sector
- 3.13 Institutional strengthening at sub national level in transport sector management
- 3.14 Transport-plus approach in sub-national road development
- 3.15 Labor based Environment friendly and Participatory (LEP) approach for rural road development
- 3.16 Quality control and monitoring of suspension and suspended bridges
- 3.17 Maintenance of trail bridges (suspension and suspended both)
- 3.18 Design, construction and maintenance of motorable and trail bridges

Section (C)

4. Water Supply and Sanitation

- 4.1 Present status of water supply and sanitation in Nepal
- 4.2 National policies in water and sanitation in current plan
- 4.3 Current issues and problems of water supply and sanitation
- 4.4 National standard of rural and urban water supply
- 4.5 Rural and community-based water supply system
- 4.6 Water supply sources and their protection, management
- 4.7 Water quality, National drinking water quality standards, water demand & supply
- 4.8 Intakes, pipeline design, design of transmission and distribution system, reservoir design
- 4.9 Water treatment methods and their suitability for various water supply systems
- 4.10 Pipes and fittings: materials and jointing
- 4.11 Operation and maintenance of water supply systems
- 4.12 Legal and management aspects of water supply facilities
- 4.13 Financial aspects-system cost recovery, tariff structure, affordability
- 4.14 Education and training in water supply and sanitation (WATSAN)
- 4.15 Environmental health engineering- epidemiology, pathogens (bacteria, virus, helminthes, protozoa), infection transmission routes, water related, excreta related, refuse related, housing related infections, on site sanitation system (pit latrine, ventilated improved pit-latrine (VIP latrine), eco-sanitation, pour flush, septic tank), off side sanitation system (waste water management, waste stabilization pond, aerated lagoon, oxidation ditch, constructed wetland, etc.)
- 4.16 Issues and problems of Integrated Solid Waste Management (ISWM) and waste water management in urban centers and townships, concept of waste to energy in solid waste management

Section (D)

5. Irrigation and Drainages

- 5.1 Status of irrigation development in Nepal
- 5.2 National policies and strategies in irrigation sector in current plan
- 5.3 Integrated water resources management
- 5.4 General irrigation system planning
- 5.5 Participatory approach in irrigation system management
- 5.6 Operation and maintenance of irrigation systems
- 5.7 Institutional aspects of irrigation system management
- 5.8 Preventive and remedial measures of water logging
- 5.9 Flood management in Nepal and methods of management
- 5.10 Farming system in Nepal
- 5.11 Management of Farmers Managed Irrigation System (FMIS)
- 5.12 Surface, subsurface, sprinkler and drip methods of irrigation, their suitability and problems of sprinklers
- 5.13 River training works
- 5.14 Design of irrigation, drainage and river training structures
- 5.15 Specific considerations in design, operation and maintenance (O&M) and management of hill irrigation systems in Nepal
- 5.16 Farm drainage, excess water and relation to drainage, drainage structures

Section (E)

6. Environmental Assessment and other Aspects

- 6.1 Concept of Environmental Assessment (EA), Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA), Supplementary Environmental Impact Assessment (SEIA), role of IEE and EIA, EIA principles, types of impacts
- 6.2 Screening, scoping, initial impact identification, Term of Reference (TOR) preparation, IEE/EIA report writing
- 6.3 Management of IEE/EIA process: public participation, IEE/SEIA/EIA review. mitigation measures, monitoring, Environmental Management Plan (EMP) and its incorporation in project implementation, Environmental auditing
- 6.4 Climate change, climate adaptation and climate resilient infrastructure development
- 6.5 Value Engineering in infrastructure design and construction
- 6.6 Institutional aspects in managing sub-national infrastructures in federal context
- 6.7 Research and development in infrastructure sector (Building/construction materials, Pavement, Road and Trail Bridges, Water - Waste Water and Sanitation, Irrigation and Drainage, etc.)

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Section (F)

7. Service/Group/Sub-group related- Specific (Acts, Rules and Policies)

- 7.1 नगर विकास समिति ऐन, २०४५
- 7.2 जलश्रोत ऐन, २०४९ र जलश्रोत नियमावली, २०५०
- 7.3 सवारी तथा यातायात व्यवस्था ऐन, २०४९
- 7.4 सार्वजनिक सडक ऐन, २०३९
- 7.5 भवन ऐन, २०५५
- 7.6 संयुक्त आवासको स्वामित्व सम्बन्धी ऐन, २०५४
- 7.7 खानेपानी तथा सरसफाई ऐन, २०८०
- 7.8 सिंचाइ नियमावली, २०५६
- 7.9 राष्ट्रिय सिंचाइ नीति, २०८०
- 7.10 शहरी खानेपानी तथा सरसफाई नीति, २०७६
- 7.11 राष्ट्रिय शहरी नीति, २०६४
- 7.12 राष्ट्रिय आवास नीति, २०६८
- 7.13 राष्ट्रिय शहरी विकास रणनीति, २०१५
- 7.14 भवन निर्माण संहिता, २०६०

नोट : यस पत्रमा माथि उल्लिखित पाठ्यक्रमको खण्ड (F) बाहेकका प्रत्येक खण्ड (Section) बाट कम्तीमा **एक प्रश्न** समावेश हुने गरी लिखित परीक्षामा देहाय बमोजिमको संख्या र अङ्कभारका प्रश्नहरू सोधिने छ। तर खण्ड (F) बाट ५ अङ्कभारको छोटो उत्तर आउने एक प्रश्न र १० अङ्कभारको लामो उत्तर आउने एक प्रश्न गरी **दुई प्रश्नहरू** सोधिने छ।

पत्र	विषय	पूर्णाङ्क	उर्तीर्णाङ्क	परीक्षा प्रणाली	प्रश्न संख्या × अङ्क	समय
द्वितीय	Technical Subject	१००	४०	विषयगत (Subjective)	1 × 5 & 1 × 10 = 15 (Short & Long Answers) 3 × 15 = 45 (Critical Analysis) 2 × 20 = 40 (Problem Solving)	३ घण्टा

पाठ्यक्रम लागू मिति :- २०८१/०३/३० देखि