

लोक सेवा आयोग

नेपाल इन्जिनियरिङ्ग सेवा, एगृ इरिगेसन इन्जिनियरिङ्ग समूह, राजपत्रांकित प्रथम श्रेणी, सहसचिव वा सो सरह
पदको खुला र आन्तरिक प्रतियोगितातमक लिखित परीक्षाको पाठ्यक्रम
द्वितीय पत्र : सेवा, समूह सम्बन्धी प्राविधिक विषय पूर्णाङ्क : १००

1. General Agriculture

- 1.1 Agriculture commercialization and Crop diversifications
- 1.2 Principles of agronomy and horticulture
- 1.3 Elements of soil science (soil fertility and soil properties)
- 1.4 Soil, plant and water relationships
- 1.5 Climate change and Agriculture

2. Water Resources and Irrigation in Nepal

- 2.1 Water resources potential and perspective
- 2.2 Irrigation potential and scope
- 2.3 Irrigation project planning
- 2.4 Importance and use of hydro-meteorological and climatic data, soil and moisture data, and socio-economic data

3. Planning, Development and Management of Irrigation Projects

- 3.1 Irrigation system planning, Feasibility studies and investigations
- 3.2 Potential for Multi-purpose projects
- 3.3 Development of irrigation projects
- 3.4 Development and management of micro-irrigation systems
- 3.5 Distribution system: types of structures and outlets, and design considerations; *water management and its control*
- 3.6 Environmental issues, Initial Environmental Examination, Environmental Impact Assessment and Environmental Protection Measures
- 3.7 Rehabilitation and modernization

4. Irrigation and Drainage Engineering Design

- 4.1 Irrigation water requirements
- 4.2 Water availability and water balance
- 4.3 Design considerations of irrigation system: head works, canals, and underground pipe conveyance, cross drainage works, water control and regulating structures, farm distributaries and water courses
- 4.4 Specific features in designing irrigation and drainage systems in terai, hills and mountains
- 4.5 Design of farm drainage system and drainage structures
- 4.6 Low cost technology

5. Groundwater Development and Management

- 5.1 Groundwater hydrology
- 5.2 Groundwater potential in Nepal
- 5.3 Groundwater exploration
- 5.4 Design of shallow and deep tube wells
- 5.5 Tube well drilling and development
- 5.6 Selection of pumps
- 5.7 Conjunctive use
- 5.8 Operation and maintenance of tube wells and pumps

6. On-Farm Irrigation Water Management

- 6.1 Farm irrigation water requirements, distribution efficiencies and irrigation scheduling
- 6.2 Irrigation methods, hydraulics of gravity and pressurized irrigation methods, and planning for farm irrigation delivery
- 6.3 On-farm water management (water delivery, water application, water use, water removal)

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- 6.4 Land development, consolidation and grading
- 6.5 Integrated crop and water management
- 7. Agriculture Mechanization and Alternate Energy**
 - 7.1 Agriculture mechanization
 - 7.2 Farm power
 - 7.3 Farm implements, machines and equipments, and management
 - 7.4 Rural and farm infrastructure
 - 7.5 Alternate energy
- 8. Construction Management and Quality Control**
 - 8.1 Construction technology and management
 - 8.2 Implementation schedule
 - 8.3 Procurement and Contract management
 - 8.4 Quality control
- 9. Irrigation System Management**
 - 9.1 Concepts of irrigation system management
 - 9.2 Asset management plan
 - 9.3 Operation, regulation and maintenance of headwork, control gates and canal systems
 - 9.4 Irrigation management transfer: strategies, process and outcomes
 - 9.5 Institutional development in irrigation system (Formation and capability development of Water Users' Association)
 - 9.6 Irrigation system performance (Bench marking, project benefit monitoring and evaluation, process monitoring)
- 10. Water Induced Disaster Mitigation**
 - 10.1 Water induced hazards, vulnerability and disasters
 - 10.2 Occurrence of landslides, debris flows and floods; mitigation and prevention measures
 - 10.3 Design of structural and bio-engineering measures
 - 10.4 Inundation problems in Nepal
 - 10.5 River training and flood plain management
- 11. Soil and Water Conservation, and Watershed Management**
 - 11.1 Soil erosion problems in Nepal and their effects on irrigated agriculture
 - 11.2 Soil and water conservation measures (structural and non-structural) in the irrigation system
 - 11.3 Watershed management
 - 11.4 Integrated natural resource management
- 12. Economics, Resource Mobilization and Management**
 - 12.1 Economics of irrigation
 - 12.2 Estimating and costing
 - 12.3 Economic analysis of irrigation projects
 - 12.4 Cost recovery and Resource mobilization
 - 12.5 Contract dispute, negotiation and resolution
 - 12.6 Monitoring and evaluation, and feed back
- 13. Implementation, Coordination and Policy Issues**
 - 13.1 Involvement of NGOs in irrigation
 - 13.2 Coordination with line Agencies and Stakeholders
 - 13.3 Participatory irrigation management
 - 13.4 Public- private partnership in irrigation and water-induced disaster mitigation
 - 13.5 Institutional reform

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