

## लोक सेवा आयोग

नेपाल इन्जिनियरिङ्ग सेवा, सिभिल समूह, इरिगेशन उपसमूह, राजपत्रांकित द्वितीय श्रेणी (उपसचिव वा सो सरह पद)को खुला र आन्तरिक प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

द्वितीय पत्र - सेवा सम्बन्धी प्राविधिक विषय

पूर्णाङ्क:- १००

### 1. Introduction

- 1.1 Irrigation development in Nepal
- 1.2 Irrigation project planning including multipurpose projects
- 1.3 Participatory approach in irrigation development
- 1.4 Feasibility studies and investigations
- 1.5 Water Resources Potential and Perspective

### 2. Irrigation Design

- 2.1 Irrigation water requirement
- 2.2 Water availability and water balance
- 2.3 Design and design considerations of irrigation system – head works, canals, cross drainage works, water regulating structures, Farm drainage and drainage structures, specific features in designing irrigation systems in hills and mountains
- 2.4 Environmental issues in irrigation design, policy provisions for Initial Environmental Examination and Environmental Impact Assessment;

### 3. Ground water Development

- 3.1 Overview of ground water potential in Nepal
- 3.2 Ground water exploration
- 3.3 Design of water wells – deep, shallow and other low cost techniques
- 3.4 Well construction and development
- 3.5 Conjunctive use

### 4. Water Induced Disaster

- 4.1 Types of Water Induced disasters and Vulnerability
- 4.2 Floods, causes of occurrence, and mitigation measures
- 4.3 Prevention measures for water induced disaster
- 4.4 Inundation Problem in Nepal

### 5. River Engineering

- 5.1 River and flood plain management
- 5.2 River Hydraulic and sediments transports
- 5.3 River channel improvement and flood control design planning
- 5.4 Design of flood control works viz longitudinal and transverse dikes, bed bars, cut-offs etc.

### 6. Construction of Irrigation Projects

- 6.1 Methods and construction technology
- 6.2 Contract management and quality aspects of construction
- 6.3 Environmental protection issues in developing irrigation systems
- 6.4 Participatory approach in the construction of irrigation projects
- 6.5 Quality control and assurances

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### 7. Irrigation Management and Sustainability

- 7.1 General concepts of irrigation management
- 7.2 System operation and maintenance
- 7.3 Operation / regulation of head works
- 7.4 Types of irrigation systems with respect to their management & their performance
- 7.5 Participatory irrigation management and stakeholders involvement
- 7.6 Joint management concept and sustainability issues
- 7.7 Irrigation Management transfer, process and outcomes of management transfer
- 7.8 Private sector management of irrigation

### 8. Economics, Resource Mobilization and Administration

- 8.1 Economics of irrigation
- 8.2 Resource Mobilization in Irrigation Sector
- 8.3 Economic analysis of irrigation projects
- 8.4 Institutional strengthening
- 8.5 Contract Dispute resolution

### 9. Implementation and Policy Issues

- 9.1 National Policies and effectiveness in implementation
- 9.2 Involvement of NGOs in Irrigation
- 9.3 Development of Non-conventional irrigation systems
- 9.4 Integrated approach of crop water management

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