

लोक सेवा आयोग  
नेपाल ईन्जिनियरिङ्ग सेवा, जियोलोजी समूह, हाइड्रोजियोलोजी उपसमूह, रा.प.द्वितीय श्रेणी (खुल्ला र  
आन्तरिक प्रतियोगिता) को लिखित परीक्षाको पाठ्यक्रम

द्वितीय पत्र सेवा सम्बन्धी प्राविधिक विषय

पूर्णाङ्क:- १००

1. **Origin, occurrence and movement of groundwater**  
Hydrologic cycle, groundwater storage, water table & artesian aquifers, influent and affluent streams, factors influencing infiltration, geologic history of aquifer formation, groundwater flow, lithology of aquifers, Darcy's law, porosity, permeability and hydraulic gradient
2. **Groundwater and Pollution**  
Sources of groundwater pollution, groundwater quality monitoring, mitigation measures
3. **Well Construction and Development**
  - Types of wells
  - Drilling methods
  - Well Design
  - Well Development and its importance
  - Estimating & costing
  - Well maintenance
  - Specification of construction materials
  - Contract management
4. **Groundwater Exploration**  
Geologic and hydrologic studies, exploratory drilling, geophysical methods, groundwater monitoring, hydrogeological studies in water induced disaster mitigation
5. **Well hydraulics**  
Converging flow, cone of depression, equilibrium well formula, yield vs well size, yield size vs drawdown, nonequilibrium well formula, modified nonequilibrium formula, time drawdown relation, distance-drawdown relation, partial penetration of aquifer, water level recovery, principle of image wells, two dimensional flow, three dimensional flow
6. **Testing of water wells for drawdown and yield**  
Objective of test, pumping test, water level measurements, estimating well yield, estimating well efficiency
7. **Groundwater Balance**  
Estimation of groundwater balance, groundwater balance & environment
8. **Pumps**  
Selection of proper pumps, kind and types of pumps

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**9. Groundwater resources of Nepal**

Known sources, previous work, agencies involved in the development of groundwater, current five year plans & Agricultural perspective plan (APP) in respect to groundwater, scenario of the groundwater balance after the end of APP period. Present status of groundwater balance. Issues & strategic options of groundwater development and management in Nepal

**10. Groundwater resources of Kathmandu**

Aquifer system, estimate of annual groundwater recharge, issues & strategic options of groundwater development and management

**11. Geology of Nepal:**

Major physiographic and tectonic divisions of Nepal, major thrusts and faults, South Tibetan Detachment Suntan (STDS), Main Central Thrust (MCT), Main Boundary Thrust (MBT), Main Frontal Thrust MFT etc.), origin of the Himalaya, major stratigraphic units of the Nepal Himalaya and their ages, inverted metamorphism in the Himalaya, granites of Nepal, tectonics, structure and the sediments of the modern foreland basin of the Himalaya

**12. Effect of structural features in groundwater occurrence and movement**

**13. Groundwater exploitation & Environment**

Water table depletion, land subsidence

**14. Tubewell Irrigation management in community**

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