

RAJASTHAN PUBLIC SERVICE COMMISSION, AJMER
SYLLABUS FOR SCREENING TEST FOR THE POST OF
JUNIOR HYDROGEOLOGIST
(GROUND WATER DEPARTMENT)

1. Distribution of Water: Surface and Subsurface. Hydrological cycle. Ground Water: Types, importance, occurrence, reservoirs and movement. Hydrological properties of Rocks: Porosity, Premeability, Specific yield, Specific Retention, Hydraulic conductivity, Transmissivity, Storage co-efficient. Darcy's law and its applications. Hydrostratigraphic units of Rajasthan. Aquifers and their types. Consumptive and conjunctive use of surface and Ground Water.

2. Ground Water quality: Physical characteristics viz: Turbidity, color, tastes, odour, temperature, specific conductivity, Chemical characters: T.D.S., P^H value, Hardness, Heavy metals and dissolved gases. Estimation and methods of treatment for various uses. Ground Water quality map of Rajasthan. Water contaminants and Pollutants: Problems of Fluoride, Nitrate, T.D.S., Sulphate, Chloride and Salinity in Rajasthan.

3. Well hydraulics: Confined, unconfined, steady, unsteady and radial flow. Water level fluctuation. Types of Well and Well logging. Methods of Pumping test. Problems of overexploitation of Ground Water. Natural and Artificial Recharge of Ground Water.

4. Ground Water Exploitation : Surface and subsurface Geophysical and Geological methods of Ground Water exploration. Hydro geomorphic mapping using various remote sensing techniques. Application of Radio isotopes in hydrogeological studies. Elementary

knowledge of various types of Drilling and its application in Ground Water exploration.

5. Hydrogeological considerations of Water Resources: Problems and Management. Impact assessment of degradation and contamination due to Industrialization and Urbanization, Ground Water depletion and Ground Water rising problems in Rajasthan. Conservation and sustainable development of Ground Water resources: various methods used in Rajasthan. Concept of watershed management. Elementary knowledge of Ground Water assessment: Potential and non-potential zones. Categorization of zones based on availability of Ground Water in Rajasthan: Safe, Semi-critical, Critical and Over-exploited.

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Pattern of Question Papers:

1. Objective Type Paper
2. Maximum Marks : 100
3. Number of Questions : 100
4. Duration of Paper : Two Hours
5. All Questions carry equal marks
6. There will be Negative Marking

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