

RAJASTHAN PUBLIC SERVICE COMMISSION, AJMER

SYLLABUS FOR SCREENING TEST FOR THE POST OF TECHNICAL ASSISTANT- HYDROGEOLOGY GROUND WATER DEPARTMENT

1. Introduction-

Water as a natural resource; concept, scope and significance of Hydrogeology. Global water cycle and budget, sources and origin of water. Surface and subsurface distribution of water.

2. Rock Properties affecting Sub-surface Movement of Water-

Aquifers: confined and unconfined aquifers, artesian wells, groundwater in igneous, metamorphic and sedimentary rocks, and geological formations as aquifers. Water Table and its types. Water Table contour maps. Porosity and Permeability, Specific Yield and Specific Retention, Transmissibility, Storage Coefficient.

3. Groundwater Movement-

Groundwater movement in confined and unconfined aquifers, steady, unsteady and radial flow of groundwater. Factors affecting groundwater flow. Darcy's Law and its application. Coefficient of permeability and measurement of permeability.

4. Groundwater Exploration-

Surface and sub-surface methods of groundwater exploration. Application of remote sensing in groundwater exploration. Electric and seismic methods of groundwater exploration; Test drilling and methods of drilling deep wells. Hydrogeological maps and their significance.

5. Water Wells and Groundwater Development-

Concept of groundwater development. Types of wells, collector wells and infiltration galleries. Performance of wells; pumping test and safe yield. Groundwater draft and recharge. Groundwater level and its fluctuation.

6. Water Quality-

Physical, chemical and microbiological parameters of groundwater. Water quality standards for drinking, irrigation & industrial purposes. Hydrochemical data presentation and interpretation. Water pollution, effect of microbiological and chemical impurities on human health. Impact of solid and liquid waste disposal on water quality.

7. Water Resource Management-

Groundwater overexploitation and groundwater resource monitoring. Management of groundwater pollution in urban, semi-urban and rural areas. Conjunctive use of surface and groundwater. Artificial recharge; methods of artificial recharge: induced recharge, recharge well method, recharge through pits and shafts.

8. Groundwater Scenario-

Groundwater provinces of India with special reference to Rajasthan. Groundwater potential of Rajasthan. Water salinity, fluoride and water-logging issues in Rajasthan:

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Pattern of Question Papers:

1. Objective Type Paper
2. Maximum Marks : 150
3. Number of Questions : 150
4. Duration of Paper : 2:30 Hours
5. All Questions carry equal marks
6. Medium of Screening Test: Bilingual in English & Hindi
6. There will be **Negative Marking**

(For every wrong answer, one-third of marks prescribed for that particular question will be deducted).

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