

RAJASTHAN PUBLIC SERVICE COMMISSION, AJMER

SYLLABUS FOR SCREENING TEST FOR THE POST OF

TECHNICAL ASSISTANT (HYDROGEOLOGY)

(GROUND WATER DEPARTMENT)

1. Introduction

Hydrogeology: concept and scope, historical background and utilization of groundwater. Surface distribution of water; precipitation and its types, Hydrogeological cycle. Sources of water. Water as a natural resource; groundwater development.

2. Rock properties controlling sub-surface water movement

Vertical distribution of sub-surface water, Water Table. Porosity and Permeability. Specific Yield and Specific Retention, Transmissibility, Storage Coefficient.

Geological formations as Aquifers, confined and unconfined aquifers, artesian wells groundwater in igneous, metamorphic and sedimentary rocks.

3. Groundwater movement

Confined, unconfined, steady, unsteady and radial flow of groundwater. Factors affecting groundwater flow. Darcy's law, Coefficient of permeability. Measurement of permeability.

4. Groundwater Exploration

Geologic and hydrogeologic methods; Geophysical exploration; Groundwater tracers, movement and dating of groundwater; flow lines. Test drilling and methods of drilling deep wells. Hydrogeological maps and their significance.

5. Groundwater development

Types of wells, collector wells and infiltration galleries, performance of wells, pumping test, safe yield. Groundwater draft and recharge. Groundwater level and its fluctuation.

6. Ground water quality

Physical, chemical and microbiological characteristics of groundwater. Water quality criteria for drinking, irrigation & industrial purposes. Hydrochemical data and interpretation. Groundwater Pollution, effect of microbiological and chemical impurities on human health.

7. Water Resource Management

Groundwater monitoring, groundwater overdraft, 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 conditions in India

Groundwater provinces of India with special reference to Rajasthan. Groundwater problems in Rajasthan: salinity, fluoride, water-logging.

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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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