

M. Sc. GEOLOGY THIRD SEMESTER

Paper - IV
304

Ground Water Geology

Code: Geol

Unit – I

Ground Water Geology: Introduction, history of the ground water development, importance of ground water. Elements of ground water hydrology. Sources of ground water and origin, hydrological cycle, occurrence and distribution of ground water, hydrological properties of rocks.

Unit –II

Exploration and Evaluation of ground water, hydrologic investigation; surface geophysical methods, seismic methods, electric resistivity methods. Introduction to sub-surface Geophysical methods. Ground water quality: factors affecting quality of ground water, analyses of ground water, identification in terms for suitability of ground water for domestic, irrigation and industrial purposes. Saline and fresh water interface. Artificial recharge: need and benefits, method of artificial recharge.

Unit – III

Concept of drainage basin and ground water basin, hydraulic conductivity, transitivity, storage coefficient, water table fluctuation, causative factors, concept of barometric and tidal efficiency, water table contour map. Hydrogeology of India. wet lands with special reference to Rajasthan.

Unit- IV

Theory of groundwater flow, Darcy's law and its application, determination of permeability in laboratory and in field, Types of wells, ground water modeling; Numerical and electrical methods.

Unit – V

Ground water problems related to foundation work, mining, canals and tunnels, problem of overexploitation and groundwater mining, groundwater development in urban areas, rain water harvesting, groundwater potentials of Rajasthan.