SYLLABUS OF WRITTEN TEST FOR RECRUITMENT TO THE POST OF SCIENTIST/ENGINEER 'SC'
ADVERTISEMENT NO.: सैक SAC: 01:2026, Dated 23.01.2026

DOMAIN: CIVIL ENGINEERING / AGRICULTURAL ENGINEERING / HYDROLOGY
Post Code – 11

Surface Water Hydrology:
Surface Hydrology: Hydrologic cycle, Hydrometeorology, Hydrographs, Unit Hydrograph Theory, Precipitation, Infiltration, Soil-Water-Infiltration, Rainfall-Runoff, wetlands, Hydrologic Statistics, Hydrological Modelling.

Groundwater Hydrology:
Groundwater well Hydraulics; Confined and unconfined Aquifers; groundwater recharge and discharge, Groundwater Assessment, Groundwater Management and Conjunctive Use, yield of wells.

Dams & Reservoirs:
Types of Dams/Weirs, Reservoir site selection, Reservoir Sedimentation and capacity, Catchment area treatment, reservoir water management and planning.

Open Channel Hydraulics and River engineering:
Open channel flow & concepts, Measurement of discharge, Sediment transport in channels, Regime flow theories, gradually varied flow, rapidly varied flow, hydraulic jump, basics of river morphology, river flow characteristics, river hydraulics in natural channels, stable channel concepts, flood wave propagation in rivers, Routing, flood frequency analysis, Flood hazard, risk and vulnerability assessment, river flood management, flood forecasting and early warning systems. River water measurement instruments.

Fluid Mechanics:
Properties of fluids, Continuity, Momentum and energy equations and their applications, Laminar and turbulent flow, Flow in pipes, pipe networks; Concepts of boundary layer.

Irrigation and Evapotranspiration:
Consumptive utilization of water, irrigation scheduling and management, Soil Water Plant Relationship, irrigation performance, command area management, methods of evapotranspiration estimation, ET measurement methods.

Soil & Water Conservation:
Soil Types & Properties, water movement in the soil, Water conservation methods, soil erosion & control, hydraulic structures planning & design, soil moisture estimation methods, soil moisture measurements techniques, watershed concept and management, antecedent moisture and extreme events especially flood and drought.

Surveying:
Principles of surveying; coordinate system; Leveling principles & methods; Traversing and triangulation survey, Maps and scale, coordinate system

Surface Water Quality and Modelling:
Governing equations for flow and transport in surface waters; Water Quality parameters, Lake Morphometry; Eutrophication, thermal stratification and numerical Modelling, remote sensing of water quality, water quality measurement instruments.

Integrated Water Resources Management:
Concepts of IWRM; Water resources economics for planning & management, Reservoirs system planning, Sustainable development of water resources, Flood mitigation, river basin management, Climate extremes and water resources; Adaptation strategies for climate change.

Mathematics:
Probability and Statistics: Sampling theorems; Descriptive statistics Distributions; Regression analysis; Numerical Methods: Error analysis and numerical solutions; numerical differentiation and integration. Optimization techniques.

Remote Sensing and GIS:
Concepts of remote sensing – Optical, Microwave, Hyperspectral, Thermal remote sensing; Remote sensing sensors; Digital image Processing concepts; Photogrammetry; Geographic Information System (GIS); Global Navigation Satellite System (GNSS) concepts and applications; Satellite applications in water resources monitoring and hydrology studies.

Hindi version shall follow.