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

DOMAIN: AGRICULTURE
Post Code – 12

Crop production and resource management

Basic concepts of farming systems, Principles of crop production, Package of practices for annual and perennial crops, Introduction to plant genetics and genetic modification, Principles of plant breeding and its methods, Role of essential plant nutrients, their deficiency symptoms, detection mechanism and integrated nutrient management; Basic concept of crop physiology in relation to crop production, Major and recurrently occurring pests and diseases, Crop protection measures and integrated pest management; Crop water and nutrient requirement, Methods of irrigation and drainage, Irrigation water quality and its evaluation, Watershed management, Principles and methods of weed control, Supply and demand dynamics, Agriculture market structures and price policies, Agriculture governance.

Soil properties, processes and health

Physical, physicochemical and biological properties of soils, Dynamics of soil water, temperature, air in relation to crop growth; Field water balance and water use efficiency, Soil colloids and clay minerals, Soil erosion and control, Soil physical constraints and their management, Soil fertility, Problem soils and their characteristics, formation and management; Waterlogged soils and their chemistry, NPK, bio-fertilizers and manures, Nutrient cycling in agro-ecosystems, Soil and water pollution, Natural and organic farming.

Crop-atmosphere interactions

Conservation of mass, energy and momentum, Forces in nature, Measurement of heat, specific heat, transfer of heat, Weather elements and climate controls, Climatic classification systems and agro-climatic zoning, Heat units, thermal time and light use efficiency and their applications, Crop growth and yield modelling, global warming and crop production, Radiation and Heat balance in soil-crop system, surface energy-mass flux measurements, instrumentation and modelling, Drought types, stages, indicators and assessment in India; Weather forecasting and agro-met advisory systems in India, Short-term weather hazards and crop loss assessment, Fundamental processes of green-house gas emissions from agriculture systems and factors influencing those, Carbon sequestration, Climate projections.

Basics of remote sensing

Electromagnetic radiation and its interaction with soil-vegetation system, Laws of radiation and scattering, reflection, transmission, absorption, emission, diffuse and specular radiations; Radiation units, flux, intensity, emittance, remote sensing system – active and passive, sensor and platform; Spectral signatures of natural targets and its physical basis, spectral indices.

Agriculture analytics, Information and Communication Technology in agriculture

Vectors, Basics of calculus, Matrices and Determinants, Elements of statistics - Frequency distribution, Measures of central tendency and dispersion, Probability; Sampling, Design of experiments, Analysis of variance, Types of errors; Testing of hypothesis, Level of significance; Correlation and regression, Geostatistics, Basics of computer applications in agriculture, Process of communication to farmers, Artificial Intelligence and Machine Learning – supervised and unsupervised learning, Internet-of-Things, Geospatial and big data analytics.

Hindi version shall follow.