

RAJASTHAN PUBLIC SERVICE COMMISSION, AJMER

SYLLABUS FOR SCREENING TEST FOR THE POST OF AGRICULTURE RESEARCH OFFICER (AGRONOMY) AGRICULTURE DEPARTMENT

PART-A

General Knowledge of Rajasthan

Unit-I

Historical Rajasthan: Pre and Proto-historical sites of Rajasthan. Important historical centers of early Christian Era. Prominent rulers of major Rajput dynasties of Rajasthan and their achievements & contributions – Guhilas- Sisodiyas, Chauhans, Rathores and Kachchawas.

Emergence of Modern Rajasthan: Agents of Social Awakening in Rajasthan during 19th and 20th Centuries. Political Awakening: role of newspapers and political institutions. Praja Mandal movement in various princely states in 20th century. Integration of Rajasthan.

Art of Rajasthan: Architectural tradition of Rajasthan- temples, forts and palaces from ancient to modern period; Various schools of paintings developed during medieval period; Classical Music and Classical Dance, Folk Music & Instruments; Folk Dances & Drama.

Language & Literature: Dialects of Rajasthani language, Literature of Rajasthani language and Folk literature.

Religious life: Religious communities, Saints and Sects in Rajasthan. Folk Deities of Rajasthan.

Social Life in Rajasthan: Fairs and festivals; Social customs and traditions; attires and ornaments.

Geography of Rajasthan:- Broad physical features- Mountains, Plateaus, Plains & Desert; Major Climatic types; Major rivers and lakes; Major forest types and distribution; Population growth, Density and Distribution; Desertification, Droughts & Floods; Environmental pollution and Ecological concerns. – **30 Questions**

PART-B **(AGRONOMY)**

Unit-I

Agriculture and Indian economy, agro-climatic zones of India and Rajasthan and their characteristics, factors affecting crop production, tillage and tith: objectives, types and modern concepts in tillage: zero, minimum and conservation tillage, climate change and agriculture, global warming, causes and effects. Precision agriculture, plant growth regulators and their role in agriculture, growth and development, crop growth analysis, growth curves, cardinal points, source-sink relationship.

Unit-II

Agroclimatology: weather and climate, their elements and relation with crop production, solar radiation: depletion of solar radiation, characteristics and energy balance in atmosphere, photosynthesis and efficiency of radiation utilization by crops. Precipitation and humidity. Monsoon: types, onset and withdrawal in India and Rajasthan. Cloud seeding, Weather abnormalities and their management, Weather forecasting and remote sensing in India, Atmospheric pollution and its impact on climate and crop production.

Unit-III

Role of water in crop production, water resources of India and Rajasthan, irrigation statistics in India and Rajasthan, status of groundwater depletion in Rajasthan, soil-water-plant atmosphere relationship, mechanism of water movement in soil, theories and mechanism of water absorption, soil moisture measurement, evapotranspiration, water requirement of field crops. Irrigation: methods, evaluation and scheduling, moisture stress and its mitigation, management of excess soil water and drainage, water saving techniques under irrigated conditions and conjunctive use, pressurized irrigation and fertigation, drainage, management of salt-affected soils and brackish irrigation water, Reclamation of sodic soils consumptive use and water use efficiency.

Unit- IV

Criteria of essentiality of plant nutrients, their role and deficiency symptoms, soil fertility and productivity concept, forms of nutrients uptake, nitrogen: transformation in soil, mineralization of N-compounds, losses of N in soil, methods to increase N-use efficiency, slow release fertilizers, phosphorus: availability and P-fixation, practices of improving applied and native phosphorus in soil, potassium: fixation and release of potassium, bio-fertilizers, N, P and K fertilizers and their application methods, compound fertilizers, secondary and micro nutrients, inter-relationship of nutrients availability and soil pH, integrated nutrient management. Concept of chelates and chelate fertilizers.

Unit- V

Weeds: biology, ecology and classification. Weed prevention, control and eradication. Herbicides: history, classification, mode of action, basis of selectivity, weed control principles and management practices in field crops, weed control under specific situations viz. non-cropped area, noxious farm weeds, parasitic weeds and their

control, persistence of herbicides in soil, integrated weed management, herbicide resistance in weed and crops. Biological control of weeds and bioherbicides.

Unit- VI

Dry farming: role in economy, types, problems of crop production in dry land farming, moisture stress, mechanism of crop adaptation for dry land, *in situ* moisture conservation techniques. Mulches and antitranspirants: types, their use and practical relevance. Contingent planning and mid-season corrections for aberrant weather situations, water harvesting, watershed management, improved dryland technology, alternate land use system, Agro forestry and its types, important MPTs and grasses for Rajasthan. Land degradation: types and their extent, Soil erosion: types and management and land capability classification. Draught and draught proofing.

Unit- VII

Cropping systems: Principles and practices, cropping systems under irrigated and rain fed situations, cropping systems suitable for Rajasthan, assessment of yield advantages, integrated farming system: meaning, scope and different models, crop residue management, crop diversification, organic farming, its certification, principles and accreditation, green farming, use of liquid, fermented liquid organic manures, sustainable agriculture, natural resources management.

Unit- VIII

Introduction, origin, history, production, distribution, cultural practices, plant protection and varieties of cereals, pulses, oilseeds, fibre, forage sugar and commercial crops as well as area, production and productivity at national and state level, post-harvest technologies in agronomical crops.

Unit- IX

Principles of experimental design, correlation and regression analysis. Analysis of variance and co-variance. Statistical Designs used in Agronomical Experiments, transformation of data.

-120 Questions

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
7. There will be **Negative Marking.**

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