

RAJASTHAN PUBLIC SERVICE COMMISSION, AJMER

SYLLABUS OF COMPETITIVE EXAMINATION FOR THE POST OF AGRICULTURE RESEARCH OFFICER (AGRONOMY) AGRICULTURE DEPARTMENT

Part-A

- 40 Questions

General Knowledge of Rajasthan

Unit-I: History, Culture & Heritage of Rajasthan -

Pre & early history of Rajasthan. Age of Rajputs: Major dynasties of Rajasthan and the achievements of prominent rulers. Emergence of Modern Rajasthan: factors of socio-political awakening of 19th century; Peasants and tribal movements of 20th century; Political struggle of 20th century and the integration of Rajasthan.

Visual Art of Rajasthan - Architecture of forts and temples of Rajasthan; Sculpture traditions of Rajasthan and various schools of painting of Rajasthan.

Performing Arts of Rajasthan - Folk music and musical instruments of Rajasthan; folk dance and folk drama of Rajasthan.

Various religious cults, saints and folk deities of Rajasthan.

Various dialects and its distribution in Rajasthan; literature of Rajasthani language.

Unit-II: Geography, Natural Resource & Socio-Economic Development of Rajasthan -

Geography of Rajasthan: Broad physical features- Mountains, Plateaus, Plains & Desert; Major rivers and lakes; Climate and Agro-climatic regions; Major soil types and distribution; Major Forest types and distribution; Demographic characteristics; Desertification, Droughts & Floods, Deforestation, Environmental Pollution and Ecological Concerns.

Economy of Rajasthan: Major Minerals- Metallic & Non- Metallic; Power Resources- Renewable and Non-Renewable; Major agro based industries- Textile, Sugar, Paper & Vegetable oil; Poverty and Unemployment; Agro food parks.

Unit-III: Current Events and Issues of Rajasthan and India -

Important Persons, Places and Current events of the State. National and International events of importance. New Schemes & Initiatives taken recently for welfare & development in Rajasthan.

Unit-I

Agriculture and Indian economy, agro-climatic zones of India and Rajasthan and their characteristics, factors affecting crop production, tillage and till: 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.

Scheme of the examination				
S. No.	Subject	No. of Questions	Total Marks	Examination Duration
Part-A	General Knowledge of Rajasthan	40	40	2.30 Hours
Part-B	Concerned Subject (as prescribed in qualification)	110	110	
	Total	150	150	

1. The competitive examination shall carry 150 marks and 150 questions of Multiple Choice Type questions.

2. There shall be one paper. Duration of Paper will be Two hours and Thirty Minutes.

Negative marking shall be applicable in the evaluation of answers. For every wrong answer one-third of the marks prescribed for that particular question shall be deducted.

Explanation: - Wrong answer shall mean an incorrect answer or multiple answers.

उक्त पद हेतु आयोजित की जाने वाली परीक्षा के लिए ओ.एम.आर. उत्तरपत्रक में प्रश्नों के विकल्प भरने के संबंध में विशेष निर्देश:-

1. Each question has five options marked as 1, 2, 3, 4, 5. You have to darken only one circle (bubble) indicating the correct answer on the Answer Sheet using BLUE BALL POINT PEN.
2. It is mandatory to fill one option for each question.
3. If you are not attempting a question then you have to darken the circle '5'. If none of the five circles is darkened, one third (1/3) part of the marks of question shall be deducted.
4. After solving question paper, candidate must ascertain that he/she has darkened one of the circles (bubbles) for each of the questions. Extra time of 10 minutes beyond scheduled time, is provided for this.

A candidate who has not darkened any of the five circles in more than 10% questions shall be disqualified.