

# **RAJASTHAN PUBLIC SERVICE COMMISSION, AJMER**

## **SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF AGRICULTURE OFFICER IN AGRICULTURE DEPARTMENT**

### **Part-A**

**- 40 Questions**

#### **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 19<sup>th</sup> century; Peasants and tribal movements of 20<sup>th</sup> century; Political struggle of 20<sup>th</sup> 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.

### **Part-B** **(Agriculture)**

**-110 Questions**

#### **UNIT-I -**

Agro-climatic zones of India and Rajasthan. Weather forecasting and climate, remote sensing. Modern concepts in crop production. Soil reaction, interaction, soil-plant-water relationship, organic manures, fertilizers and bio-fertilizers, integrated nutrient management, concept of site specific nutrient management. Irrigation scheduling and efficiency, pressurized irrigation system. Integrated weed management: - Management of parasitic and aquatic weeds. Problems of soil erosion

in arid and semi-arid regions. Agronomic practices in soil and water conservation. Integrated watershed management, integrated farming systems. Organic farming.

Dry land farming- Constraints in dry farming areas, moisture conservation practices in dry land farming, tillage. Role of agro-forestry in soil and water conservation, silvi-culture, compatibility of crops. Agronomy of important crops- cereals, pulses, oilseeds, fibre crops, forage crops, sugarcane, sugar beet, potato.

Soils of Rajasthan and India, Essential plant nutrients, their functions, deficiencies and toxicities, Soil fertility and productivity, Nutrient recommendations. Formation and management of saline, saline sodic, sodic and acid soils. Micro-organisms in soils and their role. Physical, Chemical and Biological properties of soil. Clay minerals, Soil reaction and buffering capacity.

## **UNIT-II-**

Fruit Science: - Importance of fruit production with special reference to Rajasthan, recent trends in propagation, Nursery, HDP, training & pruning, important physiological disorders, role of bio-regulators, INM, cultivation practices of Mango, Citrus, Banana, Papaya, Sapota, Coconut, Aonla, Pomegranate, Datepalm, Ber, Apple & Bael. Olericulture: - Importance of vegetable production with special reference to Rajasthan, classification of vegetables, nursery, cultivation practices of Tomato, Brinjal, Chilli, Okra, Cucurbits, Sweet Potato, spinach, cauliflower, cabbage, Carrot, Radish, Onion, Garlic, Pea, Isabgol, Aloe vera, Cumin, Fennel, Coriander, Fenugreek, Vetivar, Lamongrass, Hi-tech Horticulture. Floriculture: - Importance and scope of floriculture in Rajasthan. Precision farming, special horticultural practices, Harvest Indices, Post harvest handling. Cultivation practices of Rose, Chrysanthemum, Gerbera, Gladioli, Marigold, Gaillardia etc. Landscape gardening and styles of gardening, Lawn and its maintenance, Bio-aesthetic planning. Importance of Forestry in Rajasthan. PHT: - Importance, Principles and methods of Fruits and vegetable preservation, maturity indices, MAS, CAS, Canning, methods of packing. Preparation of pickles, Jam, Jelly, Sauces & Ketchup, Squash, Preserve and dehydrated products. Food safety standards.

## **UNIT-III -**

Cell and cell division, centre of origin, mendelian principles and heredity, Linkage and Crossing over, Chromosomal Aberration (structure and numerical), multiple allele and Blood group inheritance, Cytoplasmic Inheritance, gene regulation and Interaction. Genetic material (type of DNA and structure), Plant Breeding methods for self and cross pollinated crops, concept of heterosis, Quantitative and Qualitative characters, self incompatibility and male sterility and its application in plant breeding, hybrid, domestication, acclimatization, Plant Genetic Resource of important crops, crop evolution of Wheat, Cotton, Tobacco, Potato and Mustard group, Breeding for biotic and Abiotic stresses, Inbreeding depression, polyploidy, mutation and mutation breeding, Marker Assisted selection, Release and notification of varieties, IPR, PPV and FR Act., Seed Technology, Seed Production of important crops, minimum seed standard for production and certification. Seed Act, Seed Control Order, Combining ability DNA, recombinant technology, Transgenic crops and their scope. Micro propagation and Tissue Culture Techniques. Molecular Genetic. Variation – It's causes and importance. Multiple factor hypothesis.

#### **UNIT-IV-**

Chemistry of carbohydrates, lipids, proteins and plant (phyto) hormones. Chemistry of Nucleic acids and their functions. Outlines of metabolism of carbohydrate, lipid and protein. General account of enzymes, coenzymes and secondary metabolites. Brief out lines of plant tissue culture and plant biotechnology. Molecular markers and their application in Agriculture. Photosynthesis and photorespiration. Respiration. Physiology of flowering, Photoperiodism. Physiology of growth, PGRs and their role. Seed development, germination and dormancy.

#### **UNIT-V-**

Contribution of livestock and poultry in economy of Rajasthan. Livestock development programmes and policies initiated by Government of Rajasthan. Important indigenous, crossbreed and exotic breeds of livestock (cattle, buffaloes, sheep, goats, swine, camels) and poultry. Livestock production systems, and migration of animal in Rajasthan. Livestock behavior and shelter management-Principles of housing, hygiene and sanitation. Management of different categories of animals - calves, growing, pregnant, and lactating animals. Milk synthesis and milking management. Conventional and unconventional feed and fodder resources of Rajasthan and their nutritive value. Hay and silage making, complete feed and fodder blocks, fodder banks. Important infectious and non-infectious diseases of livestock and poultry, and their preventive and control measures. Strategies for reducing the impact of climate change: heat and cold stress on livestock and poultry production.

#### **UNIT-VI-**

Role and importance of fungi, nematodes, viroids, phytoplasma, bacteria, viruses and other micro-organisms in Agriculture. Classification, morphology, growth nutrition and reproduction of fungi, bacteria and viruses. IDM, Bio control disease management. Major diseases (Fungal, bacterial, viral, Phytoplasma and nematode) of field crops, vegetables and fruits of Rajasthan and their management. Mushroom production technology. Plant quarantine.

#### **UNIT-VII-**

Insect pest spectrum in Rajasthan and their classification. Assessment of crop losses and their application in pest management. Insecticidal application, hazards and safety precautions, Insecticide formulation and their dilutions. Detection of insect infestation in stored products and their management. Community campaign strategies for management of white grub, grasshopper, Locust, fall army worm etc. Integrated pest management. Insecticidal pollution, residues and tolerance limit. Identification, nature of damage, bionomics and management of insect pests of major crops of Rajasthan. *Lac* culture, Sericulture & Apiculture. Mites and their management.

#### **UNIT-VIII-**

Agricultural Engineering: Farm power and machinery, bullock and tractor drawn implements, Tools, Measurements of irrigation water, Water lifting devices. Agriculture Statistics: Measurement of Central Tendency, Standard error and deviation, Correlation, Regression, Test of Significance, F & Chi Square test, Experimental designs-CRD, RBD, SPD.

## UNIT-IX-

Peculiarities of Indian Agriculture, place of agriculture in Indian Economy. NITI Aayog. Consumer behaviour, demand, supply, demand Schedule and supply schedule, market equilibrium, elasticity, Principles of farm management. Agricultural marketing, marketing functions and institutions, WTO, contract farming, future markets. Prices of agricultural commodities. e-NAM, Agricultural finance and credit, credit institutions, cooperative Banks, crop insurance. Demonstration, NABARD, GST. Agricultural development and poverty alleviation programmes. Agricultural production functions-Characteristics and optimization. Project Appraisal Techniques.

## UNIT-X-

Objectives and principles of extension education. Need assessment, bench mark survey and PRA Technique. Programmes of extension in India specially Shriniketan, Marthandam, Gurgaon Experiment, Etawah Pilot Project, Nilokheri Project, CDP, Panchayat Raj, IADP, IAAP, HYVP, KVK, IVLP, ORP, IRDP, T&V system, Lab to Land, ATIC, RKVY, MGNREGA, ND, SGSY, JRY, PMRY, PMFBY, Soil Health Card, NRLM etc. Recent Skill Development schemes specially PMKVY, EETP, NEEM, ASCI etc. Teaching methods, ICT applications in TOT, verbal and non-verbal communication, Diffusion and adoption of innovation- concept, meaning and stages of adoption, adopter categories, Rural leadership- types and role of leaders in rural context, Rural Social Institutions, caste, family and social groups, Programme planning- principles and steps in programme development, impact assessment, Participatory training techniques, Front line demonstrations, field days, kisan mela, campaign, writing reports, radio talk, TV talk, writing of Farm Literature and scientific information, Identification and documentation of ITK.

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<b>Scheme of Examination</b>				
<b>S. No.</b>	<b>Subject</b>	<b>No. of Questions</b>	<b>Total Marks</b>	<b>Examination Duration</b>
Part-A	General Knowledge of Rajasthan	40	40	2.30 Hours
Part-B	Concerned Subject	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.  
3. 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.
5. A candidate who has not darkened any of the five circles in more than 10% questions shall be disqualified.