

Syllabus

RPSC 1st Grade Agriculture School Lecturer

RPSC 1st Grade Agriculture Syllabus Paper – I

Subject Name	No. of Questions	Marks
History of Rajasthan and India	15	30
Mental ability, Statistics, Mathematics, and Language Ability in English and Hindi	10	20
Current Affairs	20	40
General Science, Indian Policy, Geography of Rajasthan	15	30
Education Management, Educational Scenario	15	30
Total	75	150

RPSC 1st Grade Agriculture Syllabus Paper - II

Subject	No. of Questions	Marks
Knowledge of Subject Concerned: Senior Secondary level	55	110
Knowledge of Subject Concerned: Graduation Level	55	110
Knowledge of Subject Concerned: Post-Graduation Level	10	20
Education Psychology, Pedagogy, Teaching-learning material, Use of Computers and Information Technology in Teaching Learning	30	60
Total	150	300

Senior Secondary Level

Indian Agriculture: History, branches, scope, and importance. Climate and weather. Soil - Composition, soil texture, structure, factors affecting soil structure, soil temperature, soil air. Problematic soils, their formation, and reclamation. Soils of Rajasthan. Nutrients and fertilizers, Irrigation and drainage. Agricultural implements and mechanization. Organic Farming Definition, importance, vermicompost, green manuring, biofertilizers, sustainable agriculture. Weed- definition, characteristics, classification, losses, weed control methods. Dryland farming and crop rotation- definition, importance and principles. Tillage- Definition, objectives, types, tillage. Cultivation of important crops: cereals and millets, pulses, oilseeds, fodder, commercial, fiber crops, and seed spices.

Importance of fruits and vegetables in the human diet. Crop diversification and processing industry. Orchard- location and layout, ornamental and kitchen gardening. Planting system, training, pruning, intercropping, protection from frost and sunburn. Tree, shrubs, climbers, annuals, perennials- definition with examples. Propagation by seed, cutting, layering, budding, and grafting. Nursery, its objectives, and raising of seedlings. Scope and importance of medicinal crops. Cultivation practices, processing, and marketing of fruit crops- (mango, papaya, banana, guava, citrus, grapes, brinjal, date palm, pomegranate) vegetables- (radish, carrot, potato, onion, cauliflower, brinjal, tomato, spinach, okra, chilli, and cabbage), flowers- (gladiolus, canna, chrysanthemum, roses, and marigold). Principles and methods of fruit and vegetable preservation. Preparation of jellies, jams, ketchup, chips, pickles, and their packaging.

Importance of livestock and poultry in the national economy. Development of the milk industry in India. Important Indian and exotic breeds of cattle, buffalo, sheep, goat, camel, and poultry. Different livestock development programs of the government of India. Breeding, feeding, housing, and health management of livestock and poultry. Factors affecting milk yield and composition. Importance of dairy and poultry products.

Graduation Level

Agro-climatic zones of India and Rajasthan, Agroecological Regions, Adaptation and distribution of crops. Climatic variables. Basics of weather forecasting. Modern concepts of tillage. Conservation agriculture. Straight and complex fertilizers, foliar application. Plant nutrients: occurrence, cycling in soils, and their availability. INM concept. Cropping and farming systems. Organic farming: principles, objectives, certification, labeling, and accreditation process. Water resources of India and Rajasthan. Methods and systems of irrigation. Water management in crops. Soil plant water relation. Quality of irrigation water, CU, WR, drainage. Dryland agriculture in India and Rajasthan. Watershed, Moisture Conservation, Monsoon, Contingent crop Planning. Agronomy of important crops. Weed biology and ecology. Herbicide selectivity. Adjuvants.

Agriculture Statistics. Measurement of Central Tendency, Correlation, Regression, Test of Significance, F& Chi-Square test, Experimental designs, CRD, RBD, SPD. Farm power and machinery

Soil fertility evaluation, nutrient recommendation. 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.

Ornamental gardening, Vegetables- type of farming and classification. Raising of seedlings in the nursery and portray. Cultivation of important vegetables. Propagation and cultivation of important fruits of Rajasthan. Physiological disorders of important fruit and vegetable crops. Seed spices production technology. Post-harvest management of horticultural crops. Introduction to forestry and hi-tech horticulture

Cell and cell division. Mendelian principles of heredity, Multiple alleles, and blood groups. Linkage, crossing over mechanisms, changes in chromosomes, polygenes, and continuous variations, cytoplasmic inheritance, genetic material, modes of reproduction and pollination, apomixes, self – incompatibility and male sterility, domestication, acclimatization, introduction; center of origin, Plant genetic resources, its utilization, and conservation. Variation – its causes and importance. Principles and breeding methods of self & cross-pollinated crops and vegetatively propagated crops, Breeding for biotic and abiotic stresses, heterosis and inbreeding depression, population improvement, polyploidy, mutation and mutation breeding, release and notification of varieties, Patenting, PPV&FR Act 2001, Plant Breeders and & Farmer's Rights. Seed technology, seed production of important crops of Rajasthan Minimum seed certification standards. Seeds Act, Seeds Control Order.

Chemistry of carbohydrates, lipids, proteins, and plant (phyto) hormones. Chemistry of Nucleic acids and their functions. Outlines of metabolism of carbohydrates, lipids, and protein. General account of enzymes, coenzymes, and secondary metabolites. Brief outlines 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.

Classification of economically important insects and mites up to family level. Study of ecosystems and wildlife preservation. Insect dominance. Concept and principles of IPM, Components of IPM: Physical, mechanical, cultural, chemical (including novel insecticide molecules), biological, legal, and other modern approaches. Identification, nature of

damage, bionomics, and management of insect pests and mites of agricultural importance. Lac culture, sericulture and apiculture.

Milestones in plant pathology and nematology. Terms and concepts of Plant Pathology. General introduction to plant pathogenic organisms (Fungi, Bacteria, Nematodes Virus, Viroids). Causes and classification of plant diseases. Classification of plant pathogenic fungi, bacteria, and nematodes. Morphology, growth, nutrition, and reproduction of fungi and bacteria. Phanerogamic parasites. Symptoms, etiology, and management of important diseases of major cereals, pulses, oilseeds, fruits, vegetables, spices & cash crops. Fungicides and antibiotics for plant disease management.

Meaning and definition of extension education, philosophy of extension, the process of extension education, basic concepts in extension (need, knowledge, attitude, skill, behavior, objectives, rural leadership, and motivation). Rural social institutions, caste, family, and social groups. Extension programs in India. Teaching- learning process, teaching methods, use of audiovisual aids in training & communication process. Organizing training, front-line demonstrations, field days, kisan mela, exhibitions, campaigns. Writing reports, radio talks, news, writing of farm literature, and scientific information.

Meaning and scope of Economics. Basic concept: Goods and services, desire, want demand, utility, cost and price, wealth, capital, income, and welfare. Agricultural economics: meaning, definition, characteristics of agriculture, importance, and its role in economic development. Demand: meaning and definition, kinds of demand, the law of demand, demand schedule and demand curve, determinants of demand. Supply: Stock v/s supply, the law of supply, supply schedule, supply curve, determinants of supply. Cost: Cost concepts, short-run, and long-run cost curves. Concepts of rent, wage, interest, and profit. National income: Meaning and importance, concepts of national income accounting and approaches to measurement. Tax: meaning, direct and indirect taxes, agricultural taxation, GST. Credit needs and its role in Indian Agriculture. Agricultural credit: meaning, definition, and classification. 3 R's, 5C's and 7P's of credit. Sources of agricultural finance: institutional and non-institutional sources. An introduction to higher financing institutions - RBI, NABARD, ADB, IMF, World bank, Insurance, and Credit Guarantee Corporation of India. Financial statements- Balance Sheet and Income Statement. Meaning, concept, and principles of farm management. Law of returns and returns to scale. Farm business analysis. Importance of farm records and accounts in managing a farm, farm inventory, balance sheet, profit and loss accounts. Meaning and importance of farm planning and budgeting, Concept of risk and uncertainty in agriculture production.

Classification of feeding stuff and computation of balance ratio for various categories of farm animals. Conservation of feeds and fodder-hay and silage. Puberty, estrus cycle, pregnancy and parturition in farm animals. Milk secretion, composition, milking methods in dairy animals. Factors affecting milk yield and composition in farm animals. Breeding,

feeding, housing, and health management in livestock and poultry. Basis and methods of selection in livestock and poultry. Hatching, brooding, and feeding management in poultry.

Post-Graduation Level

Adverse climatic factors, Remote sensing, Herbicidal resistance, site-specific nutrient management, concept and importance of watershed management in dryland areas, Good agronomic practices, Agroforestry systems, Effect of excess water on plant growth and production, drought, measurement of irrigation water; irrigation efficiencies, design of irrigation structures, Amelioration of salt-affected soils.

Protected cultivations of vegetables and flowers, Role of PGRs in Horticulture, Micropropagation, Ripening and Maturity indices of important vegetables and fruits; Landscape, gardening and postharvest management of Flowers, dryland Horticulture.

Transgenic plants about IPM. The exploitation of natural enemies in insect pest management, Semiochemicals, newer molecules of insecticides, and biopesticides. Rearing of parasitoids and predators for inoculative and inundative release.

Major epidemics and their social impact. Edible fungi. General principles of plant disease management and IDM.

Combining ability and nature of gene action, Denaturation and renaturation, Gene amplification, Transposable genetic elements, Types/kinds of genes, Genomics and proteomics, Gene regulation, allele mining and TILLING, Bioinformatics, Nanotechnology, DNA sequencing, gene pyramiding, karyotyping, Alien addition and substitution lines, Endomitosis, Balanced Lethals.

Peculiarities of Agricultural Marketing. Marketed and Marketable surplus. Functions of Agricultural Marketing. GST, e-NAM, Marketing efficiency, Regulated Markets.

Factors affecting productive and reproductive efficiency in livestock and poultry. Selection and breeding of livestock and poultry for higher production. Constraints of cattle, buffalo, sheep, goat, and camel production in Rajasthan. Management of livestock and poultry under adverse climatic conditions. Economics of milk and egg production. Common nutritional disorders in livestock and poultry.

Need assessment, benchmark survey, and PRA technique. Program planning & evaluation, impact assessment.

Educational Psychology, Pedagogy, Teaching Learning Material, Use of computers and Information Technology in Teaching Learning

1. Importance of Psychology in Teaching-Learning: Learner, Teacher, Teaching-learning process, School effectiveness.

2. Development of Learner: Cognitive, Physical, Social, Emotional, and Moral development patterns and characteristics among adolescent learners.

3. Teaching – Learning:

- Concept, Behavioural, Cognitive, and constructivist principles of learning and their implication for senior secondary students.
- Learning characteristics of adolescents and its implication for teaching.

4. Managing Adolescent Learner:

- Concept of mental health and adjustment problems.
- Emotional Intelligence and its implication for the mental health of Adolescents.
- Use of guidance techniques for nurturing the mental health of adolescents.

5. Instructional Strategies for Adolescent Learners

- Communication skills and their use
- Preparation and use of teaching-learning material during teaching.
- Different teaching approaches Teaching models- Advance organizer, Scientific inquiry, Information, processing, cooperative learning.
- Constructivist principles-based Teaching.

6. ICT Pedagogy Integration:

- Concept of ICT.
- Concept of hardware and software.
- System approach to instruction.
- Computer-assisted learning.
- Computer-aided instruction.
- Factors facilitating ICT pedagogy integration