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**Uttar Pradesh Public
Service Commission
(UPPCS Mains)
Exam Syllabus**

Optional Subjects
Agriculture

:: PAPER - I ::

SECTION - A

Ecology and its relevance. Natural resources and their conservation management. Environmental factors of crop distribution and production. Climatic elements as factor of crop growth. Impact of environment of changes on cropping pattern. Environmental pollution and associated hazards to crops, animals and human. Cropping patterns in different agro climatic zones of U.P. Impact of high yielding and short duration varieties on shifts in cropping patterns. Concepts of multiple, multistory, relay and intercropping and their importance in relation to sustainable crop production. Package of practices for production of important cereals, pulses, oilseeds, fibre, sugar and cash crops grown during Kharif and Rabi seasons in different regions of U.P. Important features, scopes and propagation of various type of forestry plants with reference to agro, forestry and social forestry, Weeds, their characteristics, dissemination, association with various field crops and their multiplication, cultural, biological and chemical control. Processes and factors of soil formation. Classification of Indian soils including modern concepts. Mineral and organic constituent of soils and their role in maintaining soil productivity. Problems soils, extent and distribution in India and their reclamation. Essential plant nutrients and other beneficial elements in soils and plants, their occurrence, factors affecting their distribution, function and cycling. Symbiotic and non symbiotic nitrogen fixation. Principles of soil fertility and its evaluation for judicious fertilizer use. Soil conservation planning on water shed basis, erosion and run off management in hills, foothills and valley lands and factors affecting them. Dryland agriculture and its problems. Technology for stabilising agriculture production in rained agriculture area of U.P. Necessity and scope of organic farming.

SECTION – B

Water use efficiency in relation to crop production. Criteria for scheduling irrigations, ways and means of reducing run off losses of irrigation water. Drainage of water-logged soils. Farm management its scope, importance and characteristics, farm planning and budgeting. Economics of different types of farming systems. Marketing and pricing of agricultural inputs and outputs, price fluctuations and their cost. Role of co-operatives in agricultural economy, Types and system of farming and factors affecting them Agricultural extension, its importance and role, method of

evaluation of extension programmes, diffusion, communication and adoption of innovations, people's participation and production and motivation. Farm mechanization and its role in agricultural production and rural employment. Training programme for extension workers and farmers, Extension systems and programmes. Training & Visits. KVK. KGK, NATP and IVLP.

:: PAPER - II ::

SECTION-A

Heredity and variation, Mendel's law of inheritance, Chromosomal theory of inheritance, Cytoplasmic inheritance, Sex linked, Sex influenced and sex limited characters. Spontaneous and induced mutations. Role of chemicals in mutation. Origin and domestication of field crops. Morphological patterns of variations in varieties and related species of important field crop. Cause and utilization of variation in crops improvement. Application of the principles of plant breeding to the improvement of major field crops, Methods of breeding to self and cross-pollinated crops. Introduction, selection, hybridization, male sterility and self incompatibility, utilization of mutation and polyploidy in breeding. Seed technology and its importance, production, processing, storage and testing of seeds. Role of national and state seed organization in production, processing and marketing of improved seeds. Physiology and its significance in agriculture, Physical properties and chemical constitution of protoplasm, inhibition, surface tension, diffusion and osmosis. Absorption and translocation of water, transpiration and water economy.

SECTION – B

Enzymes and plant pigments, Photosynthesis – modern concepts and factors effecting the process. Aerobic and anaerobic respiration, Growth and development. Photoperiodisms and vernalization. Plant growth regulators and their mechanism of action & importance in crop production. Climatic requirements and cultivation of major fruits, vegetable and ornamental crops; package of practices and the scientific basis for the same. Pre and post harvest physiology of fruits and vegetables crops, Principles and methods of preservation of fruits and vegetables. Processing techniques and equipment. Landscape and Floriculture including raising of ornamental plants. Garden and its parts, Design and layout of gardens, Diseases and pests of vegetables, fruits and ornamental crops of U.P. and measures to control plant diseases. Integrated management of pests and diseases. Pesticides and their formulations, plant protection equipment, their care and maintenance. Storage pest of cereals and pulses, hygiene of storage, godowns, preservation and remedial measures, Food production and consumption trends In India, National and International food policies, Procurements, distribution, processing and production constraints.

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