

Group - 1

SYLLABUS FOR CIVIL SERVICE EXAMINATION (Main)

Optional Subjects

AGRICULTURE, AGRICULTURAL MARKETING, CO-OPERATION & SERICULTURE

(SUBJECT CODE - 01)

PAPER - I

Part - A : Agriculture :

Ecology and its relevance to man, natural resources, their management and conservation. Physical and social environments as factors of crop distribution and production, climatic elements as factors of crop growth, impact of changing environment on cropping pattern as indicators of environments, environmental pollution and associated hazards to crops, animals and humans.

Cropping patterns in different agro-climatic zones of the country, impact of high yielding and short duration varieties on shifts in cropping patterns, concepts of multiple cropping, multistory, relay and inter-cropping and their importance in relation to food production, Package of practices for production of important cereals, pulses, oilseeds, fibre, sugar and commercial crops, growth during KHARIF and RABI seasons in different regions of the country.

Important features, Scope and propagation of various types of forestry plantations, such as extension / Social forestry, agro forestry and natural forests.

Weeds, their characteristics, dissemination and association with various crops; their multiplication, cultural, biological and chemical control of weeds.

Processes and factors of soil formation, Classification of Indian soils including modern concepts, Mineral and organic constituents of soils and their role in maintaining soil productivity, Problem 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, Functions and cycling in soils. Symbiotic and non-symbiotic nitrogen fixation, Phosphorus cycle, Principles of soil fertility and its evaluation for judicious fertilizer use.

Soil conservation; planning on Watershed basis, erosion and run off management in hilly, foot hills and valley land, processes and factors affecting them, dry land agriculture and its problems. Technology for stabilizing agriculture production in rainfed agricultural area.

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-scope, importance and characteristics, Agricultural Production Economics, farm planning and budgeting, economics of different types of farming systems, marketing and pricing of agricultural outputs, price fluctuations and their cost, role of co-operatives in agricultural economy; types and systems of farming and factors affecting them.

Agricultural extension, its importance and role, Methods of evaluation of extension programmes, Socio economic survey and status of big, Small and marginal farmers and landless Agricultural labourers, Farm mechanization and its role in Agricultural production and rural employment, Training programmes for extension workers, Land to lab programmes.

Part – B : Sericulture :

Package of practices for mulberry cultivation in rainfed and irrigated conditions, monocropping, intercropping etc. Foliar and root diseases of mulberry, mode of infection symptoms and control methods, Insect pests of mulberry, nature of damage, symptoms, life cycle and control measures.

Silkworm rearing, sanitation, rearing house environment, leaf quality, improved techniques in silkworm rearing, transportation of cocoons, cocoon market, its role in cocoon transition.

Diseases of silkworm, etiology, symptoms, mode of infection, preventive and control measures of bacterial, viral, fungal and protozoan diseases of silkworm, Pests of silkworm, life cycle, preventive and control measures.

Silk reeling, methods of reeling on charka, cottage basin, filature basin, automatic reeling, re-reeling, twisting and weaving, By-products of sericulture.

Economics of mulberry cultivation and silk worm rearing, methods of estimating cost of production of mulberry leaf and cocoon, returns from leaf and silk cocoons, economics of leaf and shoot harvesting, income and employment generation from mulberry cultivation, cocoon production and reeling industry, economics of charaka and shoot rearing. Cost and Returns from different systems of silk reeling, charaka cottage basin and automatic reeling.

Part – C : Agricultural Marketing and Co-operation :

Marketing institutions for agricultural produce, TAPCMS, APMC, MARKFED, Marketing Boards. Marketing of livestock products and fish, Marketing of horticultural produce, Grading of agricultural produce.

Co-operative institutions in India-Primary Societies, DCC Banks, Apex banks, Agriculture and Rural Development banks, non-agricultural co-operatives, Financial institutions providing agricultural credit-Co-operatives, commercial banks, NABARD, Repayment of loans. Problems of overdues and rural indebtedness.

Institutions facilitating marketing of agricultural produce Primary marketing Societies-Taluk Agricultural produce Co-operative Marketing Societies, Agricultural produce Marketing Committees, MARKFED, NAFED, Marketing Boards - Coffee Board, Tea Board, Spices Board etc. Marketing of live stock and livestock produce-Cattle, Sheep, Milk and milk products, eggs and Fish. Marketing of vegetables and fruits- Concept of HOPCOMS. Role of co-operation in Marketing of horticultural produce, Importance of grading of agricultural product, Grade characters of rice, wheat, jowar, groundnut and cotton. Co-operative institutions in India, Non-agricultural co-operatives, Handloom Weavers' co-operatives, Housing co-operatives, Urban Co-operative banks etc.

Non co-operative institutions providing agricultural credit-commercial bank, Regional Rural Bank, NABARD, Nationalisation of banks, Role of commercial banks in agricultural development, Repayment of loans. Methods of repayment-single payment plan and amortization, Decreasing payment plan and even payment plan, Recovery of loans by financial institutions, Problems of overdues.

PAPER - II

Part-A : Agriculture

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.

Origin and domestication of field crops, Morphology patterns of variations in varieties and related species of important field crops, Causes and utilization of variations in crop improvement.

Application of the principles of plant breeding to the improvement of major field crops, Methods of breeding of self and cross pollinated crops, Introduction, selection, hybridization, heterosis and its exploitation, Male sterility and self incompatibility, Utilization of mutation and polyploidy in breeding.

Seed technology and its importance, Production, processing and testing of seeds of crop plants, Role of National and State seed organizations in production, processing and marketing of improved seeds.

Physiology and its significance in agriculture, Nature, Physical properties and Chemical constitution of protoplasm, Imbibition, Surface tension, Diffusion and Osmosis. Absorption and translocation of water, Transpiration of water economy.

Enzymes and plant pigments, Photosynthesis, Modern concepts and factors affecting the process, Aerobic and anaerobic respiration.

Growth and development of plants, Photo periodism and vernalization, Auxins, Hormones and other plant regulators and their mechanism of action and importance in agriculture.

Climatic requirements and cultivation of major fruit plants and vegetable crops. Package of practices and the scientific basis for the same, handling and marketing problems of fruits and vegetables, Principal methods of preservation, Important fruit and vegetable products, Processing techniques and equipment, Role of fruits and vegetables in human nutrition. Landscape and floriculture including raising of ornamental plants and design and layout of lawns and gardens.

Diseases and pests of fields, vegetable, orchard and plantation crops of India and measures to control them, causes and classification of plant diseases, Principles of plant disease control including exclusion, eradication, immunization and protection, Biological control of pests and diseases. Integrated management of pests and diseases. Pesticides and their formulations, Plant protection equipments, their care and maintenance.

Storage practice of cereals and pulses, Hygiene of storage godowns, Preservation and remedial measures.

Strategies for marketing of agricultural inputs, Processing of agricultural products, Milk and oil-seeds federations, Food production and consumption trends in India, National and International food policies, Procurement, distribution, processing and production constraints, Relation of food production to national dietary pattern, Major deficiencies of calorie and protein.

Part – B : Sericulture

Seed Organisation, three tier multiplication programme, norms for maintenance of P3, P2 and P1 stocks, seed area advantages and disadvantages, seed legislation act, hibernation schedule for 6 and 10 months, role of LSPs in production of hybrid eggs, economics of silkworm egg production.

Recent development in non-mulberry sericulture, improved technology for the production of tasar, muga, eri and oak-tasar varieties, Economics of tasar, muga and ericulture.

Aims and methods of silkworm breeding, importance of Germ plasm bank, general and specific combining ability; sex linked varieties, role of heterosis in production of new breeds, evaluation of new varieties.

Mulberry breeding, importance of germ plasm bank, aims and methods of breeding, selection, hybridization, role of polyploidy in breeding programme, evaluation of new mulberry varieties.

Sericulture Extension; Extension education, different methods, Principles and objectives, role of private organizations in the development of sericulture, Role of Technical service centers in improvement of sericulture.

Part – C : Agricultural Marketing & Co-operation

Policies on marketing of agricultural products, storage, processing, transportation etc. Buffer stocking in India, Price policies for Output-minimum support price, Procurement price, Statutory minimum price, Commission on Agricultural costs and prices and its role, pricing of inputs for agriculture, Role of Government in pricing of inputs, subsidies on fertilizers, Public distribution system in India, Procurement, stocking and distribution, food subsidies and their impact on the economy, effect of food subsidy on poverty alleviation, problems in marketing of agricultural products and remedial measures, grading of live stock-cattle, sheep and goat, poultry and fish – Grading of livestock products-Ghee, eggs, chicken etc.

Role of Co-operatives in rural development-distribution of agricultural inputs, food grains, marketing of output through Co-operatives.

Agricultural project analysis, Preparation of project proposals in agriculture-crops, irrigation, plantations, dairy and poultry. Feasibility tests for projects, Technical feasibilities, financial feasibilities of projects, Compounding, discounting, net present value, benefit cost ratio, payback period and internal rate of return.