

Syllabus TNPSC – Agricultural Officer

PAPER-I

AGRICULTURE (DEGREE STANDARD)

SUBJECT CODE: 284

UNIT- I: IMPORTANCE OF AGRICULTURE

Importance of Agriculture in Indian Economy and its sectoral relationship - Agricultural Development through five year plans in India and Tamil Nadu - Growth pattern of crops in India and Tamil Nadu in terms of area, production and productivity - Government Agricultural Policies – Agricultural development through NITI AYOOG – Import and export – Role of NSC, FCI and PDS. UNIT - II: FUNDAMENTALS OF CROP PRODUCTION Factors of Production - Agricultural seasons of India and Tamil Nadu - Cropping patterns in India and Tamil Nadu - Package of practices of different crops - Agro-Climatic zones of India and Tamil Nadu and their features - Weather and Climate - Weather forecasting - Climate change and its impact – Minimal tillage practices – Stress mitigating technologies including microorganisms – Nanoparticles and their applications.

UNIT - III: NATURAL RESOURCE MANAGEMENT

Soil - Soil structure - Factors influencing soil structure - Physical and Chemical properties - Effect of nutrient availability and plant growth - Problem soils and their management - Soil survey - Its objectives and scope - Soil fertility and productivity - Dry farming - Rainfed agriculture - Conservation of soil and water - Watershed and waste land development. Land use pattern and planning - Size and distribution of holdings - Types and systems of farming - Water resources development and management - Command area development - Ground water Development and Conjunctive use - Water use efficiency - Quality of irrigation water - Its effect in soil and crops - Management of poor quality water for crop growth.

UNIT - IV: CROP MANAGEMENT & ALLIED AGRICULTURAL ACTIVITIES

Cropping systems and integrated farming - Recycling of agricultural waste - Organic manures, green manures, bio fertilizers - Balanced usage - Integrated nutrient management - Physiological disorders in crop plants and their management- Irrigation management of different crops Mushroom cultivation, bee keeping, silkworm rearing etc., Energy in Agricultural production - Sources - Solar, wind, animal, biomass and biogas - Mechanization in agriculture - Tractors & tillers - Agricultural implements and Machineries and their usage - livestock and poultry rearing.

UNIT - V: CROP IMPROVEMENT

Principles of breeding - Breeding methods in self , cross and vegetatively propagated crops - Modern tools in crop improvement – Heterosis breeding and Hybrid seed production technologies - Latest

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varieties of major crops in Tamil Nadu - Breeding for climate resilience varieties – Variety release procedures - Application of bio technology in agriculture - Tissue culture & its significance - Transgenic Plants. Plant Genetic Resources: Collection conservation and exchange - Crop varietal protection - PPV & FR authority and its role. 15

UNIT- VI: SEED SCIENCE AND TECHNOLOGY

Seeds - Importance of quality seeds in agriculture – Nucleus, breeder, foundation, certified and labelled seeds - Seed certification techniques and processing in Tamil Nadu - Seed testing – Seed testing laboratories - ISTA standards for seed testing - Seed village concept Seed Act - Seed coating and priming technologies - Seed enhancement technologies.

UNIT – VII: CROP PROTECTION PRINCIPLES AND PRACTICES

Importance of pest, disease, nematodes and weed management in agriculture – categories of pests, diseases, nematodes and weeds - Pest and disease surveillance and forecasting weather on pest and disease incidence - Symptoms of damages and control measures of pest, disease and nematodes of major crops in Tamil Nadu - Integrated pest, disease and nematode management in crop production - Pesticides and their use in IPM – Mode of action - Pattern - Plant protection equipments and their use - Plant quarantine. Storage pests, disease and nematodes and their management. Importance of biological control in pest, disease and nematode management. Weeds - Major weeds and their control.

UNIT – VIII: FARM BUSINESS AND FINANCE MANAGEMENT

Farm business management - Principles of farm business management – Types and systems of farms - Classical production functions - Cost concepts - Management of resources - Farm Planning and budgeting - Investment analysis – Risk and uncertainties in agriculture - Agricultural credit system in India - Multi credit delivery system - Role of nationalized banks, NABARD and Regional Rural Banks - Lead Bank Scheme - Service area approach - Scale of finance - Credit Worthiness - 3 Rs, 5Cs and 7Ps of credit - Crop Insurance - Kisan Credit Cards (KCC) - Agricultural Insurance Company.

UNIT – IX: AGRICULTURAL MARKETING AND MARKET INTELLIGENCE

Marketing - Agricultural marketing - Market structure – Marketing efficiency - Price Spread - Market Integration - Market Risk - Speculation and hedging - Market Institutions - Warehouses and rural godowns - Agmark - Cooperatives - Commodity Boards – Agri business management – Principles of Management - Entrepreneurship Development - Forms of Business organizations - Agricultural Price Policy - CACP - MSP - FRP - Procurement Price Policies for agricultural development - Economic liberalization - WTO and its impact on agricultural export - Importance of Agriculture in Indian economy - Land size and distribution of holdings and land use pattern in Tamil Nadu - Agriculture under Five year Plans (FYPs) - Food Security - Public Distribution Systems (PDS) - Buffer Stock.

UNIT - X: AGRICULTURAL EXTENSION: PRINCIPLES AND METHODS

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Extension methods for transfer of technology - AV aids-Communication models - Use of ICT in transfer of technology-Diffusion and adoption- Pre and post independence rural development initiatives: key features, strength and weakness of individual programmes - Programme planning and evaluation methods- Rural sociology - Key features of Indian rural system-Value system-Social change- Rural migration. Role of women in agriculture.