TAMIL NADU PUBLIC SERVICE COMMISSION

SYLLABUS

AGRICULTURE (PG Degree Standard)

Code: 492

Unit I: Crop Production Principles and Practices (10 Questions)
Weather and crop production – Agro – ecological zones and geographical distribution of crop plants in Tamil Nadu Cropping systems – different types and their importance in food production – Package of Practices followed for field crops and cropping systems in Tamil Nadu –Automation and Drone application in Agriculture – Climate Smart Agriculture.

Unit II: Water and Weed Management (20 Questions)
Water Management – Integrated water management – Common area management – Different efficiencies in irrigation management – Irrigation management under constraints of irrigation water – Weed management – Important weeds and their distribution in Tamil Nadu – Integrated weed management practices – Irrigation water quality management – Soil moisture and crop water requirement.

Unit III: Cropping Systems and their Management (20 Questions)
Tillage and Dry land agriculture – Tillage Management under wet and dry land agriculture water harvesting techniques – Technologies for increasing agricultural production in rainfed agriculture – Agroforestry – Waste land development: Problems and Prospects in Tamil Nadu – Farm forestry, Agroforestry, Social forestry, Natural forestry – Importance of crop physiology – Mineral Nutrition – Deficiency symptoms – Plant growth regulator - Remote sensing and GIS for agriculture.

Unit IV: Soil Management for Sustainable Agriculture (24 Questions)
Soil types of Tamil Nadu and their important physio-chemical properties and their management – Problem soils Management – Soil fertility management – Integrated Nutrient Management – Soil fertility evaluation – Soil Test Crop Response – Manures – Natural farming – Organic Certification and standards – Nutrient Mineralisation and transformation – Bio-fertilizer and Bio-inoculants – PGPR – Fertilizer Control Order – Fertilizer logistics and Marketing – Carbon sequestration and Carbon trading.

Unit V: Seed Production-Principles, Practices and Policies (20 Questions)
Seed production in Vegetatively propagated crops - Seed processing – Dormancy Seed treatment - Seed pelleting - Seed Certification - Certified seed production - Seed Act, New seed policy - seed storage – Characteristics of quality seeds – seed development – Types of seeds – Seed quality control and testing – Post harvest handling of seeds – Seed production in cereal, pulses, oil seeds, forages, fibres, sugars and horticultural crops – Varietal identification – genetically modified rope detection.

Unit VI: Principles and Practices in Crop Improvement and Crop Biotechnology (26 Questions)
Germplasm - crop genetic resources – Methods of breeding - Innovative breeding methods such as Mutation breeding - Transgenic technology and applications – Marker – Types of markers – Linkage mapping – QTL mapping – marker assisted breeding – applications and examples – Breeding objectives and methods for pulses, oil seeds, fibre, cash crops and fodder.

Unit VII: Principles and Practices in Pest Management (26 Questions)
Pest - Definition – categories of pests including invasive pests - Pests control and pest management -- natural, artificial – IPM – Principles, components and integration - Ecological aspects of IPM – various IPM methods - IPM for important pests and nematodes of crops - Role of parasitoids, predators, and entomopathogens (NPV, Bt, Fungus) in IPM – Biointensive and biotechnological pest management methods - Store grain pest management – Host Plant Resistance in Pest Management – Pollinators role and safety – Quality control of pesticides and Pesticide Act – Banned and Next Generation Agro-chemicals – Safety, Hazards and Risk of crop produce – Nano formulation and Drone Technology in agriculture.

Unit VIII: Principles and Practices in Plant Disease Management (24 Questions)
Bacterial, fungal and viral diseases in major crops – Disease Surveillance – Assessment and forecasting integrated disease management for important plants – Integrated Disease management – Role of antagonistic organisms - Biotechnological approaches in disease Management – Host Plant Resistance in disease management – Host plant and pathogen interaction – Impact of Global Warming in pest and disease management.

Unit IX: Farming Systems and Management (20 Questions)

Farming systems-Integrated farming systems - Farm planning and budgeting. Farm business management - Farm management-principles and decision making Management of resources - land, labour, capital and machinery -Farm financial management - Agricultural marketing management - world trade concept economic liberalisation – GATT – IPR issues in agriculture – Agri co-operation – credit, marketing, consumer co-operation – Co-operative services for farmers, processing, farming and warehousing – Farmer Producer Organisations and agri-business incubation.

Unit X: Transfer of Technology (10 Questions)

Use of modern agricultural information systems – ICT for effective Transfer of technology – importance of transfer of technology in agricultural development – Principles of farm journalism - participatory technology development – Agri-journalism.

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