SYLLABUS FOR RECRUITMENT OF TGT
SUBJECT: AGRICULTURE

1. Basic Agriculture: Importance of Agriculture in national economy, scope of commercialization of Indian agriculture, sustainable agriculture, crop diversification, multiple cropping, multistorey cropping, relay cropping, intercropping, organic farming.

2.Agro meteorology: Agro meteorology, elements of weather and climate, weather forecasting, impact of climate change on cropping pattern, rainfed agriculture technology, natural disasters like drought, flood, etc. and their mitigation.

3.Soil Science and Soil Fertility: Soils – its definition and components, Processes and factors of soil formation, soil profile, soil types of India and their characteristics, problem soils and their reclamation, soil properties, soil texture and structure, Nitrogen fixation, soil productivity and soil health, soil erosion and conservation. Essential plant nutrients, their functions and deficiency symptoms, manures and fertilizers and Integrated Nutrient Management (INM) system.

4. Agronomy: Weeds, their characteristics, dissemination and association of weeds with crops, principles and methods of weeds control, mechanical, cultural, biological and chemical control of weeds, herbicides, integrated weed management system.
Origin, history and cultivation practices of important cereal crops, pulses, oilseeds, fibre crops, sugar and commercial crops grown during *Kharif* and *Rabi* seasons with special reference to climate, soil, seed production, cultivars, nutrition, irrigation and other management practices.

5. Genetics and Plant Breeding: Genetics and plant breeding, heredity and variation, Mendel's laws of inheritance, chromosomal theory of inheritance, heterosis and its exploitation, male sterility and self-incompatibility, principles and methods of plant breeding. Seed technology, classes of seeds, production, processing and testing of seeds. Role of national and state seed agencies in production, processing and marketing of improved seeds.

6. Crop Protection: Insect pests and diseases of field crops, vegetables, fruits and plantation crops, causes and their control measures, principles and methods of diseases control measures, biological control of pests and diseases, integrated pests management (IPM) systems. Storage pests of cereals and pulses, preservation and remedial measures of storage grains, Pesticides and their formulations, plant protection equipments, their care and maintenance.

7. Water management, Irrigation and Drainage: Irrigation and drainage, sources of irrigation, scheduling of irrigation, water requirement of crops, water use efficiency, methods of irrigation and drainage, watershed management.

8. Horticulture: Horticulture and its branches, role of fruits and vegetables in human nutrition, plant propagation, planting techniques, training and pruning, cultivation practices of major fruits, vegetables and flowers. Landscape gardening including raising of ornamental plants and layout and design of landscape gardens, lawns, etc.

Post-harvest handling and marketing problems of fruits, vegetables and flowers. Principles and methods of preservation and processing of fruits and vegetables, important value-added products from fruits and vegetables.

9. Crop Physiology: Crop physiology and its importance, imbibition, surface tension, diffusion and osmosis, absorption and translocation of water and minerals, transpiration, enzymes, plant pigments, photosynthesis, aerobic and anaerobic respiration. Growth and development of plants, photoperiodism and vernalization, hormones and plant growth regulators and their functions.

10. Agricultural Economics, Farm Management and Extension Education : Farm management, importance and characteristics, types and systems of farming and factors affecting them, marketing and pricing of agricultural inputs and outputs and their costs, calculation of cost benefit ratio, Kisan Credit Card (KCC), crop insurance. Agribusiness management, important Agriculture and Horticulture based subsidiary enterprises like nursery, mushroom production, apiculture, bio-pesticides, vermicomposting, etc. and their socio-economic importance. Agricultural extension, objectives and principles, its importance and role, methods of evaluation of extension programmes, training programmes, methods of communication.

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