

## SCHEME AND SYLLABUS FOR THE POSTS OF HORTICULTURE OFFICER

### SCHEME OF EXAMINATION

<b>Part: A: WRITTEN EXAMINATION (Objective Type)</b>	<b>No. of Questions</b>	<b>Duration (Minutes)</b>	<b>Maximum Marks</b>
<b>Paper-I: GENERAL STUDIES AND GENERAL ABILITIES</b>	150	150	150
<b>Paper-II: HORTICULTURE (DEGREE LEVEL)</b>	150	150	300
<b>Part: B: Interview</b>			50
		<b>Total</b>	<b>500</b>

### Syllabus

#### **Paper-I: GENERAL STUDIES AND GENERAL ABILITIES**

1. Current affairs – Regional, National and International.
2. International Relations and Events.
3. General Science; India's Achievements in Science and Technology.
4. Environmental issues; Disaster Management- Prevention and Mitigation Strategies.
5. Economic and Social Development of India and Telangana.
6. Physical, Social and Economic Geography of India.
7. Physical, Social and Economic Geography and Demography of Telangana.
8. Socio-economic, Political and Cultural History of Modern India with special emphasis on Indian National Movement.
9. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.
10. Indian Constitution; Indian Political System; Governance and Public Policy.
11. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc. and inclusive policies.
12. Society, Culture, Heritage, Arts and Literature of Telangana.
13. Policies of Telangana State.
14. Logical Reasoning; Analytical Ability and Data Interpretation.
15. Basic English. (10<sup>th</sup> class Standard)

## **PAPER-II: HORTICULTURE (DEGREE LEVEL)**

Classification of Horticultural crops. Horticultural zones of India. Principles, planning and layout, propagation; Pruning and training of fruit crops, Plant growth regulators; methods of irrigation and fertilizer application; Cropping systems; Fruitfulness and Unfruitfulness; Rejuvenation of old orchards and top working. Methods of plant propagation – Sexual & Asexual; Graft incompatibility; Seed dormancy; Nursery techniques; Different propagating structures; Bud wood certification, Nursery Registration Act. Orchard management - Soil management - Integrated nutrient management, pollination & fruit set problems in orchard, Crop regulation in relation to cropping systems.

Fruit crops - Production technology, value addition and post harvest management of major tropical, subtropical and other dry land fruit crops. Special production problems. Crop improvement, pest and disease management. Temperate fruit crops - Production technology, Value addition and post harvest management. Crop improvement pests and diseases in temperate fruits crops.

Vegetable crops - role in human nutrition. Production technology of important tropical and temperate vegetable crops. Vegetables seed production, techniques of raising nursery in different vegetable crops; Breeding methods and crop improvement of vegetable crops; Physiological disorders; Pests and diseases of vegetables.

Scope and Importance of commercial Floriculture. Production technology of major loose flower crops. Production technology and post harvest management of major cut flowers. Physiological disorders; Post harvest management of cut flowers; Techniques for Flower drying; Landscaping - Basic principles & Elements of Landscape design, Principles of gardening. Gardens - Special types, Components, structures, adornments, methods of designing; lawn making and Plants for landscaping. Flower arrangement; Bio aesthetic planning; Bonsai culture.

Production Technology, Post Harvest Management and Value Addition of Major Spices, condiments and Plantation Crops. Medicinal and Aromatic crops cultivation in India and Telangana - Production Technology, harvesting and processing, chemical composition, extraction, use of important Medicinal and Aromatic crops.

Post Harvest Technology in Horticultural Crops, maturity indices, harvesting, handling, grading of fruits, vegetables, cut flowers, plantation crops, medicinal and aromatic plants. Pre harvest factors; Deterioration - physiological and biochemical changes, Post harvest treatments; Quality parameters and specifications; Storage, Packaging, and transport; Food Processing Techniques. Principles and methods of Preservation of Fruits and Vegetables. Preparation of various products from Fruits and Vegetables; Food spoilage; Quality control of processed products, Govt. policy on import and export of processed fruits and vegetables.

Insect Pests of Fruits, Plantation, Medicinal, Aromatic Crops, Vegetable, Ornamental and Spice Crops. Integrated Pest Management. Nematode pests and their management, Apiculture, Sericulture ; Moriculture, Lac culture.

Plant diseases, Pathogens, their survival and spread; disease symptoms, etiology and Plant disease management. Integrated Disease Management practices in Fruits, Vegetables, Flower crops, Medicinal and Plantation crops. Mushroom cultivation - Pest and disease management.

Ultra Structure of Plant Cells and Organs; Principles of Plant Genetics; Mendel laws; gene action; mutations; chromosomes; Cell division; DNA , RNA and protein synthesis; linkage and crossing over; Chromosomal aberrations. Plant Breeding – Scope and importance; Floral biology, emasculation and pollination techniques in horticultural crops.

Plant genetic resources – applications in crop improvement; modes of pollination and reproduction. Methods of breeding in self, cross and vegetatively propagated crops. Self incompatibility and male sterility. Breeding objectives, methods and important concepts of breeding, procedures of varietal and hybrid development in major fruit, vegetable, ornamental and plantation crops. Breeding for insect, disease and drought resistance. Stability.

Plant biotechnology - Sterilization techniques; Plant tissue culture and genetic engineering methods and applications in crop improvement. Gene transfer methods; transgenic plants; molecular markers; marker assisted selection. Seed Technology – seed quality – seed classes - Deterioration of crop varieties. Seed production of major horticultural crops. Seed certification seed act etc, IPRs; Seed storage; Seed treatment; drying and processing of seeds.

Classification of weeds, propagation and dissemination; Concepts of weed prevention, control and eradication; Integrated weed Management in major horticultural crops, Organic Production requirements, Biological intensive Nutrient Management, Integrated disease and Pest Management in Horticultural Crops. Cropping systems in Agriculture; Classification of Agro Forestry systems. Types of Manures and Fertilizers, Fertilizer use efficiency; Quality Control; Integrated Nutrient Management for Horticultural Crops; Water Management in Major Horticultural Crops.

Plant Bio Chemistry - Proteins, lipids, carbohydrates, enzymes, and plant pigments - their Physical and Chemical Properties. Mode of action and metabolism of Carbohydrates. Seed Physiology, structure and development, Physiological maturity, Harvestable Maturity, Seed viability and vigour; Water relations in Plants; Plant Nutrition, Physiological role of Plant Nutrients; Photosynthesis, Seed Dormancy; Plant growth regulators, Physiology of Flowering, Physiological aspects of pruning and training in Horticultural crops. Micro Biology - General Properties of micro organisms. Biogas production, Microbial inoculants, Bio fertilizers, Micro bio pesticides; microbial agency for control of plant disease.

Farm power – Sources, implements and equipments used in farm operations. Surveying and leveling; soil erosion; drip and sprinkler irrigation systems, water harvesting structures and watershed development. Natural resources, Ecosystem, biodiversity, environmental pollution and global warming. Horticultural waste management, climate change, Environmental protection Act.

Statistics; frequency; measures of central tendency; dispersion; testing of hypothesis; correlation and regression; experimental designs. Computers-anatomy-operating systems; WINDOWS- MS OFFICE-MS ACCESS-MS WORD-MS POWER POINT-MS EXCEL.

Divisions of economics; economic systems; Classification of goods, utility, Demand & Supply; Factors of production; Theories of Population; Capital, theories of interest. Farm management; various economic principles applied to farm management, cost and income measures, types of farming, farm planning; farm records, capital budgeting techniques. WTO.

Extension education-teaching and learning; Audiovisual aids; rural development; sociology; rural sociology-education psychology-transfer of technology-farm women and rural youth-programme Planning process-participatory rural appraisal-leadership-management and administration-human resource development. Forms and methods of communication, group communication methods; entrepreneurship development, small and medium enterprises (SMEs/SSIs.), SWOT analysis, Public and private partnerships. Export and Import policies relevant to Horticultural sector, Globalization and emerging entrepreneur environment.