

RAJASTHAN PUBLIC SERVICE COMMISSION, AJMER
SCHEME & SYLLABUS FOR THE POST OF ASSISTANT
CONSERVATOR FOREST & FOREST RANGE OFFICER GRADE Ist
COMPETITIVE EXAMINATION, 2018
FOREST DEPARTMENT

OPTIONAL SUBJECT - HORTICULTURE

UNIT I

Basic Horticulture : Horticulture : Importance and scope. Nutritive values of fruits and vegetables. Climatic parameters affecting the growth and development of horticultural crops. Site selection for establishment of orchards. Systems of planting and layout of orchard. Nutrition, manuring and foliar feeding of plant nutrients. Symptoms of nutrient deficiencies and excesses. Water management of horticultural crops. Weed management by mechanical, cultural, biological, chemical methods. Orchard soil management practices. Management of important diseases and pests of horticultural crops. Training and pruning of fruit trees, their principles, objectives and methods. Unfruitfulness factors responsible and measures to overcome the same. Special horticultural practices like pinching, girdling, notching, ringing, bending, smudging, bahar treatment. Role of plant growth regulators in Horticulture. Use of Windbreaks and Shelter Belts.

UNIT II

Plant Propagation and Nursery Management : Plant propagation: Basic concepts. Types of dormancy. Methods of asexual propagation-cuttage, layering, budding and grafting Rootstocks. Factors affecting rooting in cutting and layering. Factors affecting union of grafts. Stock-Scion relationship. Graft incompatibility and its causes and remedies to overcome the same. Establishment of commercial nurseries. Propagation by specialised organs like suckers, rhizomes, corm, bulb, runner, stolon. Mist propagation, micropropagation, Role of Biotechnology. Tissue culture. Rejuvenation of fruit crops. Use of growth regulators in plant propagation. Propagation media and containers.

UNIT III

Fruit Production : Importance, scope and present status of fruit production in Rajasthan and India. Area and production, geographical distribution, important varieties, propagation methods, soil and climatic requirements. Layout & planting, manuring, irrigation, training and pruning, intercropping, weed control. Harvesting, grading, packaging, marketing and storage of mango, banana, citrus, guava, papaya, pomegranate, aonla, tamarind, ber, karonda, apple, datepalm, lasoda, bael. Management of important pests and diseases of above fruit crops. Special problems in fruit culture like alternate

bearing, malformation, spongy tissue, black tip of mango, bitter pit in apple, die back and granulation in citrus, bronzing in guava, fruit cracking in pomegranate, bael etc. High density planting in fruit crops. Suitability of fruit crops for soil salinity and alkalinity.

UNIT IV

Vegetable Production : Importance of vegetables from nutritional and economic security. Present status of vegetables in India and Rajasthan. Classification of vegetable crops. Types of vegetable farming. Climate, soil, improved varieties, nursery raising, planting, manuring, irrigation, weed control, intercultural operations, use of growth regulators, special intercultural practices in vegetables like tomato, brinjal, chillies, okra, cucurbits, cluster bean, cole crops, root crops, garden peas, and potato. Harvesting, yield, grading, packing, storage and marketing of vegetables. INM (Integrated Nutrient Management) and use of starter solutions in vegetable production. Poly house cultivation of bell pepper, cucumber and tomato.

UNIT V

Ornamental Horticulture, Aromatic and medicinal crops : Importance and scope of ornamental gardening and floriculture. Principles of garden designing, types of garden, garden features and adornments. Types of lawn grasses, annual flowers, shrubs, trees, climbers and creepers, herbaceous plants, palms and their use in gardening. Lawn making, rockery, flower arrangement, bonsai, topiary work. Open cultivation of rose, chrysanthemum, gladiolus, jasmine, marigold. Protected cultivation and its scope and problems in India. Protected cultivation of rose, gerbera. Cultivation of lemon grass, vetiver, opium, isabgol, ashwagandha etc.

UNIT VI

Post harvest technology of Horticultural Produce : Importance and scope of fruit and vegetables preservation. Maturity indices and harvesting of fruits and vegetables. Ripening and changes associated with fruit ripening, methods of hastening and delaying the ripening. Post harvest losses, their causes and prevention. Precooling, grading, packing, storage and transport, storage structures, types of storage. Controlled atmosphere storage, modified storage, freezing preservation. Principles and methods of fruit and vegetable preservation. Preparation and preservation of fruit juices, squash, syrup, cordial, jam, jelly marmalade, fruit preserve, candy, pickle and ketchup. Canning of fruits and vegetables. Causes of spoilage of fruits and preserved products. Dehydration and drying of fruits and vegetables. Waste and by- product utilization of major fruits and vegetables. Food Products Order (F.P.O.) regulations.

UNIT VII

Spices and Condiments : Importance, present status and future scope of spices and condiment crops in India and Rajasthan. Cultivation aspect of various Spices and Condiments: black pepper, ginger, turmeric, chilli, cumin, fenugreek, fennel, coriander, Ajoowan, Dill.

UNIT VIII

Forestry and Agroforestry : Importance of forests, causes and effects of deforestation. Afforestation. Branches of forestry. Agroforestry- scope, benefits and limitations. Interactions of trees with crops. Agroforestry Systems- Agri-silviculture, Silvi-pasture, Horti-pasture, Horti- silvi pasture. Horti-Silvi pastoral system- Introduction, land use planning with special reference to Indian Agriculture and Forestry, Trees with fodder grasses and legumes. Regeneration methods of forest tree species. Tending operations in forestry.

Note :- **Pattern of Question Paper**

- 1. Objective type paper**
- 2. Maximum Marks : 200**
- 3. Number of Questions : 120**
- 4. Duration of Paper : Three Hours**
- 5. All questions carry equal marks.**
- 6. There will be Negative Marking.**