

H. ELECTIVE SUBJECTS

I. AGRICULTURE GROUP

TRADE : HORTICULTURE

12th VOCATIONAL

PAPER-I

LANDSCAPING AND FLORICULTURE

THEORY

Time : 2 hrs

Theory : 30 Marks

InA : 10 Marks

Practical : 50 Marks

Total : 90Marks

- Importance, Definition, Status and Scope of Floriculture and Landscaping.
- History and Types of Gardens.
- Principles of Landscaping.
- Design and Layout of Gardens for Home, School, College, Public Buildings, Modern Parks.
- Essential and Decorative Components and Features of Gardens-Gate, Lawn, Shrubbery, Flower Beds, Borders, Paths, Hedges, Edges, Steps, Statues, Fountains, Bird Baths, Streams, Pools, Waterfalls, Terraces, Rockeries, Pergolas, Arches and Topiary.
- Important Ornamental Plant, Trees, Shrubs, Climbers and Pot Plants, Bedding Plants, Bulbous Plants and Groundcovers their Selection Based on Landscape Value and Use, their Planting and Maintenance.
- Establishment and Maintenance of Lawns.
- Cultivation of the Following Flower Crops with Respect to Soil, Climate, Varieties, Propagation, Method and Time of Planting Irrigation, Weeding, Pest Control, Time of Flowering, Harvesting Packing and Marketing: Rose, Chrysanthemum, Gladiolus, Marigold, Tuberose, Jasmine.
- Study of the Flower Arrangements, Flower Shows and Exhibition, Packing and Storage of Cut Flowers, Study of Cacti and Succulents.
- Seed Production of Important Seasonal Flowers.
- Marketing of Indoor Plants and Cut Flower.
- Gardening Operation Like staking, disbudding and pinching.
- Nursery Production - Propagation, Potting, Repotting, Plant Care, Maintenance and Sale

LANDSCAPING AND FLORICULTURE

Time : 3 hrs

PRACTICAL

Marks : 50

- Planting and maintenance of lawn.
- Identification of landscape trees, shrubs/climbers and ground covers.
- Planting shrubbery, hedges and edges.
- Potting and repotting.
- Garden operations - staking, training, pruning, pinching de-suckering, disbudding, topiary.
- Landscape plan (i) modern bungalow (ii) public place (iii) park
- Identification of seasonal flowers.
- Preparation of nursery; beds and sowing of seeds of seasonal flowers.
- Propagation of rose, chrysanthemum, and marigold.
- Harvesting, cleaning, grading and packaging of cut flowers.
- Preparation of garlands and bouquets.
- Arranging pots and materials for special decorations.
- Visits to flower growers fields, gardens and flower shows and markets.

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PAPER-II

COMMERCIAL CROPS

THEORY

Time : 2 hrs

Theory : 30 Marks

InA : 10 Marks

Practical : 50 Marks

Total : 90Marks

Commercial Crops

Introduction, Present Status and Future Prospects of Plantation, Spice, Medicinal and Aromatic Crops.

Commercial Cultivation

Commercial Cultivation of the Following with Respect to Soil, Climate, Improved Varieties, Propagation and Nursery Techniques, Layout and Planting, Cultural Practices, Water Management, Weed Control, Plant Protection, Harvesting, Processing, Products, Storage and Marketing of the following -

- **Spice Crops -** Ginger, Turmeric, Fennel and Coriander.
- **Medicinal Crops -** Dioscorea, Periwinkle, Sarpagandha, Ashwagandha, Steroid Bearing Solanum, Isabgol, Senna and Liquorice, Alovera, Geloe, Tulsi, Stevia.
- **Aromatic Crops -** Lemon Grass , Citronella, Palmarosa, Vetiver (Khus), Geranium, Patchaouli, Davana, Mint Species and Rosemary.

Bee Keeping

Importance and Scope, Bee Species and Colony/ Organisation, Social Behavior, Bee Hives and their Equipments, Apiary Management Practices, Products of Bee Hive, Diseases and Enemies of Honey Bees, Pesticidal Poising, Economics of Bee Keeping, Marketing of Honey and Role of Bees in Crop Pollination.

Mushrooms

Types, Production of Summer and Winter Season Mushroom, Environmental Requirements, Containers, Media and Preparation, Disinfection, Seeding and Pawning, After Care, Harvesting, Dehydration and Packing.

Vermiculture

Introduction, Role of Earthworms, Organic Wastes, Advantages of Vermiculture, Vermi Composting, Application of Vermi Composting.

COMMERCIAL CROPS

Time : 3 hrs

PRACTICAL

Marks : 50

- Processing and curing of ginger and turmeric
- Study of important spice, medicinal and aromatic crops.
- Extraction of essential oils in plants such as Mentha.
- Propagation of geranium and patchouli through cuttings.
- Study of propagation in aromatic grasses.
- Study of species and castes of honey bees.
- Study of bee pasturage.
- Site selection and arrangement of apiary.
- Setting up bee hive.
- Seasonal management of bee colonies.
- Identification and Management of pest and diseases of bees.
- Extraction, processing and marketing of honey.
- Production of hive products other than honey.
- Study of common cultivated mushrooms and their food value.
- Compost preparation for button mushroom.
- Filling of trays/shelves/bags with compost for button mushroom.
- Spawning in button mushroom.
- Casing in button mushroom.
- Cropping and harvesting of button mushroom.
- Substrate preparation for paddy straw mushroom.
- Bed preparation and spawning in paddy straw mushroom.

- Cropping in paddy straw mushroom.
- Post harvest management.
- Management of insect-pests and diseases.
- Identification of Important species of earthworms.
- Selection of suitable species.
- Vermi composting materials and feed for earthworms.
- Different schemes for vermi composting.
- Preparation and maintenance of vermi compositing beds.
- Products of cocoons and its survival.

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PAPER-III POST HARVEST TECHNOLOGY AND PRESERVATION

THEORY

Time : 2 hrs

Theory	: 30 Marks
InA	: 10 Marks
Practical	: 50 Marks
Total	: 90Marks

- Maturity Index for Fruits and Vegetables.
- Methods of Harvesting, Handling, Grading and Transportation.
- Harvest life of Fruits and Vegetables.
- Methods of Temporary Preservation of Fruits and Vegetables.
- Method of Harvesting, Handling, Grading and Transportation.
- Different Technique of Removal of Field Heat/Pre Cooling.
- Packaging of Fruits and Vegetables for Local and Distant Market.
- Canning, Drying and Dehydration of Horticultural Crops.
- Cool Chain and Value Addition in Horticulture Crops.
- Varieties of Fruits and Vegetables Suitable for Processing.
- Preparation of Material for Processing, Technique of Syruping Exhausting, Sealing, Sterilizing and Cooling.
- Technique of Storage Including Cold Storage of Fruits & Vegetables.
- Controlled Atmospheric (CA) and Modified Atmospheric (MA) Storage.
- Pre and Post Harvest Treatments for Extending Shelf Life of Horticultural Commodities.
- Evaluation of Quality of Preserved / Processed Products.

POST HARVEST TECHNOLOGY AND PRESERVATION

Time : 3 hrs

PRACTICAL

Marks : 50

- Determination of maturity standards for fruits and vegetables.
- Procedure of harvesting, handling, grading and transportation of horticultural crops.
- Study of storage life of important fruits and vegetables.
- Preservation of fruits and vegetables at low temperature, chemical additives, salt, sugar etc.
- Study of spoilage of fruits.
- Visit to a processing factory (vegetable and fruits), grading and waxing units (kinnows).
- Preparation and preservation of fruit juices, squashes, cordial syrup, jam, jelly, marmalade and preserve, chutneys, pickles and sauces.
- Drying and dehydration of important fruits and vegetables.