

SYLLABUS FOR RECRUITMENT OF
SENIOR HORTICULTURE DEMONSTRATOR UNDER
HORTICULTURE DEPARTMENT

COMPULSORY SUBJECT
(Essay Type & MCQ)

1. *General English* 150 Marks

OPTIONAL SUBJECTS
(MCQ)

1. *Horticulture - I* 150 Marks
Horticulture - II 150 Marks

2. *Agriculture - I* 150 Marks
Agriculture - II 150 Marks

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GENERAL ENGLISH

Full Marks : 100 Marks

- (a) Essay Writing
20 Marks
(Not more than 300 words)
- (b) Idioms & Phrases
16 Marks
(Objective Type/MCQ)
- (c) Comprehension of given passages
12 Marks
(Objective Type/MCQ)
- (d) Grammar:
Parts of Speech : Nouns, Adjective, Verb, Adverb, Preposition, etc.
20 Marks
(Objective Type/MCQ)
- (e) Composition *(Objective Type/MCQ)*
16 Marks
(i) Analysis of complex and compound sentences.
(ii) Transformation of sentences.
(iii) Synthesis of sentences.
- (f) Correct usage and vocabularies
16 Marks
(Objective Type/MCQ)

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HORTICULTURE

Paper - I

Full Marks : 150 Marks

Basic Horticulture:

Scope and importance of Horticulture and horticultural crops - Area and Production - Imports and Exports - Nutritive value of Horticultural crops - climatic zones of India in relation to Horticultural crops - Factors limiting horticultural crop production - climate (Rainfall, temperature, Light, humidity, sunshine) - Soil (PH, EC, Soil depth) - Crops suitable for different soils - water (Quality and quantity) - Drainage.

Planning, Layout and Planting of orchards - fencing - wind breaks - spacing - systems of planting - cropping systems - Multitier cropping - cover crops - Intercrops - Mulching - weed control.

Manures and manuring - organic and inorganic manures - Bio fertilizers - Essential elements - functions - deficiency symptoms - fertilizer schedule - Time and method of application Irrigation - water requirement of different horticultural crops - various irrigation methods including drip, sprinkler, fog, mist, water stress on horticultural crops.

Training and pruning - principles and methods

Flowering - Pollination - fruit set - fruit drop - causes and prevention - unfruitfulness associated with external and internal factors. Maturity - harvesting - Post harvest handling - Processing and preservation.

Role of plant growth regulators in Horticulture

Seed and vegetative propagation - advantages and disadvantages - seed treatment - Important methods of vegetative propagation - cutting - layering - rootstock - scion - (stock - scion relationship) - Incompatibility - grafting - budding - specialized parts of propagation (bulbs, tubers, offsets, runners etc.) - Mist propagation - Micropropagation

HORTICULTURE

Paper - II

Full Marks : 150 Marks

Tropical, subtropical, temperate and arid zone horticultural crops - climate and soil - propagation practices spacing and planting - varieties - nutrient, water and weed management - mulching - intercropping - use of growth regulators - yield - Economics - Integrated pest and disease management - pre and post - harvest practices - processing and preservation - Marketing.

Fruit Crops: Mango, banana, grapes, citrus, papaya, Sapota, guava, ber, Pomegranate, annonas, amla, tamarind, jack, pineapple, apple, plum, pear, peach.

Spice Crops: Pepper, Cardamom, nutmeg, cinnamon, clove, allspice, ginger, turmeric, coriander, cumin, fenugreek, fennel.

Plantation Crops: Coffee, Tea, Coconut, Cocoa, Arecanut, Oilpalm, Cashew, Palmyrah, rubber.

Vegetable Crops: Tomato, brinjal, bhendi, chilli, cucumber, melons, gourds, pumpkin, peas, beans, potato, cassava, sweet potato, minor tubers, carrot, radish, Beetroot, Turnip, cabbage, cauliflower, onion, garlic, Amaranthus, other greens, Moringa, chow chow, curry leaf.

Flower Crops: Jasmine, rose, chrysanthemum, Tube rose, crossandra - marigold, Gerbera, orchid,**Flower Crops:** Jasmine, rose, chrysanthemum, Tube rose, crossandra - marigold, Gerbera, orchid, gladiolus, anthurium.

Medicinal plants: Catharanthus - Gloriosa, Senna, Pyrethrum - Digitalis.

Aromatic plants: Geranium - oil yielding grasses, patchouli, Mentha.

Ornamental gardening: Landscaping - design and principles - Types of gardens - Layout - garden components - flowering, foliage and Avenue trees - Arboretum - shrubs - creepers and climbers, cacti and succulents, hedge and edge plants, plants for rockery and water garden - Flowering annuals
Indoor plants

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AGRICULTURE

Paper - I

Full Marks : 150 Marks

Ecology and its relevance to man, natural resources, their sustainable management and conservation. Physical and social environment as factors of crop distribution and production. Climate elements as factors of crop growth, impact of changing environments. Environmental pollution and associated hazards to crops, animals and humans. Cropping patterns in different agro-climatic zones of the country, impact of high yielding and short-duration varieties on shifts in cropping pattern. Concepts of multiple cropping, multistorey, relay and inter-cropping, and their importance in relation to food production. Package of practices for production of important cereals, pulses, oil seeds, fibres, sugar, commercial and fodder crops grown during Kharif and Rabi seasons in different regions of the country.

Weeds: their characteristics, dissemination and association with various crops, their multiplications, cultural, biological and chemical control of weeds.

Soil-physical, chemical, land biological properties. Processes and factors of soil formation, Modern classification of Indian soils, mineral and organic constituents of soil, land, their role in maintaining of soil productivity. Essential plant nutrients and other beneficial elements in soil and plants. Principles of soil fertility and its evaluation for judicious fertilizer use, integrated nutrient management. Losses of nitrogen in soil, nitrogen fixation in soils. Fixation of phosphorus and potassium in soils and the scope for their efficient use. Problem soils and their reclamation methods.

Soil conservation: planning on watershed basis, Erosion and run-off management in hilly, foothills and valley land, processes and factors affecting them, Dry land agriculture and its problems, Technology of stabilizing agriculture production in rain-fed agriculture area.

Water-use efficiency in relation to crop production, criteria for scheduling irrigations, ways and means of reducing run-off losses of irrigation water, Drip and sprinkler irrigation, Drainage of water logged soils, quality of irrigation water, effect of industrial effluents on soil and water pollution.

Farm Management: scope, importance and characteristics, farm planning, Optimum resources use and budgeting, Economics of different types of farming systems, marketing and pricing of agriculture inputs and outputs, price fluctuations and their cost, types and systems of farming and factors affecting them.

Agriculture extension: its importance and role, methods of evaluation of extension programs, socio-economic survey and status of big, small and marginal farmers and landless agricultural labourers, farm mechanization and its role in agricultural production and rural employment, Training programmes for extension workers, lab-to-land programmes.

AGRICULTURE

Paper - II

Full Marks : 150 Marks

Seed Technology: its importance, Different kinds of seeds and their seed production, processing techniques, Polyploidy, euploid and aneuploids, Mutation-micro and macro, and their role in crop improvement. Laws of heredity, their significance in plant breeding.

Application and principles of plant breeding to the improvement of major field crops, Role of biotechnology in plant breeding, Improved varieties, hybrids, composites of various crop plants.

Growth and development: photoperiodism and vernalization, Auxins, hormones and other plant regulators, and their mechanism of action and importance in agriculture, Physiology of seed development and germination, dormancy.

Climatic requirements and cultivation of major fruit plants, vegetable crops and flower plants, the package of practices and their scientific basis. Handling and marketing problems of fruit and vegetables. Principal methods of preservation of importance fruits and vegetable products, processing techniques and equipment, Role of fruits and vegetables in human nutrition, Raising of ornamental plants, design and layout of lawns and gardens.

Diseases and pests of field vegetables, orchard and plantation crops of India, Causes and classification of plant pests and diseases, Integrated pest and disease management, Pesticides, their formulation and modes of action, storage pests and diseases of cereals and pulses and control.

Impact of advanced agricultural technology hazards, its adverse effect, sustainable agriculture, need of hour, organic agriculture system, major aims of organic farming, concept, definition, differences between organic and conventional farming, history and needs of organic farming.

Biodynamic agriculture, organic farming versus biodynamic farming, EM, Principles of biodynamic farming, biodynamic preparation, vermi-composting, methods of organic matter recycling; in situ, ex situ, and biological manuring. Useful and adverse effect of organic farming.

Ecological pest management, nitrogen fixing trees, its importance, bio-intensive nutrient management, certification of organic produce.

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