

U.P. HIGHER EDUCATION SERVICES COMMISSION, ALLAHABAD

HORTICULTURE

(Subject Code-90)

Unit-1: Brief history of horticulture development in India, Classification of horticultural crops on the basis of agro-climatic conditions, nutritional values, botanical plant parts used, medicinal uses. Present status of cultivation and export potential of horticultural crops. Problems and prospects of development of horticultural industry. Role of horticulture in national development. Contribution of Horticultural Research Centres in development of horticulture. Concept of 'Golden Revolution' and future thrust. Concepts of 'National Horticulture Mission' and its programme. Role of NHB, APEDA, ICAR, NMPB, State and Central Govt. Horticulture Development Agencies and Societies in Development of Horticulture.

Unit-2: Significance of cultivation of fruits, vegetables, medicinal and aromatic plants, floriculture & landscaping, plantation crops, orchids, post harvest technology and handling, Principles and importance of protected cultivation, precision farming, organic cultivation, green house/glass house cultivation, net house, bio-dynamic farming. Principles of modern nursery establishment and management principles and methods of propagation. Role of root-stocks in production of quality planting materials Methods of propagation and multiplication of important horticultural crops, tissue culture, mist house, bottom heat, hot bed, hybrid seed production, methods of quality seed production, breeding methods of important fruits, vegetables and flowers. Role of bio-technology in production of horticultural crops major establishment of bio-diversity zones and distribution of plant genetic resources and methods of their conservation, principles of herbal garden, gene garden, gene bank, bio-technical garden, plantorium and Bio-park.

Unit-3: Importance and production technology for cultivation of important commercial and potential fruits, vegetables, ornamental plants, flowers, orchids, plantation crops, medicinal & aromatic plants and their management practices for production of quality produce, plant protection measures, nutrients and water management practices determination of maturity indices and harvesting technology, storage, marketing and post-harvest management practices, methods of minimising post-harvest losses, and development of post-harvest and processing technology. Growth and development, dormancy, chilling requirement, pollination, fertilization, parthenocarpy, seedlessness parthenogenesis sterility unfruitfulness, problems in, fruit/seed setting, biochemical changes during maturation and ripening. Role of plant growth regulators in propagation, flowering, fruit setting, fruit dropping, fruit ripening and storage. Physiology of flowering and flowering behaviours of important fruit crops. Problems of biennial bearing behaviours, its causes, and control.

Unit-4: Crop improvement technology, objectives, developed improved varieties of commercially cultivated fruits, vegetables and flowers, principles of hybridisation, mutation, poly ploidy and heterosis breeding and biotechnology in development of horticultural crops, role of pollination and polinizers.

Unit-5: Principles of high density orcharding, meadow orcharding, planting systems, multi-tier cropping systems, principles of pruning & training and methods of training rejuvenation and top working management of wasteland, watershed and dry land.

Integrated nutrients and pest/disease management, water management/water harvesting and micro-irrigation systems, fertigation, methods of fertilizers application and foliar feeding of nutrients. Principles and elements of landscaping, garden features and adornments, principles and important features of different types of gardens, bonsai cultivation, indoor garden and arrangements of indoor plants, flower arrangement, packaging, storage and transportation of different types of cut flowers, principles of turf grass management and planting techniques, different types of special garden dish, terrarium, hanging baskets, window boxes, miniature garden, vertical gardens, potting containers and potting media.

Unit-6: Importance of post-harvest handling and processing for value added horticultural produce, and value chain produce/products. Problems of pre and post-harvest losses, cool chain, zero-energy cool system, refrigerated system, quality certification food and labelling and marketing system, enhancing life of perishable horticultural produce of fruits, vegetables, flowers, medicinal & aromatic crops, methods of post-harvest handling, storage. Principles and methods of preservation, by heat, chemical, radiation, dehydration, freezing, fermentation, preparation of different quality produce and quality of control mechanism, modern storage system, precooling, low temperature modified atmosphere (MA).

Note- There are six units. Eight Questions are to be from each unit.