Horticulture (HORT)  
Paper-I  

Unit-I  Fruit Cultivation  
- Horticulture – Meaning and definition  
- Division of Horticulture  
- Fruit cultivation in India with special reference to Odisha  
- Cultivation aspects – Major fruit crops  
  - Mango  
  - Banana  
  - Citrus fruits  
  - Guava  
  - Sapota  
  - Litchi  
  - Papaya  
  - Pine apple  
  - Amla  
  - Jack fruit  

Unit-II  
- Climate  

Unit-III  
- Soil  
- Varieties of major fruits  
- Land preparation  
- Propagation and transplantation  
- Intercultural  
- Nutrient management  

Unit IV  
- Integrated pest and disease control and management  
- Irrigation  
- Harvest and post-harvest management  
- Assimilating marketing information  

Practical:  
- Identification of fruit trees  
- Different method of grafting and budding, raising of root, stock for grafting and budding of fruit plants  
- Method of planting of fruit plants  
- Lay out of different irrigation system of fruit plants  
- Calculation of fertilizer requirement and study of manuring and fertilizer application in fruits plant
- Method of application of growth regulators and calculation for different concentrations
- Training and pruning in fruit plants
- Study of fruit setting and fruit drop in mango, guava and citrus fruits
- Selection of site, planning, soil and soil management and lay out of orchards
- Study of different interculture operations in fruit plants
Paper-II

Unit-I Plantation crops, spices, medicinal and aromatic crops
- Importance of plantation crops, spices, medicinal and aromatic crops grown in India as well as in Odisha
- Scope of plantation crops, classification of spices, medicinal and aromatic plants

Unit-II
- Details of cultivation aspects
  - Plantation crops
    - Coconut
    - Cashewnut
    - Areca nut
  - Spices
    - Blackpeper
    - Coriander
    - Cinnamon
    - Cardamom
  - Medicinal
    - Aloevera
    - Brahmi
    - Aswagandha
  - Aromatic
    - Lemongrass
    - Pamarosa
  - With special reference to
    - Origin
    - Climate
    - Soil
    - Varieties
    - Land preparation
    - Propagation and transplantation
    - After care
    - Interculture
    - Nutrient management
    - Irrigation
    - Moisture conservation
    - Integrated pest and disease management
    - Intercropping
    - Harvest and post-harvest care
    - Storage and processing
    - Value addition and byproduct utilization

Unit.III Vegetable Production & Preservation of Vegetable & Fruits
Introduction, role of vegetables in human nutrition, importance of vegetable cultivation.

Present status and future prospects of vegetable cultivation in India as well as in Odisha
- Classification of vegetable gardens
- Off season vegetable cultivation

Detail of vegetable cultivation of different vegetable such as-
- Potato
- Brinjal
- Tomato
- Chilli
- Okara
- Raddish
- Onion
- Garlic
- Turmeric
- Ginger
- Sweet potato
- Yam
- Elephant foot yam
- Cabbage
- Curly flower
- Broccoli
- Cowpea
- Beans
- Pea
- Pumpkin
- Cucumber
- Different gourds
- Watermelons and
- Greens

With special reference of
- Food value
- Climate
- Soil
- Varieties
- Nursery raising
- Sowing
- Planting
- Manuring
- Interculture
- Irrigation
- Drainage
- Integrated pest & diseases management
- Physiological disorders
o Harvesting and post-harvesting cane
o Assimilating market information
o Maintain health and safety measures at workplace

Unit-IV. Preservation

• Importance of preservation
• Maturity standards of fruits and vegetables
• Handling, grading, packaging and transportation of fruits and vegetables
• Use of growth regulators and emulsion for extending the storage life
• Principles and methods of preservation by low temperature, chemical additives, salt, sugar, heat and drying etc.
• Preparation and preservation of
  o Fruit juice
  o Syrups
  o Squashes
  o Cordials
  o Jams
  o Jelly
  o Marmalade
  o Chatney
  o Ketchup
  o Pickles & sources

Practical:

• Study of different preparation structures, equipments, farm complements and horticultural tools
• Media and soil mixture for raising seedlings and cuttings
• Testing the seed germination, viability and vitality of seeds
• Seed treatment methods, preparation of seed beds, sowing of seeds in shallow pots
• Study of vegetative propagation of plants by modified plant structure such as bulbs, corns, rhizomes, tubers, suckers and runner
• Propagation of plants by cutting with and without use of growth regulators
• Methods of plant propagation by air layering
• Potting of seedlings in pots, polythen bags and other containers and planting in nursery beds.
• Selection of scion and pre-conditioning and collection of scion for grafting
• Estimation of cost of production of grafts
• Planning for developing nursery
• Planting and management of mother plants
• Site selection for nursery
• Raising of nursery plants
• Management of grafts in nursery and after care
• Water management in nursery
• Protection of plants from heat by using shadings
• Plant protection measure in nursery
• Identification of plantation crops, spices, medicinal and aromatic plants
• Studying different problems of plantation crops in orchards
• Identification of vegetables seeds, chemicals, preservations etc.
• Preparation & management of nursery beds (soil sollarisation)
• Raising of seedlings in polyhouse for off-season and early vegetable cultivation
• Method of application of manure and fertilisers and calculation of fertilizers
• Study of types of manures and fertilizer
• Use of growth regulators in vegetable crops
• Study of deficiency symptoms, disorders in vegetable crops
• Calculation of cost of cultivation of important vegetable crops
• Preparation of preserved products such fruit juices, syrups, squash, jam, jelly, chutney, pickles and sauce
• Study zero energy storage, low cost storage structure of onion, potato, ginger, turmeric etc.