

लोक सेवा आयोग  
नेपाल कृषि सेवा, हर्टिकल्चर समूह, राजपत्राङ्कित तृतीय श्रेणीका पदहरूको खुला र आन्तरिक प्रतियोगितात्मक  
लिखित परीक्षाको पाठ्यक्रम  
द्वितीय पत्र :- हर्टिकल्चर सम्बन्धी विषय

**Section A- 20 Marks**

- 1. Introduction 10%**
- 1.1 Definition, branches and importance of horticulture
  - 1.2 Classification of horticultural crops
  - 1.3 Potentialities and status of horticulture in Nepal
  - 1.4 Current programs and past efforts of horticulture development in Nepal
  - 1.5 Ecological zones and niches of horticultural crops in Nepal
  - 1.6 Constraints of horticulture development in Nepal
  - 1.7 Policies and strategies for horticulture development
- 10. Principle, Importance and Opportunities in Nepal 10%**
- 10.1 Organic farming
  - 10.2 High density planting
  - 10.3 Multistoried cropping
  - 10.4 Hydroponics and aeroponics
  - 10.5 Agro-forestry and sloping land technology (SALT)
  - 10.6 Indigenous and unexploited fruits and vegetables
  - 10.7 Aromatic and medicinal plants

**Section B- 30 Marks**

- 2. Climatic Factors Affecting Horticultural Crop Production 10%**
- 2.1 Temperature: low, cardinal and high
  - 2.2 Radiation: quality and intensity
  - 2.3 Rainfall: amount and distribution
  - 2.4 Hailstorm and wind
  - 2.5 Extreme environmental stresses and their control measure
  - 2.6 Topography
- 3. Growth and Development 10%**
- 3.1 Meaning: growth, differentiation, morphogenesis and development
  - 3.2 Seed and bud dormancy: significance, causes and control measures
  - 3.3 Seed germination: mechanism and controlling factors
  - 3.4 Juvenility: characteristics, significance and modification
  - 3.5 Flowering, pollination, fruit set, fruit drop and fruit maturity
  - 3.6 Fruit ripening and senescence: mechanism and controlling factors
  - 3.7 Tuber and bulb formation: mechanism and controlling factors
- 4. Plant Growth Regulators 10%**
- 4.1 Terminologies
  - 4.2 Importance of PGR in horticulture
  - 4.3 Bio synthesis, mode of action and functions
    - 4.3.1 Auxin
    - 4.3.2 Gibberellins
    - 4.3.3 Cytokinin
    - 4.3.4 Ethylene
    - 4.3.5 Absisic Acid
    - 4.3.6 Others
  - 4.4 Uses in commercial horticulture

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**Section C- 20 Marks**

**5. Orchard establishment and Management 10%**

- 5.1 Site selection, and land preparation, layout and planting systems
- 5.2 Selection of crop and cultivars: market driven approaches
- 5.3 Training and pruning: principles, objectives and methods
- 5.4 Soil and water conservation
- 5.5 Integrated nutrient management
- 5.6 Plant protection: IPM and IPN approaches
- 5.7 Micro irrigation: drip, sprinkler

**6. Nursery Management 10%**

- 6.1 Nursery types
- 6.2 Propagating structures
- 6.3 Propagating media
- 6.4 Principles and techniques of vegetative and mist propagation
- 6.5 Rootstocks and their use in horticulture crops
- 6.6 Principle and techniques of tissue culture and its importance in horticulture
- 6.7 Site selection, land preparation and water management

**Section D- 30 Marks**

**7. Cultivation Practices of Major Horticultural Crops in Nepal 10%**

- 7.1 Fruit crops: apple and walnut, citrus, banana, mango, pineapple, litchi and papaya, peach, plum, persimmon
- 7.2 Plantation crops: tea and coffee
- 7.3 Vegetables: potato, tomato, chilies, cucurbits, cole crops, legumes, onion and garlic, carrot, okra, peas and bean
- 7.4 Spices: ginger, turmeric and cardamom

**8. Vegetable Seed Production 10%**

- 8.1 Potentialities of vegetable seed production in Nepal
- 8.2 Principles of vegetable seed production
- 8.3 Techniques of seed production of major horticultural commodities crops
  - 8.3.1 Nucleus/breeder seed
  - 8.3.2 Foundation seed
  - 8.3.3 Improved seed
  - 8.3.4 Hybrid seed
  - 8.3.5 True potato seed (TPS)
  - 8.3.6 Vegetable seed production zones of the country
- 8.4 Seed quality and quality test

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**9. Post Harvest Handling, Storage and Marketing 10%**

- 9.1 Importance of post harvest loss management
- 9.2 Causes of post harvest deterioration: mechanical, physiological and pathological
- 9.3 Post harvest physiology: transpiration, respiration, ethylene production, and ripening of fruit and vegetable
- 9.4 Post harvest processing: cleaning, grading, sizing, curing, waxing, pre-cooling, de-greening and packaging
- 9.5 Preservation of fruit and vegetable
- 9.6 Storage: cold storage, cellar storage and rustic storage
- 9.7 Marketing of fruit and vegetable

द्वितीयपत्रका पाठ्यक्रमका एकाईहरूबाट सोधिने प्रश्नहरूको संख्या निम्नानुसार हुनेछ :

द्वितीय पत्रका खण्ड	A		B			C		D		
द्वितीय पत्रका एकाई	1	10	2	3	4	5	6	7	8	9
प्रश्न संख्या	1	1	1	1	1	1	1	1	1	1

**विषयगत नमूना प्रश्नहरू (Sample questions)**

1. Explain in brief the comparative advantages of horticulture development in Nepal.
2. Discuss in brief the effects of low and high temperature stresses on vegetable crops and state the measures to overcome these effects.
3. Define juvenility and explain in brief the juvenile characteristics, its significance in plant community and methods of modification for earliness in flowering and fruiting fruit crops.
4. State precisely bio synthesis, mode of action, functions and commercial uses of gibberellins in fruit crop production.
5. Write short note on
  - a. High density planting
  - b. Organic farming
  - c. Agro-forestry, and
  - d. Aeroponics
6. Tokinashi cultivars seedlings of radish planted by farmers on October at mid hills (1000 masl) for seed production did not produce seed at all. Give the technical reasons.