

**HORTICULTURE (Optional)****Time : 3 hours****Maximum Marks : 200****Note :**

- (i) In all attempt **Five** questions.
- (ii) Question number **1** is **compulsory**.
- (iii) Of the remaining questions, Attempt **Any Four** by selection **one question** from each section.
- (iv) Figures to the **right** indicate marks of the respective question.
- (v) Number of optional questions upto the prescribed number in the order in which questions have been solved, will only be assessed and excess answers of the question/s will not be assessed.
- (vi) Candidate should not write roll number, any name (including his/her own), signature, address or any indication of his/her identity anywhere inside the answer book otherwise he/she will be penalised.

**1. Answer any four of the following questions :****4x10=40**

- (a) What are green houses, mention the different types of greenhouses. Write explanatory note on controlling of greenhouse temperature and greenhouse ventilation.
- (b) Discuss the importance of horticulture in national economy and role of APEDA in export of Horticultural produce.
- (c) Explain the importance and scope of mushroom production in Maharashtra and mention the different types of mushrooms under cultivation and their characteristics.
- (d) Define IPM. What are the concepts of IPM and mention its advantages and disadvantages.
- (e) Explain the principles of plant disease control. Mention the symptoms of powdery mildew disease of mango, its causes and control measures.

**P.T.O.**

## SECTION - A

2. Answer the following sub-questions :

- (a) (i) Discuss the impact of horticultural practices viz., varieties of crops, fertilizer application, irrigation and plant protection measures on agro-ecosystems. 10
- (ii) Explain the role of bio-technology in horticulture with reference to crop improvement, Micro-propagation, bio-pesticides and bio-fertilizers. 10
- (b) Write short notes on the following : 20
- (i) Problematic soils of Maharashtra and their management.
- (ii) Field capacity and permanent wilting point.
- (iii) Horticultural uses of hormones.
- (iv) Water conservation methods.

3. Answer the following sub-questions :

- (a) (i) Define photosynthesis. Explain the factors affecting photosynthesis. 10
- (ii) Define environmental pollution. Explain the effects of environmental pollution on crop and human beings. 10
- (b) (i) Define soil. Explain the physical and chemical properties of soils. 10
- (ii) Write explanatory note on role and deficiency symptoms of NPK and Ca in plants. 10

## SECTION - B

4. Answer the following sub-questions :

- (a) (i) Define Orchard. What are the points to be considered while establishment of an orchard ? 10
- (ii) Define unfruitfulness. Explain the measures to overcome unfruitfulness in fruit crops. 10
- (b) Write short notes on : 20
- (i) Advantages of micro-irrigation in horticulture.
- (ii) Sodculture and clean cultivation.
- (iii) Advantages of mulching.
- (iv) Inter-crops and cover crops.

5. Answer the following sub-questions :

- (a) (i) Define propagation. Mention the advantages and dis-advantages of vegetative propagation in horticulture crops. 10
- (ii) Explain the physiology of rooting in cuttage and formation of graft union in grafting. 10
- (b) (i) Explain the production technology of banana with reference to selection of varieties, Suckers, Planting density, manuring and irrigation in Maharashtra. 10
- (ii) Write short notes on : 10
- (a) Spongy tissue disorder in mango.
- (b) Causes of citrus decline.

### SECTION - C

6. Answer the following sub-questions :

- (a) (i) Classify the vegetables based on the parts used and season with examples. 10
- (ii) Define cropping system. Explain the different cropping systems adopted in vegetable crops. 10
- (b) Write explanatory note on : 20
- (i) Role of vegetables in human nutrition.
- (ii) Importance of crop rotation in vegetable cultivation.
- (iii) Exploitation of hybrid vigour in crop improvement.
- (iv) Truck gardening in vegetables.

7. Answer the following sub-questions :

- (a) (i) Define seed dormancy. Mention the different types of seed dormancy seeds and how to overcome seed coat dormancy ? 10
- (ii) Explain the production technology of tomato with reference to nursery raising, planting, manuring, irrigation and harvesting of fruits. 10
- (b) (i) Explain the production technology of ginger with reference to selection of varieties, seed rhizomes, planting, manuring and plant protection. 10
- (ii) Explain the production technology of Alovera with reference to planting, manuring, irrigation, harvesting and medicinal importance. 10

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## SECTION - D

8. Answer the following sub-questions :
- (a) (i) Explain the different types of ornamental gardens and their features. 10
  - (ii) What is meant by protected cultivation ? Mention the advantages and dis-advantages of protected cultivation of horticultural crops. 10
  - (b) (i) What are the principles of preservation of fruits and vegetables ? Explain the different Methods of preservation. 10
  - (ii) Write short notes on Bonsai culture and Ikebana. 10
9. Answer the following sub-questions :
- (a) (i) Explain the production technology of tuberose with reference to selection of varieties, planting, manuring, irrigation, harvesting and yield. 10
  - (ii) Explain the different methods of extraction of essential oils from aromatic plants. 10
  - (b) (i) Give five examples each of the following : 10
    - (a) Flowering shrubs.
    - (b) Ornamental creepers.
    - (c) Flowering annuals.
    - (d) Suitable indoor plants.
  - (ii) Explain the importance and scope of agro-forestry in Maharashtra state. 10