IGNOU DHORT GUESS PAPER 2025-26-27

DIPLOMA IN HORTICULTURE (DHORT)

BAP-002 : BASIC HORTICULTURE

Term-End Examination Guess Paper/Most Important Repeated Questions from Previous Papers

IGNOU DHORT / BAP-002 Quick Revision Notes & Guess Paper

Easy Important for Exam Answers (Around 200 Words Each)

1. Characteristics of Weeds

Weeds are unwanted plants that grow along with crops and compete for nutrients, water, light and space. They possess several characteristics that help them survive and spread rapidly.

First, weeds produce a large number of seeds, ensuring their quick multiplication. Second, their seeds remain viable in soil for many years and germinate whenever favourable conditions occur. Third, weeds grow rapidly and complete their life cycle quickly. Fourth, they can adapt to different environmental conditions such as drought, flood and poor soils. Fifth, many weeds reproduce both by seeds and vegetative parts like rhizomes, tubers and stolons.

Weeds are generally hardy and resistant to pests and diseases. They compete strongly with crop plants and reduce crop yield. Some weeds also release harmful chemicals into the soil, a phenomenon known as allelopathy. Many weeds serve as alternate hosts for pests and diseases.

Due to these characteristics, weeds are difficult to control and require proper management through cultural, mechanical, biological and chemical methods. Effective weed control improves crop growth, productivity and quality.

2. Stages of Water Availability in Soil

Water in soil is available to plants in three major stages.

The first stage is Saturation Capacity. In this condition all soil pores are filled with water. Excess water drains due to gravity. Air is absent from the soil, making root respiration difficult. This condition is not suitable for most crops.

The second stage is Field Capacity. After excess water drains away, the soil retains a useful amount of water. Air and water are present in proper proportion. Plants obtain water easily and grow best under this condition. It is considered the ideal moisture condition for crops.

The third stage is Permanent Wilting Point. At this stage soil moisture becomes very low and plant roots cannot absorb water. Plants wilt and fail to recover even after sunset. Growth stops and prolonged wilting may lead to plant death.

The water present between field capacity and permanent wilting point is known as Available Water. This is the water that plants can utilize for their growth and development. Proper irrigation management aims to maintain soil moisture within this range for maximum crop production.

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3. Factors Affecting Climate

Climate is the average weather condition of a place over a long period. Several factors influence climate.

Latitude is an important factor. Areas near the equator receive more sunlight and are warmer than areas near the poles.

Altitude also affects climate. Temperature decreases with increase in height above sea level. Therefore, hill stations are cooler than plains.

Distance from the sea influences climate. Coastal regions have moderate temperatures, while inland areas experience extreme heat and cold.

Wind direction affects temperature and rainfall. Winds carrying moisture from oceans bring rainfall, while dry winds reduce humidity.

Ocean currents also influence climate by warming or cooling nearby regions.

Topography and mountains affect rainfall distribution. Mountains force moist air to rise and cool, causing rainfall on one side and dry conditions on the other.

Vegetation influences climate by regulating temperature and humidity. Forest areas usually have cooler and more humid conditions.

These factors together determine temperature, rainfall, humidity and other climatic conditions that influence crop production.

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4. Soil Texture and Soil Structure

Soil texture refers to the relative proportion of sand, silt and clay particles present in soil. It is a permanent property and cannot be changed easily. Soil texture determines water-holding capacity, aeration and nutrient availability.

Soil structure refers to the arrangement of soil particles into aggregates or peds. It can be improved through cultivation, organic matter addition and management practices. Soil structure affects drainage, root penetration and soil aeration.

Soil Texture	Soil Structure
Based on particle size	Based on arrangement of particles
Permanent property	Can be improved
Sand, silt and clay proportions	Granular, blocky, platy forms
Influences water retention	Influences aeration and drainage
Determined by soil composition	Determined by aggregation

Both soil texture and structure are important for healthy crop growth and good soil fertility.

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5. Role of Nitrogen in Plant Growth

Nitrogen is one of the most important essential nutrients required by plants. It is a major component of proteins, amino acids, chlorophyll and nucleic acids.

Nitrogen promotes vigorous vegetative growth and gives plants a healthy green colour. It helps in the formation of leaves, stems and branches. Adequate nitrogen increases photosynthesis because it is a major component of chlorophyll.

Nitrogen improves crop growth, yield and quality. It enhances protein content in crops and supports rapid cell division and enlargement.

Deficiency of nitrogen causes yellowing of older leaves, stunted growth and reduced yield. Plants become weak and produce fewer leaves and branches.

Excess nitrogen, however, may lead to excessive vegetative growth, delayed flowering and increased susceptibility to pests and diseases.

Nitrogen is supplied through fertilizers such as urea, ammonium sulphate and calcium ammonium nitrate. Proper nitrogen management is essential for achieving high productivity and sustainable crop production.

IMPORTANT DEFINITIONS (2 Marks)

1. Allelopathy

Release of harmful chemicals by one plant that affects the growth of another plant.
Example: Eucalyptus suppresses nearby plants.

2. Smothering

Weed control by covering weeds and blocking sunlight.
Example: Dense cowpea crop suppresses weeds.

3. Drip Irrigation

Water is supplied drop by drop directly to plant roots.
Example: Used in mango and vegetable crops.

4. Processing

Converting raw fruits and vegetables into useful products.
Example: Mango → Jam.

5. Climate

Average weather condition of a place over a long period.
Example: Kashmir has a cool climate.

6. Crop Rotation

Growing different crops in sequence on the same field.
Example: Wheat → Pulse.

7. Mixed Cropping

Growing two or more crops together.
Example: Wheat + Mustard.

8. Pollinizer

A plant that provides pollen for pollination.
Example: Crab apple in apple orchards.

9. Nutrients

Substances required for plant growth.
Example: Nitrogen, Phosphorus, Potassium.

10. Fertilizers

Materials added to soil to supply nutrients.
Example: Urea.

11. Dehydration

Removal of water from food for preservation.
Example: Dry grapes become raisins.

12. Ex-situ Water Harvesting

Collection of rainwater outside the field.
Example: Farm pond.

13. Weed

An unwanted plant growing with crops.
Example: Parthenium.

14. Weed Management

Methods used to control weeds.
Example: Hand weeding.

15. Auxins

Plant hormones that promote root growth.
Example: IAA.

16. Gibberellins

Plant hormones that increase stem growth.
Example: GA_3.

17. Plant Growth Regulators

Chemicals that control plant growth.
Example: Auxins, Gibberellins.

18. High Density Planting

Growing more plants in a given area.
Example: High-density apple orchard.

19. Moisture Stress

Condition when plants do not get enough water.
Example: Drought condition.

20. Orchard

Land used for growing fruit trees.
Example: Apple orchard.

21. Pruning

Removal of unwanted branches.
Example: Pruning in apple trees.

22. Dormant Pruning

Pruning during winter resting period.
Example: Apple pruning in winter.

23. Summer Pruning

Pruning during active growth period.
Example: Grapes.

24. Nitrogen

Nutrient promoting leafy growth.
Example: Urea supplies nitrogen.

25. Zinc

Micronutrient required for enzyme activity.
Example: Zinc sulphate.

26. Calcium

Nutrient for strong roots and cell walls.
Example: Calcium nitrate.

27. Soil Texture

Proportion of sand, silt, and clay.
Example: Sandy soil.

28. Soil Structure

Arrangement of soil particles.
Example: Granular structure.

29. Field Capacity

Water remaining in soil after drainage.
Example: Ideal condition for crops.

30. Permanent Wilting Point	Stage when plants cannot absorb water. **Example:** Severe drought.

IMPORTANT 5-MARK QUESTIONS

1. Advantages of High Density Planting

- Higher yield per unit area.
- Better use of land and water.
- Early fruit production.
- Easier irrigation and fertilizer application.
- Better quality fruits.
- Higher profit.

Example: High-density apple orchards.

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2. Uses of Weeds

- Animal fodder.
- Compost making.
- Green manure.
- Medicinal purposes.
- Soil conservation.
- Food for pollinators.

Example: Cynodon grass used as fodder.

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3. Moisture Stress on Crop Growth

- Reduced germination.
- Wilting of leaves.

- Slow growth.
- Reduced photosynthesis.
- Poor flowering and fruiting.
- Lower yield.

Example: Paddy suffers under drought.

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4. Protection of Plants from Cold Conditions

- Irrigation before frost.
- Mulching.
- Covering plants.
- Smoke generation.
- Windbreaks.
- Use of resistant varieties.

Example: Straw mulch protects strawberry plants.

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5. Long-Day and Short-Day Plants

Long-Day Plants

Flower when daylight is longer.

Examples: Wheat, Spinach, Radish.

Short-Day Plants

Flower when daylight is shorter.

Examples: Rice, Soybean, Tobacco.

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6. Role of Nitrogen in Plant Growth

- Promotes green leafy growth.
- Essential for chlorophyll.
- Improves photosynthesis.
- Increases yield.

Deficiency: Yellow leaves.

Example: Urea supplies nitrogen.

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7. Role of Zinc and Calcium

Zinc

- Helps enzyme activity.
- Improves growth.
- Essential for hormone production.

Deficiency: Small leaves.

Calcium

- Strengthens cell walls.
- Promotes root growth.
- Improves fruit quality.

Deficiency: Blossom end rot.

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8. Ex-situ Water Harvesting

Collection and storage of rainwater outside fields.

Advantages

- Water availability during drought.
- Groundwater recharge.
- Reduced runoff.

Examples: Ponds, tanks, reservoirs.

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9. Advantages of Chemical Weed Management

- Quick weed control.
- Saves labour.
- Effective on large areas.
- Reduces crop competition.

Example: Glyphosate application.

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10. Uses of Auxins

- Root initiation.
- Prevention of fruit drop.
- Weed control.
- Fruit development.

Example: IAA and IBA.

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11. Characteristics of Gibberellins

- Increase stem elongation.
- Break seed dormancy.
- Promote flowering.
- Increase fruit size.

Example: GA_3 used in grapes.

IMPORTANT 10-MARK QUESTIONS

1. Characteristics of Weeds

1. Produce many seeds.
2. Rapid growth.
3. Adaptable to all conditions.
4. Long seed viability.
5. Reproduce by seeds and vegetative parts.
6. Compete with crops.
7. Hardy nature.

Example: Parthenium.

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2. Stages of Water Availability in Soil

Saturation Capacity

All pores filled with water.

Field Capacity

Ideal condition for plant growth.

Permanent Wilting Point

Plants cannot absorb water.

Available Water = Field Capacity – Permanent Wilting Point

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3. Factors Affecting Climate

- Latitude
- Altitude
- Distance from sea
- Wind
- Ocean currents
- Mountains
- Vegetation

Example: Hill areas are cooler due to altitude.

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4. Soil Texture vs Soil Structure

Soil Texture	Soil Structure
Size of particles	Arrangement of particles
Permanent	Can improve
Sand, silt, clay	Granular, blocky etc.

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5. Constraints of Horticulture

- Small land holdings.
- Lack of irrigation.
- Poor storage facilities.
- High post-harvest losses.
- Lack of processing units.
- Transportation problems.
- Marketing difficulties.

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6. Pruning (Principles, Dormant & Summer)

Principles

- Remove dead branches.
- Maintain shape.
- Improve sunlight and air.

Dormant Pruning

Done during winter.

Summer Pruning

Done during growing season.

Example: Apple pruning.

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7. Importance of Horticulture

- Provides nutritious food.
- Generates employment.
- Increases farmer income.
- Supports industries.
- Earns foreign exchange.
- Beautifies environment.

Example: India is a major producer of mangoes.

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8. Minimal Processing of Fruits and Vegetables

Purpose

- Maintain freshness.
- Improve convenience.

- Increase shelf life.

Steps

1. Selection.
2. Washing.
3. Peeling.
4. Cutting.
5. Sanitization.
6. Packaging.
7. Refrigeration.

Example: Ready-to-eat salad packs.

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9. Weed Management Methods

Cultural Methods

Crop rotation, mulching.

Mechanical Methods

Hand weeding, hoeing.

Biological Methods

Use of insects.

Chemical Methods

Herbicides.

Example: Hand weeding in vegetables.

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10. Orchard Layout Systems

Square System

Trees at equal distances.

Rectangular System

Rows farther apart.

Triangular System

Trees arranged in triangles.

Hexagonal System

Trees form a hexagon.

Quincunx System

One filler tree in centre.

Example: Square system is most common.

MOST LIKELY QUESTIONS FOR EXAM

1. Characteristics of Weeds.
2. Stages of Water Availability in Soil.
3. Factors Affecting Climate.
4. Soil Texture and Soil Structure.
5. Constraints of Horticulture.
6. Importance of Horticulture.
7. Pruning.
8. Minimal Processing.
9. Orchard Layout Systems.

10. High Density Planting.
11. Nitrogen, Zinc and Calcium.
12. Long-Day and Short-Day Plants.
13. Moisture Stress.
14. Ex-situ Water Harvesting.
15. Uses of Weeds.

Preparing these topics thoroughly should cover the majority of repeatedly asked questions from the papers