APPLIED HORTICULTURE

Test Code: 5957
Version: 01

Specific competencies and skills tested in this assessment:

Safety
Identify and follow all general safety, laboratory safety, and field-site safety practices and procedures in horticulture
Identify and follow all OSHA safety standards for the horticulture services industry
Identify and follow procedures written in the Safety Data Sheet (SDS) information system
Demonstrate the safe use of horticulture equipment
Select the proper protective clothing and equipment
 Demonstrate basic first aid procedures for injuries

Safe and Proper Plant Health Care Practices
Practice safety when controlling weeds, insects, and plant diseases
Read and interpret horticulture product labels
Properly calculate and mix quantities of horticulture products used in plant health care
Define the concept of, “Plant Health Care,” such as disease, nutrients, etc.
Distinguish the components of an Integrated Pest Management program including the effects of chemicals and pesticides on the environment
Identify various horticultural pests including their signs and symptoms
Identify and use equipment for the application of plant health care products

Basic Botany
Describe the process of photosynthesis, respiration, translocation, and transpiration
Identify plant cell structure, organization, and function
Identify plant structures and explain their functions
Identify conditions essential for seed germination
Explain the environmental factors that affect the growth and development of a plant
Distinguish between sexual and asexual plant reproduction
Identify plant nutrient requirements
Classify plants and use appropriate binomial taxonomic terminology
Applied Horticulture (continued)

**Horticulture Business Operations**
- Develop a horticultural business plan
- Analyze pricing and mark-up techniques
- Demonstrate appropriate customer/client relationship attributes
- Identify and develop various horticulture record keeping systems
- Analyze business ethics

**Soils and Climate**
- Identify and describe soil characteristics
- Identify soil and/or plant nutrients
- Conduct proper soil sampling techniques
- Describe factors influencing fertilizer application
- Identify environmental factors that affect plant growth
- Describe how weather and climate impact growing conditions and plant selection

**Sustainable Horticulture**
- Identify different methods of sustainable horticulture
- Compare sustainable watering and fertilizing techniques to conventional techniques
- Compare sustainable plant material selection to conventional plant material
- Recycle horticultural waste

**Horticulture Technology**
- Research advanced technologies in horticulture equipment

**History and Current Status of Horticulture**
- Describe the role horticulture plays in the economy of the state and nation
- Identify current issues regarding plant and soil management that impact agronomic and horticultural practices

**Plant Identification**
- Outline the proper use of plant material in various segments of the horticulture industry
- Determine the impact of environmental factors on plant materials
- List the identifying characteristics of various plant categories associated with plants
- Identify 100 plants used in horticulture industry by horticultural reference/botanical reference
**Written Assessment:**

Administration Time: 3 hours  
Number of Questions: 194  

**Areas covered:**

- 12% Safety  
- 13% Safe and Proper Plant Health Care Practices  
- 19% Basic Botany  
- 9% Horticulture Business Operations  
- 17% Soils and Climate  
- 7% Sustainable Horticulture  
- 1% Horticulture Technology  
- 5% History and Current Status of Horticulture  
- 17% Plant Identification

**Sample Questions:**

Injury produced from a single toxic exposure is called _____ toxicity.  
A. chronic  
B. acute  
C. LD50  
D. lethal

A serious disease of roses is  
A. fire blight  
B. twig blight  
C. black spot  
D. canker stain

Plant parts important in sexual reproduction of the parent plant include  
A. flowers  
B. bulblets  
C. runners  
D. cormels

A benefit to customers of Internet sales is that  
A. payment is often by credit card  
B. very little data is transferred during a sale  
C. most sites lack secure protocols  
D. membership fees are required
**Applied Horticulture (continued)**

Add ____ to soil to prevent chlorosis in plants.
A. nitrogen  
B. potassium  
C. zinc  
D. phosphorus

Soil erosion is caused by
A. not fertilizing and watering  
B. applying lime at high levels  
C. large insect and disease infestations  
D. wearing away of the soil due to water or wind

The process for growing plants in a water and nutrient solution without soil is called
A. xeriscaping  
B. hydroponics  
C. aquaculture  
D. olericulture

Advanced technology in horticulture equipment includes
A. shovel, rake, and wheelbarrow  
B. tractor, weed-wacker, and lawn mower  
C. computerized greenhouse systems, and ebb and flow benching  
D. hydrostatic tractors and chainsaws

Which area of horticulture produces the most jobs in the United States?
A. greenhouse and nursery industry  
B. floral design industry  
C. horticulture services industry  
D. olericulture services industry

Which of the following is a shade-tolerant plant?
A. juniper  
B. switch grass  
C. hosta  
D. rose
Applied Horticulture (continued)

**Performance Assessment:**

Administration Time: 3 hours
Number of Jobs: 5

**Areas Covered:**

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Area</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>24%</td>
<td>Plant Classification and Identification</td>
<td>Participants will identify and record 70 plants by common name and by classification.</td>
</tr>
<tr>
<td>12%</td>
<td>Integrated Pest Management</td>
<td>Participants will identify two pest problems and two plant diseases and consult charts for treatment and rates of application.</td>
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<tr>
<td>39%</td>
<td>Soils</td>
<td>Participants will identify five types of soil amendments. Select the mixture and measure the soil. Collect soil samples and record findings based on the soil report.</td>
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<tr>
<td>16%</td>
<td>Plant Propagation</td>
<td>Participants will prepare containers for starting by direct sticking plant cuttings. Steps will include harvesting the cuttings using sterile technique, proper use of cutting equipment, and treating with rooting compound.</td>
</tr>
<tr>
<td>9%</td>
<td>Customer Service</td>
<td>Participants will greet customer and perform a sales transaction including sales tax and prepare a receipt.</td>
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**Sample Job:** Customer Service

**Maximum Job Time:** 20 minutes

**Participant Activity:** Participants will greet a customer, calculate the total including sales tax and write a receipt for the purchase, using a cash register or money box and calculator. Collect payment and return the correct change.