**Specific competencies and skills tested in this assessment:**

**Basic Agriculture Science and Technology**
Discuss the importance of reading and adhering to pesticide label directions
Explain different plant life cycles and give examples
Identify the major parts of the plant
Describe the functions of vegetative plant parts
Distinguish between plant root systems and how they absorb water and nutrients
Explain ways plants reproduce
Describe the role of seed in reproduction, sexually and asexually
Explain the role of flowers in reproducing plants
Describe germination and the conditions under which it occurs
Explain the application of vegetative propagation
Discuss use of improved seeds and cultivars and the importance of improved seed
Explain important factors in plant growth
Explain photosynthesis and its importance
Explain respiration and transpiration and their importance
Identify essential plant nutrients for plant growth and reproduction
Describe how pests are prevented and methods used to control them after infestation
Explain supply and demand in agriculture
Explain the role of the Agriculture Education program and the FFA in personal development
Develop leadership and personal development skills through participation in the FFA

**General Horticulture and Plant Science**
Explain the role of Agriculture Education programs and the FFA in personal development
Demonstrate knowledge learned through a Supervised Agricultural Experience (SAE) program
Develop leadership and personal development skills through participation in the FFA
Explore career opportunities in horticulture/plant science through the FFA and the Agriculture Education Program
Explore the professional agricultural organizations associated with the course content
Explain the three phases of plant life (dormancy, vegetative, reproductive)
Describe the difference between annuals, biennials, and perennials
Identify vegetative structures and functions of plant parts (i.e., leaves, stems, roots)
Identify sexual reproductive structures and functions of plant parts (i.e., flower, fruit, seeds)
Identify asexual reproductive structures and functions of plant parts (i.e., stems, roots)
Discuss the importance of plant propagation
Explain the difference between sexual and asexual propagation
Describe the factors involved in planting seeds
Discuss the various methods of vegetative propagation and identify each method
Explain the difference between separation and division in plant propagation
Describe soil materials and structure
Describe the components and functions of a good growing medium
Name the nutrients needed for plant growth
Identify common nutrient deficiency symptoms
Describe pH modification
Explain fertilizers and fertilization
Analyze the difference between organic and inorganic fertilizers
Demonstrate fertilizer application methods
Identify common insects, weeds, diseases, and physiological disorders
Diagram the external structure of an insect
Trace the life cycles of insects
Describe the type of damage inflicted by weeds
Describe the types of plant diseases
Identify the proper methods of controlling pests
Describe the containers used in plant production
Analyze the advantages and disadvantages of each type of plant growing container
Describe the different types of watering methods
List the advantages and disadvantages of each type of watering system
Describe the processes of photosynthesis and factors that affect photosynthesis in plants
Describe the processes of respiration and factors that affect respiration in plants
Demonstrate basic understanding of education requirements/skills needed for various plant science careers
Give a basic understanding of olericulture, arboriculture, pomology, agronomy, floriculture, etc.

**Nursery and Landscape**
Explain the role of the Agriculture Education program and the FFA in personal development
Demonstrate knowledge learned through a Supervised Agriculture Experience (SAE) program
Develop leadership and personal development skills through participation in the FFA
Explore career opportunities in nursery/landscaper through the FFA and Agriculture Education program
Define and describe the overall structure, scope, and importance of the green industry
Explore career opportunities in the green industry related to nursery and landscape
Identify hand and power tools and equipment used in landscape operations
Demonstrate proper tool and equipment safety procedures in nursery and landscape operations
Demonstrate proper maintenance and storage for tools and equipment
Classify plants using horticultural characteristics (i.e., trees, shrubs, vines, groundcovers, etc.)
Identify plants by their environmental needs (sun/shade, drought tolerant, etc.)
Identify common landscape and nursery plants by common and scientific names
Describe soil structural characteristics that affect fertility and plant growth
Identify types, characteristics, and uses of soil amendments
Demonstrate soil testing procedures and prescribe treatments based on soil test results
Explain the importance of preparing beds for planting
Determine the area of planting sites
Calculate the amount of fertilizer, lime, and/or other soil amendments needed for the planting site
Identify equipment used in site analysis and landscape drawing processes
Assess client and site needs
Utilize standard landscape drawing practices, including landscape symbols, computer programs, tools, etc.
Apply the principles of good landscape design
Select appropriate landscape plant materials
Identify and practice correct planting procedures
Identify and practice mulching applications
Identify and practice fertilizer applications
Describe and practice proper pruning techniques
Calculate the cost of a landscape plan and installation
Identify landscape pests
Analyze damage to landscape plants from pests
Identify different types of management approaches to control pests
Explain the concepts of integrated pest management
Explain the relationship between water and plant growth
Judge types of irrigation systems based on plant needs, effectiveness, feasibility, etc.
Practice effective watering methods and techniques
Identify and classify turf grass species
Select turf grasses for specific purposes (i.e., athletic fields, golf courses, lawns, shade areas)
Identify the seasonality of landscape and nursery jobs
**Written Assessment:**

Administration Time: 1 ½ hours  
Number of Questions: 100

**Areas covered:**

20%  Basic Agriculture Science and Technology  
40%  General Horticulture and Plant Science  
40%  Nursery and Landscape

**Sample Questions**

In agriculture, the market is determined by

A. price and consistency  
B. supply and demand  
C. food and raw products  
D. price and quality

Young leaves showing interveinal chlorosis may be deficient in

A. carbon dioxide  
B. sulfur  
C. phosphorus  
D. iron

Customer complaints offer opportunities for

A. the employee to be disciplined  
B. a business to improve service  
C. the employees to know how poor the products are  
D. the customer to find fault with the employees

The term, soil texture, refers to the

A. individual soil particle grouping  
B. acidity and alkalinity of the soil  
C. moisture holding capacity of the soil  
D. size of the particles that make up the soil

The price of a product is the sum of

A. materials, labor, overhead, and profit  
B. materials, labor, insurance, and profit  
C. labor, taxes, profit, and overhead  
D. labor, insurance, materials, and overhead