

2008-2009 NURSERY AND LANDSCAPING

WRITTEN EXAM

DO NOT WRITE ON ANY EXAM

Select the best answer for each question.

- The average growing seasonal rainfall varies in Ohio from a low of _____ inches to a high of _____ inches.
 - 5, 10
 - 8, 16
 - 18, 26
 - 25, 50
- An insect that skeletonizes leaves is:
 - black vine weevil adult
 - Japanese beetle adult
 - mature bagworm
 - leafminer larvae
- The loss of water as vapor from plant leaves through tiny openings in leaves called stomates is called:
 - transpiration
 - respiration
 - photosynthesis
 - relative humidity loss
- Buds that are located at the tips of stems are called:
 - lateral
 - axillary
 - terminal
 - internodes
- The number of hardiness zones represented in Ohio is:
 - 1
 - 2
 - 3
 - 4
- In the scientific name, *Acer rubrum*, *Acer* represents:
 - genus
 - species
 - family
 - specific epithet
- _____ is a physical property of soil that describes the particle size of the soil minerals (sand, silt, and clay).
 - soil stability
 - soil texture
 - soil structure
 - soil makeup
- Elements in a landscape design such as plants, groups of plants, or parts of the hardscape should be repeated. This design principle is:
 - unity
 - order
 - rhythm
 - balance
- An illustrative scale drawing in which all elements of a landscape design are shown is a:
 - base plan
 - bubble diagram
 - preliminary design
 - master plan
- Wood that has been impregnated with a chemical formulation designed to give wood the ability to resist decay and insects is:
 - cedar
 - redwood
 - pressure-treated lumber
 - construction heart
- When posts are set for decks and fences, the most common and practical method for stabilizing consists of digging the post holes a minimum of _____ inches deep.
 - 12
 - 24
 - 36
 - 48
- The best type of nails to use when building a deck is:
 - iron and steel
 - copper, brass, aluminum, stainless steel, galvanized
 - zinc and cadmium
 - any type is fine- it doesn't matter
- To help alleviate cracking of concrete work, it is best to include expansion joints every _____ to _____ feet.
 - 1 – 2
 - 4 – 6
 - 10 – 12
 - 12 – 14
- To raise the pH of soil, _____ may be added:
 - sulfur
 - any fertilizer
 - lime
 - organic matter

15. Soils that drain poorly, especially in winter, cause the death of many perennials due to _____.
- crown rot
 - powdery mildew
 - mold
 - verticillium wilt
16. Plants such as delphiniums that have large heavy stems should be staked using the _____ method.
- single stakes
 - stake-and-twine
 - metal rings
 - pea-staking
17. A general rule of thumb to follow when dividing plants is to divide in the _____ season.
- spring
 - summer
 - fall
 - non-growing
18. Roundup® is an example of a _____ herbicide.
- selective
 - non-selective
 - pre-emergent
 - post-emergent
19. Aphids do damage to plants by _____.
- chewing
 - sucking
 - boring
 - mining through center of leaves
20. Plants need about _____ inch(es) of water, from rain or otherwise, per week throughout the establishment year.
- 1
 - 2
 - 3
 - 4
21. In a 50 pound bag of 10 – 20 – 10 fertilizer, there are _____ pounds of Phosphorus.
- 5
 - 10
 - 20
 - can't be determined from this information
22. The best time to fertilize is:
- spring between April and May
 - mid-summer between late June and early August
 - autumn between October and December
 - any time is fine
23. An example of a broadleaf weed is:
- crabgrass
 - quackgrass
 - foxtail
 - clover
24. A disease that is a problem in shaded areas of the lawn, is common on bluegrass and fescues, and exhibits fine, gray-white growth mainly on the upper surface of a grass leaf blade is:
- leaf spot
 - dollar spot
 - striped smut
 - powdery mildew
25. A pest that consumes flower bulbs, fruits, seeds and seedlings and causes structural damage by burrowing under patios, stairs, retention walls, or foundations is:
- chipmunk
 - tree squirrel
 - vole
 - skunk
- True or False (mark A for True and B for False for questions #26 – #50)**
26. The average length of the freeze-free period (number of growing season days) is the same for all areas in Ohio.
27. Soil that is light in color has a higher organic matter content than a soil that is dark in color.
28. Soil surface area determines the amount of nutrients that can be held in the soil.
29. Nitrogen is a macronutrient.
30. Plant analysis is not a good substitute for soil testing, but rather supplements soil testing by determining whether nutrient deficiencies are occurring.
31. Because roots of plants are in the soil, they do not need oxygen.
32. Xylem tissue transports water and soluble nutrients from the soil up the plant.

33. Ornamental crabapple, cherry, plum, quince and hawthorn are examples of plants that may be propagated by root cuttings.

34. All plants tolerate a pH range of 3.0 – 8.0.

35. To best serve the customer, it is extremely important that you immediately make suggestions or recommendations so that you can make the sale quickly.

36. Screws have better holding power than nails.

37. Because all bricks are exactly the same size, there is never a problem with installation.

38. Curing is one of the most important steps in assuring a good finished concrete project. To help with this, water may be sprinkled on top of the concrete to avoid too-rapid cooling during warm weather.

39. Herbaceous refers to plants with woody stems.

40. When planting container-grown plants, it is important to plant them 2 – 3 inches higher than they were in the containers to allow for settling of the soil.

41. All annuals may be pinched at planting and again later in the season to promote branching and, therefore, more bloom.

42. Perennials have extremely high fertilizer requirements, so it is important to fertilize on a regular schedule.

43. It is important to “dead-head” perennials if you want to dry flowers or save seeds.

44. Tulips are “heavy feeders” and require fertilization as foliage emerges and again after flowering.

45. Most ornamental grasses grow best in full shade.

46. If properly prepared and watered, both B & B and container plants may be planted anytime during the growing season until the ground freezes.

47. Tree staking is a necessity and must be done in all situations to all trees.

48. Even though many customers want an “instant effect” of a mature landscape, it is best to leave space between plants for good air movement to prevent diseases.

49. Pruning stimulates growth rather than causing it to slow down.

50. It is better to water a lawn lightly several times a week than to water heavily (for example: to a depth of 4 – 6”) infrequently.

OHIO CAREER DEVELOPMENT EVENT
NURSERY and LANDSCAPING WRITTEN TEST

2008

PLEASE DO NOT WRITE ON THIS TEST

Select the best answer for each question.

41. Venation is:
- distribution of veins in leaves
 - how veins transport liquids through leaves
 - how veins absorb liquids
 - how oxygen enters veins
42. The loss of water as vapor from plant leaves through tiny openings in leaves is:
- respiration
 - transpiration
 - distillation
 - photosynthesis
43. How does girdling kill trees?
- the epidermis of the tree is damaged
 - the heartwood of the tree is cut and the food can't get from the leaves to the rest of the tree
 - the vascular tissues are cut, disrupting the movement of food from the leaves to the roots
 - the roots receive too much damage during transplanting
44. The correct scientific (Latin) name for red maple is:
- Acer rubra
 - Acer Rubra
 - Acer rubrum
 - Acer Rubrum
45. The physical property of soil that describes the particle size of the soil minerals is:
- soil texture
 - soil moisture content
 - soil structure
 - soil fertility content
46. Knowing the soil organic matter content is important because:
- it tells you how much nitrogen is available in the soil
 - it tells you the cation exchange capacity (CEC) of the soil
 - it is an a key component of healthy soil as it functions as food for the living organisms in the soil which provide substances that are beneficial for plant growth
 - it tells you all of the nutrients that are available for the plant to use
47. As a landscape salesperson dealing with a customer, it is best to offer:
- every choice of plant material for the situation to be sure that he chooses plants he likes
 - only the most expensive plants so you are sure to make a lot of money
 - only one plant so that he doesn't waste valuable time deciding on plant material
 - a few choices along with offering your recommendations, based on your experience
48. A simple rule of thumb to follow when determining the depth of a foundation planting is to develop the bed to be equal to _____ the height of the house.
- 1/4
 - 1/3
 - 1/2
 - 5/8
49. A customer is unhappy with the look of his newly-installed landscape because he feels that the design looks empty. You suggest that he:
- add more shrubs to the design to give him the look that he wants
 - add perennials to the design as this will not only fill in the space, but, also add color
 - add annuals to the design for a few years until the other plant material matures
 - be patient, because with time it will look nice

50. In the layout phase of landscape installation, the first priority is to:
- determine the soil quality by conducting a soil test
 - get a building permit
 - locate all utilities
 - install drainage for the area
51. When posts are set for decks and fences, the most common and practical method for stabilizing consists of digging the post holes a minimum of _____ inches deep.
- 12
 - 24
 - 36
 - 48
52. When installing a brick or stone patio or walkway, be sure to incorporate a _____ % slope away from a building or from a high point to a low point to avoid the problem of standing water once the paving material is installed.
- 1/2
 - 1
 - 2
 - 3
53. A plant that lives for at least three seasons, is winter hardy, and reappears year after year from its crown and root system is a:
- annual
 - biennial
 - perennial
 - bulb
54. Soils that drain poorly, especially in winter, cause the death of many perennials due to:
- lack of hardiness
 - crown rot
 - anthracnose
 - verticillium wilt
55. Plants require the “big three” nutrients. These are:
- nitrogen, phosphorus, calcium
 - nitrogen, phosphorus, carbon
 - nitrogen, potassium, calcium
 - nitrogen, phosphorus, potassium
56. The best method to use to stake floppy, multi-stemmed perennials is:
- pea-staking
 - single stakes
 - stake-and-twine method
 - metal rings and linking stakes
57. A pest that has a sucking mouthpart and does a lot of damage to annuals and perennials is:
- ladybug
 - aphid
 - slug
 - adult black vine weevil
58. When mulching, it is important to keep the mulch _____ inches away from the base of plants so that this vital area remains dry and healthy.
- 1 – 2
 - 2 – 3
 - 3 – 5
 - at least 6
59. How much nitrogen is in a 50 pound bag of fertilizer with a 10 – 10 – 10 analysis?
- 5 pounds
 - 10 pounds
 - 20 pounds
 - you can't tell from this information
60. The best time to fertilize newly-planted trees is:
- spring, between March and April
 - spring/summer, between May and June
 - summer, between July and August
 - fall, between October and December
61. The principal turfgrass used in most of Ohio is:
- perennial ryegrass
 - Kentucky bluegrass
 - fine fescue
 - tall fescue
62. Powdery mildew most often occurs:
- on bentgrass and ryegrass
 - rarely anymore, because most grass varieties are resistant
 - in sunny areas of the lawn
 - in shady areas of the lawn

63. If the destruction of a pest is accompanied by the elimination of the pest's natural enemies, you may have a rapid increase in the pest population. This is known as:
- pest resurgence
 - pest resistance
 - primary pest outbreak
 - secondary pest outbreak
64. Bagworms are difficult to control because:
- they are often unnoticed until they mature
 - there aren't many pesticides on the market that are effective on them
 - the effective pesticides also kill a lot of "wanted" insects
 - unfortunately, the effective pesticides on the market also do a lot of plant damage
65. The pest that does most of its damage by consuming things like flower bulbs and by burrowing under patios, stairs and foundations, is:
- raccoon
 - skunk
 - Eastern chipmunk
 - tree squirrel

	TRUE	FALSE
66. Phloem is the name of the dead cells in a tree trunk.	A	B
67. Pine trees are examples of monecious plants because they have flowers with different plant parts on the same plant.	A	B
68. The scientific (Latin) name of a plant must be either italicized or underlined.	A	B
69. The ideal potting medium for a plant should shrink a lot to be sure that there is a lot of pore space for air.	A	B
70. The most important quality a professional nurseryman should have is a love of plants.	A	B
71. The best type of nails to use when building a deck is aluminum.	A	B
72. When building a deck, roughly 2/3 of the nail should penetrate the surface to which a board is fastened.	A	B
73. Most annuals grow best in a pH range of 4.3 – 5.5.	A	B
74. "Pinching" is the name given to the process of removing spent blooms throughout the summer.	A	B
75. The general rule of thumb to follow when planting bulbs is to till the soil to a depth of 6" because loose soil beneath the bulb is important for good root development.	A	B
76. Tree wrap is most useful to protect the tree trunk from light nicks and scrapes during transport and should be left on the tree after planting to continue to protect it.	A	B

	TRUE	FALSE
77. When establishing a lawn, quackgrass may need several applications of herbicide in conjunction with tilling to kill the rhizomes.	A	B
78. The best time to seed a lawn in Ohio is in the fall.	A	B
79. Selection of the best mowing height for a lawn depends on knowing the type of grass that makes up the lawn.	A	B
80. Selective herbicides control all types of weeds at once.	A	B
81. An adjuvant, such as a spreader-sticker, may be added to the spray tank to make the chemical stick to the plant better.	A	B
82. The three parts that make up the disease triangle are the host, disease and control.	A	B
83. IPM stands for Immediate Pest Management.	A	B
84. Japanese maples grow best in full exposure in sunny areas.	A	B
85. Birds (in particular, Canadian geese) can be a problem in the landscape. It is legal to shoot these birds if they are a nuisance.	A	B
86. The best method to control deer problems in the landscape is exclusion.	A	B
87. In many ways, moles are beneficial to the landscape.	A	B
88. When using a riding mower on a steep hillside, you should mow side to side.	A	B
89. Back injuries are among the most commonly reported problems in the landscape industry.	A	B
90. If you get a blister while landscaping, be sure to break it before washing and bandaging it so that it will heal faster.	A	B

OHIO CAREER DEVELOPMENT EVENT
NURSERY and LANDSCAPING WRITTEN TEST

2007

PLEASE DO NOT WRITE ON THIS TEST

Select the best answer for each question.

41. Adding lime to the soil affects the soil by:
- A. lowering the pH
 - B. supplying calcium and magnesium
 - C. increasing harmful concentrations of some macronutrients
 - D. decreasing favorable microbial activity
42. The average length of the freeze-free period in Ohio:
- A. ranges from 200 days along the Lake Erie shore to 140 days in east central Ohio
 - B. ranges from 200 days near Cleveland to 140 days near Cincinnati
 - C. ranges from 200 days in western Ohio to 140 days in eastern Ohio
 - D. is the same across Ohio
43. One cubic yard equals:
- A. 9 cubic feet
 - B. 15 cubic feet
 - C. 21 cubic feet
 - D. 27 cubic feet
44. Normally, soil consists of:
- A. 25% pore space
 - B. 40% pore space
 - C. 50% pore space
 - D. 75% pore space
45. A thick fleshy stem whose “eyes” are really modified lateral buds is called a:
- A. bulb
 - B. corm
 - C. rhizome
 - D. tuber
46. Plants that are clones of their parents are produced by:
- A. sexual propagation
 - B. asexual propagation
 - C. sexual or asexual propagation
 - D. seeds
47. The retail market typically desires a tree with a:
- A. 1” to 1 ½” caliper
 - B. 2” to 2 ½” caliper
 - C. 3” to 3 ½” caliper
 - D. 4” to 4 ½” caliper

48. "ANLA" stands for:
- A. American-National Landscape Architects
 - B. American-National Landscapers Association
 - C. American Nursery and Landscape Association
 - D. Association of Nursery-Landscapers of America
49. Pythium is:
- A. a fungicide
 - B. a fungus that causes root rot
 - C. an insect
 - D. a shrub
50. Two plants that are particularly sensitive to leafminers are:
- A. chrysanthemum and columbine
 - B. holly and columbine
 - C. chrysanthemum and geranium
 - D. chrysanthemum and azalea
51. The most common fuel used to heat greenhouses is:
- A. oil
 - B. coal
 - C. propane
 - D. natural gas
52. Intensity refers to the amount of light that falls on an object such as a plant. It is usually measured in:
- A. foot-candles
 - B. BTU's
 - C. light-candles
 - D. light-intensity levels
53. Each zone on the U.S.D.A. Plant Hardiness Zone Map represents a _____ degrees Fahrenheit difference from the preceding zone.
- A. 5
 - B. 10
 - C. 15
 - D. 20
54. Significant damage to nursery plants during winter storage can be caused by:
- A. diseases
 - B. rodents
 - C. deer
 - D. insects
55. Recommended sources of organic matter to include as soil amendments are:
- A. composted leaves and composted yard waste
 - B. composted yard waste and raw wood chips
 - C. raw wood chips and pea gravel
 - D. composted leaves and raw wood chips

56. Researchers in plant nutrition have determined that plants require _____ essential elements.
- A. 14
 - B. 17
 - C. 21
 - D. 23
57. IPM refers to:
- A. Imported Plant Material
 - B. Insect Pest Monitoring
 - C. Integrated Pest Management
 - D. International Plant Material
58. _____ is the most important infectious disease of roses.
- A. cedar rust
 - B. scab
 - C. powdery mildew
 - D. black spot
59. Plants that live two or more years are:
- A. annuals
 - B. biennials
 - C. perennials
 - D. none of the above
60. Herbicides that are applied to the soil surface and prevent weed seed germination are:
- A. preplanting herbicides
 - B. preemergence herbicides
 - C. postemergence herbicides
 - D. nonselective herbicides
61. Usually weeds in liner beds in the nursery can be controlled by mulching to a depth of _____ with wood chips or bark mulches.
- A. 1" to 2"
 - B. 2" – 3"
 - C. 3" – 4"
 - D. 4" – 5"
62. Your most priceless possession in the nursery-landscape industry is:
- A. your plant knowledge
 - B. your personal appearance
 - C. your positive attitude
 - D. your communication skills
63. An example of a flowering plant with a mature height of 20' – 25' is:
- A. American Redbud
 - B. Flowering Dogwood
 - C. Chinese Wisteria
 - D. Thundercloud Flowering Plum

64. Common Lilac does best in:
 A. full sun
 B. full shade
 C. full sun or full shade
 D. part sun or part shade

65. “Stella de Oro” is a popular:
 A. hosta
 B. delphinium
 C. lavender
 D. daylily

	TRUE	FALSE
66. The loss of water as vapor from plant leaves through tiny openings in leaves called stomates is called respiration.	A	B
67. Short-day plants flower when the day-length is less than a certain critical length.	A	B
68. When the Latin name of a plant is used in print, it is capitalized or underlined.	A	B
69. The soil pH is important and will vary with the crop grown.	A	B
70. If a crop is to be harvested B & B, a clay soil provides a firmer media for developing a solid earth ball compared to a sandy soil.	A	B
71. The primary propagation technique for deciduous shrub production is hardwood stem cuttings.	A	B
72. The term potting or “pot up” refers to the initial containerizing of bareroot plants.	A	B
73. It is generally recommended to water late in the day so the plant has all night to absorb water before then sun dries it out.	A	B
74. A ridge-and-furrow greenhouse is more costly to construct than a single greenhouse.	A	B
75. Desiccation injury occurs when water is lost from the plant to the atmosphere faster than it can be replaced through the roots,	A	B
76. Soil structure is a physical property of soil that describes the particle size of the soil minerals.	A	B
77. Nitrogen is the nutrient most often lacking in sufficient quantities in soil.	A	B
78. Most disease-causing organisms thrive under dry conditions.	A	B

79. The disease triangle consists of the host plant, the environment, and the pathogen. A B
80. Bt (*Bacillus thuringiensis*) is an example of a biological control of insects. A B
81. Mulch helps conserve soil moisture and prevent erosion. A B
82. E or EC on a pesticide label represents Emulsifiable Concentrate. A B
83. There are three general types of customers in a garden center: those who know what they want, those who know what they need, and those who know what they want to achieve. A B
84. “Establishing a rapport” with the customer means to ignore the customer until they ask you for something because you don’t want to bother them. A B
85. “*Hemerocallis*” is the genus for daylily. A B
86. Japanese Barberry often is used as a hedge or barrier planting. A B
87. Bagworms often skeletonize birch trees. A B
88. Scale is often thought of as an insect, but, it is actually a disease. A B
89. Multiflora rose plants are new to the nursery market and are very popular with homeowners due to their many flowers. A B
90. Applications for plant patents submitted today will expire 10 years from the date of filing the application. A B

OHIO CAREER DEVELOPMENT EVENT
NURSERY and LANDSCAPING WRITTEN TEST

ANSWER KEY

2007

41. B- pages 8 & 9 Chapter 3, Ohio Agronomy Guide, 14th Edition
42. A- page 1 Chapter 1, Ohio Agronomy Guide, 14th Edition
43. D- page 2 Appendix D, Ohio Agronomy Guide, 14th Edition
44. C- page 10 Chapter 1, Ohio Agronomy Guide, 14th Edition
45. D- page 1 – 10- OCNT Grower Training Manual
46. B- page 3 – 29- OCNT Grower Training Manual
47. A- page 9 – 51- OCNT Grower Training Manual
48. C- page 9 – 52- OCNT Grower Training Manual
49. B- page 12 – 67- OCNT Grower Training Manual
50. A- page 12 – 68- OCNT Grower Training Manual
51. D- page 14 – 75- OCNT Grower Training Manual
52. A- page 14 – 80- OCNT Grower Training Manual
53. B- page 15 – 83- OCNT Grower Training Manual
54. B- page 15 – 87- OCNT Grower Training Manual
55. A- page 16 – 94- OCNT Grower Training Manual
56. B- page 16 – 94- OCNT Grower Training Manual
57. C- page 17 – 105- OCNT Grower Training Manual
58. D- page 17 – 109- OCNT Grower Training Manual
59. C- page 18 – 123- OCNT Grower Training Manual
60. B- page 18 – 124- OCNT Grower Training Manual
61. B- page 18 – 126- OCNT Grower Training Manual
62. C- page 19 – 134- OCNT Grower Training Manual
63. B- page 5 “Landscape Plants for Ohio”
64. A- page 25- “Landscape Plants for Ohio”
65. D- page 22- “Perennial Plants for Ohio”
66. F- page 1 -9- OCNT Grower Training Manual
67. T- page 1 – 15- OCNT Grower Training Manual
68. F- page 2 – 19- OCNT Grower Training Manual
69. T- page 4 – 31- OCNT Grower Training Manual

70. T- page 7 – 43- OCNT Grower Training Manual
71. F- page 8 – 47- OCNT Grower Training Manual
72. T- page 10 – 56- OCNT Grower Training Manual
73. F- page 11 – 62- OCNT Grower Training Manual
74. F- page 14 – 76- OCNT Grower Training Manual
75. T- page 15 – 84- OCNT Grower Training Manual
76. F- page 16 – 93- OCNT Grower Training Manual
77. T- page 16 – 96- OCNT Grower Training Manual
78. F- page 17 – 102- OCNT Grower Training Manual
79. T- page 17 – 103- OCNT Grower Training Manual
80. T- page 17 – 108- OCNT Grower Training Manual
81. T- page 18 – 124- OCNT Grower Training Manual
82. T- page 18 – 128- OCNT Grower Training Manual
83. T- page 20 – 143 & 144- OCNT Grower Training Manual
84. F- page 20 – 144- OCNT Grower Training Manual
85. T- page 22- “Perennial Plants for Ohio”
86. T- page 16- “Landscape Plants for Ohio”
87. F- page 1- “Common Insect Pests and Diseases of Ornamental Trees and Shrubs”
88. F- page 5- “Common Insect Pests and Diseases of Ornamental Trees and Shrubs”
89. F- page 12- “Ohio Plant Pest Law”
90. F- page 2- “Patents and Trademarks on Plants”

OHIO CAREER DEVELOPMENT EVENT

NURSERY and LANDSCAPING LANDSCAPE PRACTICUM

ANSWER KEY

2007

Due to the landscape plan being visibly marked 1/8 scale for architect scale and we requested Engineer scale as in the rules, we used both answers in scoring the scan sheets. The first answer is for Architect scale the second for Engineer Scale, or best answer, both were used in scoring

131. B--D
132. C--D
133. C--C
134. C--D

135. B--B

136. D--D

—