Appendix C

Sample Certification Exam

All of the questions in this exam are multiple choice or true/false. There is only one correct answer for each question. You may use the tables in Appendices A and B during the exam. While the questions are not identical to those on the actual certification exam, both the format and content are the same. **The questions here are intended to be samples of the Manual's content, not a comprehensive collection.**

The actual certification exam consists of 200 multiple choice or true/false questions. You will be given resource materials similar to those in Appendices A and B to use during the exam. You may use a calculator and scratch paper, but no outside reference books or any other materials.

Read each question and the possible answers carefully before selecting an answer. Be thorough, but don't spend too much time on any single question. Each correct answer is worth one (1) point. If you're not sure which answer is correct, try to narrow the possibilities and select the one that seems best to you. You will be better off making an educated guess than leaving an answer blank.

1. Mycorrhizae are:
   A. pathogenic fungi that damage plant roots.
   B. pathogenic bacteria that attack plant roots.
   C. beneficial fungi that form a symbiotic relationship with roots.
   D. beneficial nematodes that attack plant pests in the soil.

2. Organic matter:
   A. is not considered part of the soil.
   B. provides plant nutrients.
   C. improves soil aeration and moisture holding capacity.
   D. both B and C above.

3. Buffalograss:
   A. is well-adapted to dry, sandy sites.
   B. is only propagated from seed.
   C. turns brown when dormant and doesn't green up as early as fescues.
   D. all of the above.

4. Fine-textured soils
   A. normally have high nutrient-holding capacity.
   B. are made up mostly of fine sand particles.
   C. don't compact much because of their high sand content.
   D. both B and C above.

5. Which of the following is a branch defect that should be addressed when performing tree structural pruning?
   A. branch with a branch bark ridge
   B. codominant leaders
   C. branch with a branch collar
   D. branch that is less than half the diameter of the trunk

6. The terms "biotic" and "abiotic" refer to:
   A. plant propagation techniques.
   B. insects and mites.
   C. plant diseases.
   D. seed dormancy.

7. The term "fertilizer grade" refers to:
    A. the concentrations of N, P, K, and S in the mix.
    B. the ratio of N, P, K, and S in the mix.
    C. the quality of the fertilizer.
    D. the amount of nitrogen in the fertilizer.

8. The terms "macronutrients" and "primary plant nutrients" mean different things.
    A. True
    B. False

9. The terms "primocane" and "floricane" refer to:
    A. brambles, such as raspberries and blackberries.
    B. blueberries.
    C. saskatoons.
    D. currants and gooseberries.

10. Canada thistle is :
    A. an annual weed
    B. a biennial weed
    C. a perennial weed

11. Biennial plants :
    A. Sprout, grow, and die in a single season.
    B. Overwinter one time before usually dying.
    C. May overwinter several times.

12. Potassium is a key element in plant water relations.
    A. True
    B. False

13. When planting a tree, pack the soil tightly into the hole with your feet.
    A. True
    B. False

14. Thatch in a lawn:
    A. is primarily caused by leaving clippings.
    B. is aggravated by frequent, short mowing.
    C. is most serious on friable, well aerated soil.
    D. is most serious on acidic soils that limit earthworm activity.

15. When fertilizing a lawn:
    A. it's best to use a drop spreader.
    B. it's best to use a rotary or broadcast spreader.
    C. don't water for several days after fertilizing to prevent burning.
    D. you can apply up to 4 pounds of actual N per 1000 ft^2 at one time.

16. Cultivating with a rototiller may increase weed problems.
    A. True
    B. False

17. Water from a softener system that uses sodium (Na) is excellent for irrigating plants.
    A. True
    B. False

18. When planting a tree that was container-grown:
    A. stand on the backfill to settle the soil
    B. dig the hole at least 6 inches deeper than the root ball
    C. shave-off the outer 1-2 inch periphery of the root ball
    D. remove the lower branches to allow at least 6 feet of clearance

19. What is an essential element?
    A. elements that humans need and that are provided by plants.
    B. all elements that plants take up.
    C. deficient elements that must be supplied by fertilization.
    D. elements that plants need for normal growth and development.

20. Compartmentalization is an important concept in:
    A. greenhouse construction.
    B. pruning.
    C. landscape design.
    D. display selling.

21. Forsythia, hydrangea, and dogwood are useful indicator plants to detect:
    A. high soil pH.
    B. low soil pH.
    C. iron deficiency.
    D. water stress.

22. Green ash and hackberry would be good trees for both a droughty, high pH site and a shady site with heavy, poorly-drained soil.
    A. True
    B. False

23. "Spur pruning" and "cane pruning" are techniques commonly used for:
    A. grapes.
    B. currants and gooseberries.
    C. apples.
    D. peaches.

24. Fruit trees are pruned to:
    A. rejuvenate old trees.
    B. maintain flower bud formation and fruit set.
    C. both A and B.
    D. neither A nor B.

25. Alternate hosts are typically involved in:
    A. stem cankers.
    B. rust diseases.
    C. virus diseases.
    D. yellows diseases.

26. Thinning cuts are used on shrubs to:
    A. maintain apical dominance.
    B. encourage lateral branch development.
    C. form dense, uniform canopies.
    D. encourage new cane development.

27. Twisted leaves are typically caused by:
    A. gall mites.
    B. aphids.
    C. bacterial diseases.
    D. both B and C.

28. A tree is planted at the correct depth when:
    A. the root flair is visible at ground level
    B. the graft union is 1” below ground level
    C. top 1-2” of the root ball are above ground level
    D. none of the above

29. Hybrid plants are always propagated asexually to keep them true to type.
    A. True
    B. False

30. Soil nutrients are lost through:
    A. erosion.
    B. plant uptake.
    C. leaching.
    D. all of the above.

31. Herbaceous perennials are usually divided:
    A. only when dormant in the fall.
    B. immediately after flowering in the early spring.
    C. before flowering in the early spring.
    D. the timing depends upon the type of plant.

32. Pore spaces are important because they:
    A. provide aeration.
    B. provide water drainage.
    C. allow root penetration.
    D. all of the above.

33. Sandy soils are characterized by:
    A. high nutrient-holding capacity.
    B. low water-holding capacity.
    C. both A and B.
    D. neither A nor B.

34. Terms such as "loam", "silty-clay loam" and "sand-silt loam" refer to:
    A. both soil structure and soil texture.
    B. soil structure only.
    C. soil texture only.
    D. none of the above.

35. When used as side dressings in vegetable gardens fertilizers should be:
    A. applied immediately after planting.
    B. applied after the plants are established.
    C. organic only to avoid burning the vegetable plants.
    D. both B and C.

36. The root ball of a houseplant that has become very dry can safely be left soaking in water:
    A. for only 15 or 20 minutes.
    B. no more than 8 hours to prevent drowning the roots.
    C. for about 24 hours to allow all of the roots to fully hydrate.
    D. only if the plant is a succulent, like jade plant.

37. Strawberries can be propagated both by divisions and stolons.
    A. True
    B. False

38. Irrigation can be used to:
    A. leach out excess salts.
    B. apply pesticides.
    C. seal the soil surface when fumigating.
    D. all of the above.

39. Displaying garden books next to a table of houseplants is an example of:
    A. tie-in sales.
    B. display selling.
    C. education and information.
    D. all of the above.

40. Salts can build up on the soil surface when:
    A. water carrying dissolved nutrients evaporates from the surface.
    B. insoluble fertilizers wash out of the soil.
    C. both A and B.
    D. None of the above.

41. Mulches work by:
    A. smothering weeds by excluding oxygen.
    B. crushing down developing weed seedlings.
    C. excluding light from weed seeds.
    D. all of the above.

42. A customer came into your nursery to purchase a hose, but also bought a hose-end fertilizer applicator that was in the same display. The applicator was a:
    A. tie-in sale.
    B. impulse purchase.
    C. both A and B.
    D. neither A nor B.

43. Soil compaction can cause:
    A. physical damage to roots.
    B. reduced water infiltration.
    C. root suffocation.
    D. all of the above.

44. Soil texture can easily be changed by adding lots of compost and manure.
    A. True
    B. False

45. Seed dormancy can be caused by:
    A. a hard, impervious seed coat.
    B. infertile soil.
    C. seed pathogens.
    D. all of the above.

46. Leaf spots can be caused by:
    A. fungi.
    B. bacteria.
    C. insects.
    D. all of the above.

47. All plants can be propagated from cuttings.
    A. True
    B. False

48. Cation exchange capacity is determined by the electrical charges on:
    A. sand particles.
    B. silt particles.
    C. clay particles.
    D. all of the above.

49. Western red cedar bark or sawdust can safely be used as mulches.
    A. True
    B. False

50. A good compost will have a carbon to nitrogen ratio (C:N) of about 12:1.
    A. True
    B. False

51. Containerized and container grown plants are the same thing.
    A. True
    B. False

52. Cool season crops:
    A. include eggplant and celery.
    B. only include broccoli and cabbage.
    C. are very versatile and do well in both cool and hot weather.
    D. none of the above.

53. Patios and decks in a landscape are examples of:
    A. service areas.
    B. public areas.
    C. private areas.
    D. both A and C.

54. Occasional slow, deep waterings are best for newly-planted trees.
    A. True
    B. False

55. "Dead spots" in a retail nursery can be caused by:
   A. closed ended aisles.
   B. narrow aisles with tall plants on both sides.
   C. poor traffic flow.
   D. all of the above.

56. Most insect parasites are:
   A. mites.
   B. lacewings and ladybird beetles.
   C. sawflies.
   D. flies and wasps.

57. Bacillus thuringiensis insecticides:
   A. are not toxic to mammals or birds.
   B. are only effective against caterpillars.
   C. are not subject to resistance buildup by pests.
   D. all of the above.

58. Dormant, bare-root strawberry plants:
   A. can be planted any time during the summer.
   B. can become very dry without being damaged.
   C. should be planted as early as the soil can be worked in spring.
   D. should be containerized for a year before planting in a garden.

Questions 59-62 refer to the following example. A customer has a 30' X 50' turf area and a tree in an adjoining planting bed. Use a 14-7-4 fertilizer. Apply 1 pound of actual nitrogen per 1000 square feet of lawn. The tree is a ten-year old oak with a total branch spread of 12 feet. Apply 3 pounds of actual nitrogen per 1000 square feet of branch spread.

59. How many pounds of actual nitrogen are needed to cover the lawn?
   A. 1
   B. 1.5
   C. 2
   D. 2.5

60. How many pounds of fertilizer must be applied to the lawn.
   A. 7.1
   B. 10.7
   C. 21.4
   D. 37.5

61. How many pounds of fertilizer will be applied to the tree?
   A. 2.4
   B. 8.5
   C. 9.6
   D. 19.3

62. How many pounds of phosphorus (as P_2O_5) will be applied to the tree.
   A. 0.10
   B. 0.14
   C. 0.17
   D. 0.34

63. Shearing or hedging is a kind of:
    A. heading cut.
    B. thinning cut.
    C. renewal cut.
    D. compartmentalization cut.

64. It is legal for a nursery to sell nursery stock that is seriously damaged or mislabeled as long as the customer doesn't object.
    A. True
    B. False

65. The Montana Department of Agriculture will inspect nurseries:
    A. at least once each year.
    B. at lease every two years.
    C. as often as the department considers necessary.
    D. only when phytosanitary certificates are needed.

66. Scarification and stratification are both used to break seed dormancy.
    A. True
    B. False

67. Cation exchange capacity measures the nutrient-holding capacity of soil.
    A. True
    B. False

68. Budding and grafting are used for fruit trees
    A. to maintain true-to-name cultivars.
    B. avoid a non-fruiting juvenile stage.
    C. create trees with several cultivars of fruit on them.
    D. all of the above.

69. The best time(s) for pruning most deciduous trees is:
    A. Late summer/early fall
    B. Early spring prior to bud-break
    C. Early summer following completion of growth.
    D. both B and C

70. Leaf bronzing is most usually associated with:
    A. birch borer.
    B. aphids.
    C. leaf miners.
    D. mites.

71. Gardeners can use seed saved from previous bean crops and still be reasonably sure of the variety being true-to-name.
    A. True
    B. False

72. Line, color, texture and form are all concepts in landscape design.
    A. True
    B. False

73. Clippings contribute to thatch buildup and should be bagged and removed.
    A. True
    B. False

74. Cultural controls, predators, conventional pesticides, and host resistance are all used in:
    A. integrated pest management programs.
    B. natural pest management.
    C. abiotic pest management.
    D. biotic pest management.

75. Insect damage is nearly always easy to distinguish from plant diseases.
    A. True
    B. False

76. A good general rule is to select plants that are at least 1 zone hardier than the site where they'll be planted.
    A. True
    B. False

77. Stoloniferous grasses spread primarily by above-ground stems.
    A. True
    B. False

78. A houseplant that you purchased from a greenhouse a week ago has begun to yellow and a few leaves have dropped off. What is the likely problem?
    A. root rot.
    B. chilling injury from a cool house.
    C. acclimating to new environment.
    D. underwatering.

79. Freezing injury is a biotic plant disorder.
    A. True
    B. False

80. Furrow irrigation results in greater water loss than sprinkling.
    A. True
    B. False

81. Aeration is used primarily too:
    A. reduce thatch buildup.
    B. help offset compaction.
    C. both A and B.
    D. neither A nor B.

82. What is the main reason people typically stop shopping at a retail nursery?
    A. lower prices elsewhere.
    B. discourteous treatment.
    C. untrained salespeople.
    D. prefer one-stop shopping at a chain store nursery department.

83. Which of the following is NOT a strategy for creating a drought-resilient landscape design?
    A. increasing lawn area
    B. drought-tolerant plants
    C. drip irrigation
    D. hydrozones

84. The main problem with growing blueberries in a home garden is:
    A. controlling blueberry maggot.
    B. maintaining bush size and shape.
    C. preventing mummyberry disease.
    D. adjusting the soil acidity.

85. The most widely planted grasses for Idaho and Montana lawns are:
    A. Kentucky bluegrasses
    B. Canada bluegrasses
    C. fescues
    D. perennial ryegrass.

86. Which of the following is NOT a practice prohibited by Montana nursery law?
    A. misrepresenting the variety of nursery stock
    B. selling plants declared to be noxious weeds
    C. falsely representing the state where nursery stock was grown
    D. unknowingly selling infested nursery stock

87. Blends of different kinds of turfgrass seed are used primarily to:
    A. reduce costs, compared to using only expensive bluegrass seed.
    B. improve adaptation to soil conditions.
    C. improve pest resistance.
    D. both B and C.

88. Sudden pest outbreaks are often caused by:
    A. pests moving into yards from adjoining woodlots.
    B. drought-stress in plants.
    C. improper pesticide use destroying natural enemies.
    D. pests developing resistance to pesticides.

89. A plant exhibiting twisted, stunted leaves with bright chlorotic splotches is most likely infected with:
    A. viruses.
    B. bacteria.
    C. fungi.
    D. nematodes.

90. The plant parts which are primarily responsible for water uptake are:
    A. root hairs
    B. tap roots.
    C. fibrous roots.
    D. lateral roots.

91. When planting fruit trees, you should generally:
    A. add lots of compost or peat moss to the planting hole.
    B. add a starter fertilizer to the planting hole.
    C. add little or no amendments to the planting hole.
    D. both A and B.

92. Bedding plants on display shouldn't be fertilized in order to keep them compact.
    A. True
    B. False

93. To properly display hardy, sun-loving perennials in the early spring:
    A. keep them in a cool, sunny location outdoors.
    B. keep them in a cool, shady location outdoors.
    C. keep them in a warm, sunny location outdoors.
    D. keep them inside a greenhouse to force foliage and blooms.

94. The best method for pruning an overgrowth lilac shrub is:
    A. cleaning
    B. candle pruning
    C. renewal pruning
    D. pollarding

95. Transpiration refers to the loss of water from leaves.
    A. True
    B. False

96. The best pest and disease control program is to:
    A. eradicate the pests before planting.
    B. select resistant plant varieties.
    C. scout for problems frequently and take action promptly.
    D. follow pesticide label directions closely.

97. Fairy rings in a lawn:
    A. are caused by viruses.
    B. are easily controlled using fungicides.
    C. are always associated with tree root diseases.
    D. can be masked using water injections and aeration.

98. Berries shouldn't be planted on a site used to grow potatoes or tomatoes because of the potential for
    A. root knot nematodes.
    B. phytophthora root rot.
    C. fusarium wilt.
    D. verticillium wilt.

99. Garden vegetable diseases are best controlled by:
    A. crop rotation.
    B. fungicides and other chemical controls.
    C. planting resistant varieties.
    D. controlling insects and other disease vectors.

100. Healthy, vigorous plants are less susceptible to pests and diseases than stressed plants.
    A. True
    B. False

Answer Key to Sample Certification Exam

1.	C	34.	C	67.	A	100.	A
2.	D	35.	B	68.	D		
3.	C	36.	A	69.	D		
4.	A	37.	A	70.	D		
5.	B	38.	D	71.	A		
6.	C	39.	D	72.	A		
7.	A	40.	A	73.	B		
8.	A	41.	C	74.	A		
9.	A	42.	C	75.	B		
10.	C	43.	D	76.	A		
11.	B	44.	B	77.	A		
12.	A	45.	A	78.	C		
13.	B	46.	D	79.	B		
14.	D	47.	B	80.	A		
15.	B	48.	C	81.	C		
16.	A	49.	A	82.	B		
17.	B	50.	A	83.	A		
18.	C	51.	B	84.	D		
19.	D	52.	D	85.	A		
20.	B	53.	C	86.	D		
21.	D	54.	A	87.	D		
22.	A	55.	D	88.	C		
23.	A	56.	D	89.	A		
24.	C	57.	A	90.	A		
25.	B	58.	C	91.	C		
26.	D	59.	B	92.	B		
27.	C	60.	B	93.	A		
28.	A	61.	A	94.	C		
29.	A	62.	C	95.	A		
30.	D	63.	A	96.	B		
31.	D	64.	B	97.	D		
32.	D	65.	C	98.	D		
33.	B	66.	A	99.	C		