

**2019 Iowa FFA Nursery Landscape CDE Exam**  
**DO NOT WRITE ON THE TEST**

1. Which statement is **false** as related to mowing lawns?
  - a. Kentucky Bluegrass should be mowed to a height of 1.5 inches
  - b. Warm season grasses are typically mowed shorter than cool season grasses.
  - c. Lawns should be mowed frequently, never taking more than  $\frac{1}{3}$  of the top off.
  - d. Mowing the lawn too short encourages weed growth.
  
2. Plant leaves do all of the following **except**?
  - a. Produce food.
  - b. Give off oxygen.
  - c. Produce carbon dioxide.
  - d. Photosynthesize.
  - e. Plant leaves do all of the above
  
3. Which one of these deciduous shrubs is known for its fall color foliage?
  - a. Forsythia
  - b. Winged euonymus
  - c. Shubby cinquefoil
  - d. All flower or produce colorful fruit.
  - e. None are known for their fall color foliage.
  
4. You are working for a nursery and your supervisor tells you to prune a row of plants by cutting off  $\frac{1}{2}$  of each candle. Your supervisor is expecting you to prune which of these plants?
  - a. Acer rubrum
  - b. Arborvitae
  - c. Vinca minor
  - d. Hedera helix
  - e. The supervisor would **not** have given you those instructions as none of these plants have candles.
  
5. Shrubs that bloom on last year's wood are pruned
  - a. immediately after blooming.
  - b. in the fall after frost.
  - c. in the spring just before growth starts.
  - d. in midsummer.
  
6. To raise the pH of the soil and lower soil acidity,
  - a. more nitrogen is added to the soil.
  - b. sulfur is added to the soil.
  - c. a complete fertilizer is added to the soil.
  - d. none of the above.

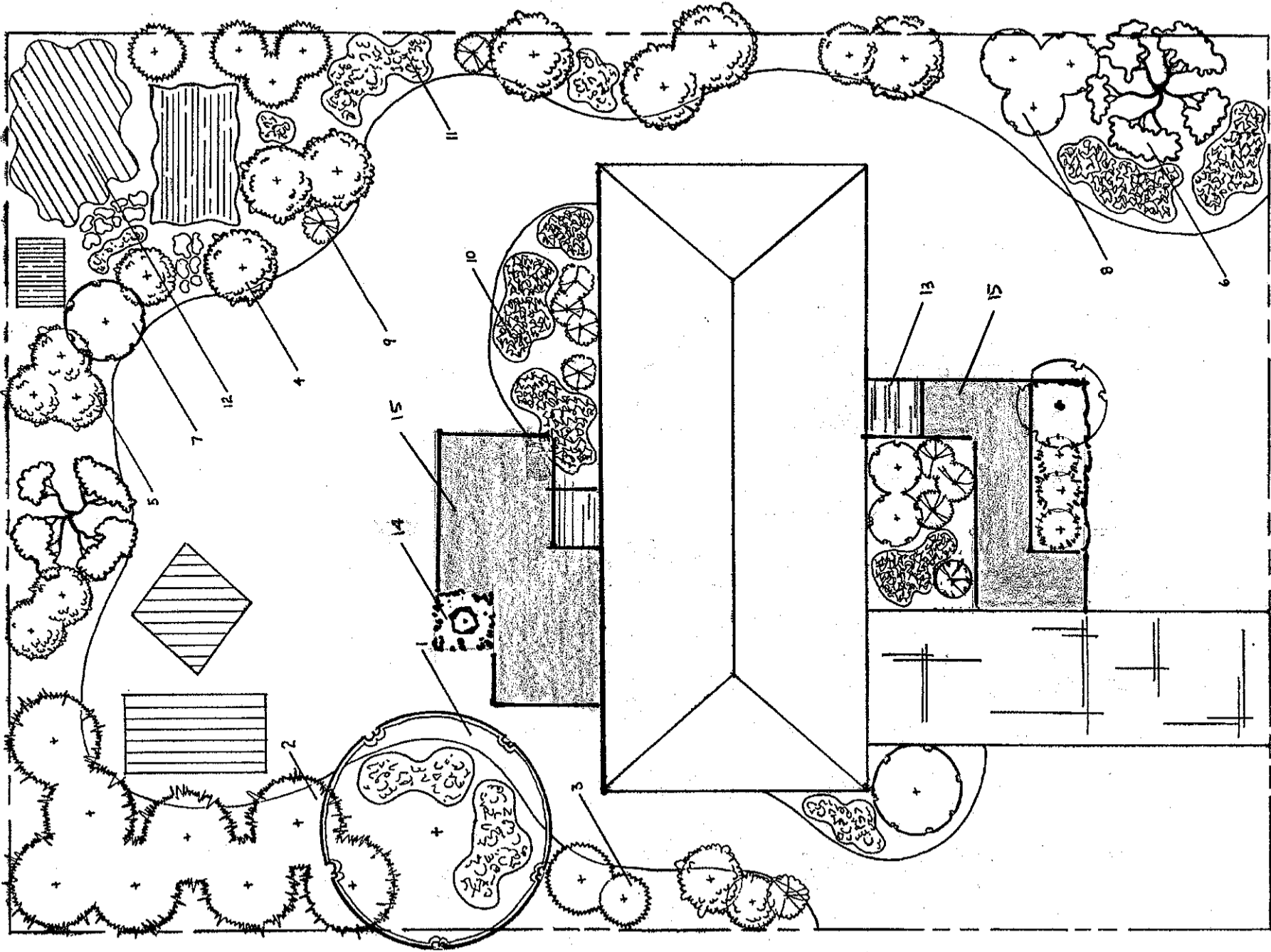
7. Biological control examples include all the ones below **except**
- using fungal endophytes to kill insects
  - ladybugs introduced to attack aphids.
  - using Malathion to control white fly.
  - all are biological control examples.
8. Allelopathy is a natural phenomenon in which
- bright light produces disease symptoms in plants.
  - one plant secretes chemicals that inhibit root growth or seed germination of other seeds.
  - two plants grow better when planted close together.
  - plants grow towards sunlight.
9. Which of these statements are **not** accurate when using Integrated Pest Management (IPM)?
- Apply a chemical treatment on the entire crop at the first sight of a pest problem.
  - Prune out the affected area of the plant.
  - Scout the crop to determine if the cost of treatment will pay for itself.
  - Consider using predator insects or natural insecticides from the Neem tree.
10. There are 16 essential nutrients required for plant growth. They are divided into 4 groups: those that come from the air, major (or macro) elements, secondary nutrients, and minor nutrients (microelements). Which element below is **not** a microelement?
- Manganese
  - Iron
  - Magnesium
  - Copper
11. Horticultural businesses are typically operated as either a sole proprietorship, partnership, or a corporation. If a partnership fails, what is true about the financial liability?
- The personal assets of either or both partners could have to be sold to cover the loss.
  - The majority partner is responsible for the loss.
  - The personal assets of the partners are not used to cover the debt. Only money the partners have in the business can be lost.
  - Usually the government will share 50 % of the loss
12. Receiving, storing, and delivering the merchandise are all part of the
- buying function.
  - distribution function.
  - promoting function.
  - selling function.
13. When establishing the grade and soil condition for starting a new lawn, which of these are **not** true?
- There should be at least 6 inches of topsoil.
  - The soil should be high in clay to hold water and nutrients.
  - Slope should be less than 15 %.
  - Rocks and hard dirt clods should be removed

14. The winter hardiness zone(s) for plants
- Are based on the maximum temperatures that plants can tolerate
  - Are based on the minimum temperatures that plants can tolerate
  - Are represented by letters A to W
  - In Iowa are 7-9
15. Which of these would be considered softscape paving of a landscape design?
- Tile.
  - Brick.
  - Crushed stone.
  - Concrete.
  - All are softscape paving materials.
16. Which of these plants are **not** dicots?
- Kentucky bluegrass.
  - Centipede grass.
  - Red fescue.
  - All are dicots.
  - None are dicots.
17. Nematodes are tiny hair-like worms that
- belong to the insect family.
  - feed on plant roots.
  - attack animals, including humans.
  - all of the above.
18. What plants are best to plant on a green roof?
- White pine
  - Ornamental grasses
  - Sedums
  - Creeping juniper
19. Chronic toxicity from chemicals
- Happens most with the fumigants
  - Happens with chemical with low LD<sub>50</sub> (less than 100) ratings
  - Happens with chemical with high LD<sub>50</sub> (more than 2500) ratings
  - Happens slowly with continued exposure to chemicals
20. A 50-pound bag of 32- 16 - 8 would have
- 32 pounds of nitrogen
  - 16 pounds of nitrogen
  - 8 pounds of nitrogen
  - 16 pounds of potassium

21. As you look for examples of these kind of plants in your landscape (in Iowa), which are you least likely to find in Iowa?
- Deciduous broadleaves
  - Deciduous conifers
  - Evergreen broadleaves
  - Evergreen conifers
22. A plant breeder wants to develop a blue flower for a marigold. Which propagation method would likely have the best results?
- Cuttings
  - Sexual propagation
  - Grafting
  - Budding.
23. Which statement is **not** true related to grafting?
- Budding is one method of grafting.
  - The graft consists of 3 parts: the scion (contains the roots), the graft material (the upper part of the graft), and the union (where the scion and graft material meet)
  - Fruit trees are grafted on to material that keeps them short in height
  - The upper and lower parts of the graft need to be put together such that the cambium layer of both parts match.
24. Xeriscaping is a landscaping process that incorporates
- No water in the landscape.
  - Draining water from the root zones of plants.
  - Water conservation for the future of our environment.
  - All shade loving plants.
25. We get lumber from the trunk of a tree. What material are we actually using?
- Cambium
  - Phloem
  - Xylem
  - Scion

**Key:**

1. A
2. E
3. B
4. E
5. A
6. D
7. C
8. B
9. A
10. C
11. A
12. B
13. B
14. B
15. C
16. E
17. B
18. C
19. D
20. B
21. B
22. B
23. B
24. C
25. C



Landscape Estimation Plan

Scale: 1" = 10'

**2019 Iowa FFA Nursery/Landscape CDE**  
**2019 Landscape Estimation**  
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This residential property was purchased by a young family with two children, ages 4 & 6. They love the idea of a large lawn area for recreation, but the parents are also landscaping enthusiasts and welcome the opportunity to maintain plants. Note: the scale of the drawing is 1" = 10'

**Mark all answers carefully on your scantron sheet.**

1. A line on the drawing that is 4.3 inches long with a designated scale of 1" = 10', then it represents a line \_\_\_\_\_ long in the landscape.
  - a. 45 feet
  - b. 40 feet
  - c. 43 feet
  - d. 45 feet
  
2. Based on the scale given for this plan, an actual measurement of 75 feet equals \_\_\_\_\_ in the design.
  - a. 10 inches
  - b. 7 inches
  - c. 7.5 inches
  - d. 12 inches
  
3. Based on the scale given for this plan, approximately how long is the driveway on the southwestern side of the house?
  - a. 30 feet
  - b. 35 feet
  - c. 10 feet
  - d. 15 feet
  
4. What is the width of the house? (Measure the east side of the roof.)
  - a. 12.8 feet
  - b. 20 feet
  - c. 26 feet
  - d. 36 feet
  
5. Measure the patio on the north side of the house, what is the total area that it covers?
  - a. 250 sq ft
  - b. 197.3 sq ft
  - c. 114 sq ft
  - d. 162.5 sq ft

6. Regarding the patio in question 5, approximately how many stones will you need if you use a stone that measures 16 inches by 16 inches?
  - a. 92 stones
  - b. 75 stones
  - c. 111 stones
  - d. 73 stones
  
7. Your total bill to the homeowner for the purchase and installation of the plant material in this plan was \$17,580. Your profit is 23% of that total. How much money will you make from this job?
  - a. \$5,762.26
  - b. \$10,756.82
  - c. \$4,742.95
  - d. \$4,034.40
  
8. There are 2 flowering trees proposed for this plan—labeled as #6 in the SE corner and an identical tree on the north edge of the property. If they cost \$168 each, plus tax, what is the total cost of the trees with a 8% sales tax?
  - a. \$357.60
  - b. \$362.88
  - c. \$366.24
  - d. \$376.80
  
9. Which of the following would NOT be an appropriate choice for the plant labeled #5 on the north side if the desire is a decorative shrub?
  - a. *Buxus microphylla* cv.
  - b. *Cotoneaster divaricatus*
  - c. *Abies concolor*
  - d. *Forsythia x intermedia* cv.
  
10. You make a profit off the sale of a decorative bench in annual plant bed area labeled #10 on the north side of the house. Your wholesale cost was \$156.50 and you charged the client \$235.00 retail. What was your percent mark-up of the wholesale cost?
  - a. 30%
  - b. 25%
  - c. 40%
  - d. 50%
  
11. The lawn area has a brick moving edge installed around it totaling 380 linear feet. The 4x8 inch bricks will be laid end to end. You always plan to order an extra 10% for cutting waste. How many bricks should you get for the edging in this job?
  - a. 427
  - b. 548
  - c. 600
  - d. 627



12. The pond that is labeled #12 in the northeast corner will need to be filled with a sufficient amount of water to accommodate fish. If the finished size is approximately 14 feet wide by 8 feet long and the water must be 36 inches deep, what volume of water is needed to fill the pond?
- 4032 cubic feet
  - 195 cubic feet
  - 336 cubic feet
  - 3096 cubic feet
13. The planted areas to be mulched around the outside edges of this lawn measure approximately 1450 square feet. You will use shredded bark mulch applied in a layer 2.5 inches thick. How many cubic yards of mulch will you need for this design?
- 302.1 cubic yards
  - 13.4 cubic yards
  - 11.2 cubic yards
  - 337.5 cubic yards
14. If the driveway is poured concrete at a thickness of 6 inches, how many cubic yards of concrete will be needed to complete the driveway?
- 6 cubic yards
  - 150 cubic yards
  - 11 cubic yards
  - 300 cubic yards
15. You will sod the turf area. They total 2300 square feet. The two sources of sod listed below will cut to order the sod amount you want, and they have equivalent shipping charges:
- Company A: sod in rolls = 18 inches by 12 feet long at \$6.50 per roll
- Company B: sod in squares = 24 inches by 36 inches at \$2.30 per square
- Which offers the lower cost for the sod you need?
- Company A
  - Company B
  - Both will cost the same
  - There is not enough information given to compare costs.
16. The five perennial flower beds throughout the property total 150 square feet. Each needs organic matter added. You will provide this by mixing in a 4-inch-deep layer of peat moss. You obtain peat moss in bags that hold 3 cubic feet each. How many bags will you use?
- 15 bags
  - 16 bags
  - 17 bags
  - 18 bags

17. The large tree symbol, labeled #1 on the west side of the property, has a canopy diameter of 17.5 feet. Assuming the canopy is circular, what is the area of the tree canopy (area of a circle  $A = \pi r^2$ )?
- 755.6 square feet
  - 961.6 square feet
  - 215.5 square feet
  - 240.5 square feet
18. You have a total of approximately 250 square feet of annual plants scattered throughout this design. You planned to space the plants 12 inches on center, which require 250 plants. The owners asked you to space the plants 18 inches apart for a less dense look. At the 18 inches on center spacing, you will need \_\_\_\_\_ as many plants. ( $144/x^2 = \text{plants per square foot}$ ,  $x = \text{on center spacing}$ )
- 0.444 times
  - 1.5 times
  - 0.78 times
  - 2.25 times
19. An ornamental shrub that will add a pop of color is the plant of choice for the tree labeled #6 on the southeastern corner of the lot. Which plant below would you choose for this characteristic?
- Abies concolor*
  - Hedera helix cv.*
  - Chaenomeles speciose cv.*
  - Quercus alba*
20. Your preferred nursery course for evergreens offers the following discount on 2-gallon container plants when you buy large quantities:

|                             |                       |
|-----------------------------|-----------------------|
| Number of plants purchased: | 1 – 5 = catalog price |
|                             | 6 – 20 = 12% discount |
|                             | 21+ = 30% discount    |

For the 8 small trees on the northwest corner labeled #2, you buy 2-gallon containers that list at \$62.00 each. What will be your cost after discounts for these plants?

- \$345.76
- \$316.80
- \$436.48
- \$450.00

**2019 Iowa FFA Nursery/Landscape CDE**  
**2019 Landscape Estimation Key**  
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**KEY**

1. (C)  $4.3'' * 10^{1/1} = 43'$
2. (C)  $75' / 10' = 7.5''$  or  $10 * 7.5 = 75$  ft
3. (A) Measure with 10 scale = 30 ft
4. (B) Measure with 10 scale = 20 ft
5. (B)  $(13.75' * 8.125') + (8.175' * 8.75') + (3.75 * 3.75) = 197.3$  sq ft
6. (C) 58 stones;  $16'' * 16'' = 256$  sq in/144 sq in per square foot = 1.78 sq ft per stone,  $197.3/1.78 = 110.84$  stones, round up to 111
7. (D)  $\$17,580 * .23 = \$4,043.40$
8. (B)  $\$174 * 2 = \$336 * 1.07 = \$372.36$
9. (C) *Abies concolor*, the white fir, is a coniferous tree in the pine family Pinaceae.
10. (D) whole \* % = part  $\$235 - \$156.50 = \$78.50$   $\$156.50(x) = \$78.50$   $78.50/156.50 = 50\%$
11. (D)  $380 * 12 = 4560$  in. / 8 = 570 \* 1.1 = 627 bricks
12. (C)  $V = L * W * D = 14' * 8' * 2' = 336$  cubic feet
13. (C)  $2.5'' * 1^{1/12} = 0.25'$  mulch layer  $1450$  sq ft \* 0.25 ft = 302.1 cu ft \* 1 cu yd/27 cu ft = 11.2 cu yd
14. (A) Driveway is 30 ft long by 10 ft wide.  $30' * 10' * .5' = 150$  cu ft \* 1 cu yd/27 cu ft = 5.5 yards, round up to 6 yards
15. (A) Company A:  $18'' * 12' = (18'' * 1^{1/12}) * 12' = 1.5' * 12' = 18$  sq ft/roll @ \$6.50 per roll  
 $\$6.50/18 = \$0.36$  per sq ft  
Company B:  $24'' * 36'' = 2' * 3' = 6$  sq ft/square @ \$2.30/square  $\$2.30/6 = \$0.38$  per sq ft
16. (C)  $4'' * 1^{1/12} = 0.33'$   $150$  sq ft \* 0.33 ft = 50 cu ft/3 cu ft per bag = 16.67 round to 17 bags
17. (D) If  $d = 17.5'$  then  $r = 8.75$   $A = \pi r^2$   $\pi * 8.75^2 = 240.5$  square feet
18. (A) (250 sq ft spaced/plant planned =  $12'' * 12'' = 1' * 1' = 1$  sq ft/plant = 250 plants  
Plant spacing requested = 18 inches on center  $18'' * 18'' = 1.5' * 1.5' = 2.25$  ft/plant  
 $250$  sq ft/2.25 sq ft per plant = 111.1 plants  $111.1/250 = 0.444$  times as many plants
19. (A) *Chaenomeles speciose* cv.; Japanese quince is a red color adding a pop of color.
20. (C)  $\$45 * 8$  shrubs =  $\$360 - 12\% = \$316.80$