1. You are working for a nursery and your supervisor tells you to prune a row of plants by cutting off ½ of each candle. Your supervisor is expecting you to prune which of these plants?
    a. Acer rubrum
    b. Pinus strobus
    c. Vinca minor
    d. Hedera helix
    e. The supervisor would not have given you those instructions as no plants have candles.

2. Plant stems
    a. always grow upright.
    b. manufacture food.
    c. breathe through small pores called lenticels.
    d. none of the above.

3. Which one of these ground covers would not produce flowers?
    a. Pachysandra terminalis
    b. Vinca minor
    c. Ajuga reptans
    d. None flower
    e. All flower

4. A bare root plant is one that must be planted
    a. in the spring.
    b. in the fall of the year.
    c. when it is dormant.
    d. after severe pruning of the top of the plant.

5. Shrubs that bloom on previous season's wood are pruned
    a. immediately after blooming.
    b. in the fall.
    c. in the spring.
    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. *Bacillus thuringiensis* is a biological control agent that will control
    a. aphids.
    b. the Mexican bean beetle.
    c. most caterpillars.
    d. *Verticillium* wilt.

8. Allelopathy is a natural phenomenon in which
    a. bright light produces disease symptoms in plants.
    b. one plant secretes chemicals that inhibit root growth or seed germination of other seeds.
    c. two plants grow better when planted close together.
    d. plants grow towards sunlight.
9. Which of these statements are not accurate when using Integrated Pest Management (IPM)?
    a. Apply a chemical treatment on the entire crop at the first sight of a pest problem.
    b. Prune out the affected area of the plant.
    c. Scout the crop to determine if the cost of treatment will pay for itself.
    d. 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 (microelemnts). Which element below is not a minor element?
    a. Sodium
    b. Iron
    c. Chlorine
    d. Manganese
11. The most common business letter salutation is both cordial and formal. Which of the ones listed below is best?
    a. "Hey John."
    b. "What's up dude?."
    c. "Dear Mr. Smith."
    d. "Dear John."
12. The selection of a product or service to be sold profit is called the
    a. buying function.
    b. distribution function.
    c. promoting function.
    d. selling function.
13. The finished grading around a new home is done so that rainwater will
    a. stay in place and soak into the soil.
    b. gradually drain away from the house.
    c. drain toward the house.
    d. quickly run off the lawn area.
14. Stolonizing is
    a. spreading shredded stolons of grass to establish a lawn.
    b. solling a seedbed to make it firm.
    c. removing stolons from grass to thicken the lawn.
    d. all of the above.
15. A cool season grass that thrives in partial shade is
    a. Bermuda grass.
    b. Kentucky bluegrass.
    c. centipedegrass.
    d. creeping red fescue.

16. The stems of dicots, which have a cambium layer of cells
    a. produce new cells quickly, then cease growing.
    b. continue to produce new cells and grow larger.
    c. are always green.
    d. are cold resistant.
17. Which is not a vegetative method of starting a lawn?
    a. Sprigging
    b. Seeding
    c. Sodding
    d. All are vegetative methods.
18. Many of the broadleaf evergreens should be fertilized with only small amounts of nitrogen fertilizer because
    a. nitrogen tends to dwarf plants.
    b. nitrogen makes the leaves turn yellow.
    c. nitrogen causes the pH to raise and require the application of lime.
    d. nitrogen causes long shoot growth and open, unattractive plants.
19. Nematodes are tiny hair-like worms that
    a. belong to the insect family.
    b. feed on plant roots.
    c. attack animals, including humans.
    d. all of the above.
20. Plants respire
    a. Through their leaves.
    b. Only in poorly drained soils.
    c. 24 hours a day.
    d. Through their roots and stems.
21. As you look for examples of these kind of plants in your landscape, which are you least likely to find in Iowa?
    a. Deciduous broadleafs
    b. Deciduous conifers
    c. Evergreen broadleaves
    d. Evergreen conifers
22. While not commonly done, if you choose to reuse potting soil, you should sterilize it by
    a. running steam through the soil until it reaches a temperature of at least 210 degrees F for 5 minutes.
    b. use dry heat to dry the soil and make sure that the temperature reaches 130 degrees F for 2 hours.
    c. heating the soil to 180 degrees F for 30 minutes.
    d. None of the above.
23. Dwarf fruit trees are usually propagated by using dwarf rootstock and a desirable variety of scion wood. This propagation method is called?
    a. Seed
    b. Division
    c. Stem cutting
    d. Grafting

24. Turf areas in xeriscaping designs should be seeded in
    a. perennial ryegrass.
    b. dicondia.
    c. drought tolerant grasses.
    d. Kentucky bluegrass.
25. What plants are best to plant on a green roof?
    a. White pine
    b. Ornamental grasses
    c. Sedums
    d. Creeping juniper

Question	Answer	Page in Introductory Horticulture 9th edition
1	B	403
2	C	30
3	E	378-380
4	C	371
5	A	401
6	D	52
7	C	175
8	B	181
9	A	171
10	A	48
11	C	674
12	A	656
13	B	435
14	A	442
15	D	447
16	B	31
17	B	441
18	D	343
19	D	210
20	C	29
21	B	CH 27-30
22	C	77
23	D	114
24	C	416
25	C	427

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 3 inches long with a designated scale of 1" = 10', then it represents a line _____ long in the landscape.
   a. 15 feet
   b. 24 feet
   c. 30 feet
   d. 45 feet

2. Based on the scale given for this plan, an actual measurement of 60 feet equals _____ in the design.
   a. 4 inches
   b. 6 inches
   c. 7.5 inches
   d. 12 inches

3. Based on the scale given for this plan, approximately how wide is the sidewalk at the entry of the house on the south side?
   a. 1.5 feet
   b. 2.4 feet
   c. 3 feet
   d. 4.5 feet

4. What is the length of the rear lot line (north edge of the property)?
   a. 52.8 feet
   b. 33 feet
   c. 99 feet
   d. 66 feet

5. If the patio on the north side of the house is approximately 14 feet by 8.5 feet, what is the total area that it covers?
   a. 119 sq ft
   b. 59.5 sq ft
   c. 238 sq ft
   d. 357 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. 201 stones
   b. 134 stones
   c. 67 stones
   d. 34 stones

7. Your total bill to the homeowner for the purchase and installation of the plant material in this plan was $15,628. Your profit is 35% of that total. How much money will you make from this job?
   a. $2,734.90
   b. $5,469.80
   c. $10,158.20
   d. $10,939.60

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 $175 each, plus tax, what is the total cost of the trees with a 7% sales tax?
   a. $350.00
   b. $749.00
   c. $187.25
   d. $374.50

9. Which of the following would NOT be an appropriate choice for the tree labeled #1 on the west side if the desire is a large shade tree?
   a. *Taxus baccata*
   b. *Amelancheir species*
   c. *Gingko biloba*
   d. *Acer fremanii*

10. You make a profit off the sale of a water fountain in annual plant bed area labeled #10 on the north side of the house. Your wholesale cost was $235 and you charged the client $317.25 retail. What was your percent mark-up of the wholesale cost?
    a. 20%
    b. 26%
    c. 35%
    d. 50%

11. The lawn area has a brick moving edge installed around it totaling 260 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. 429
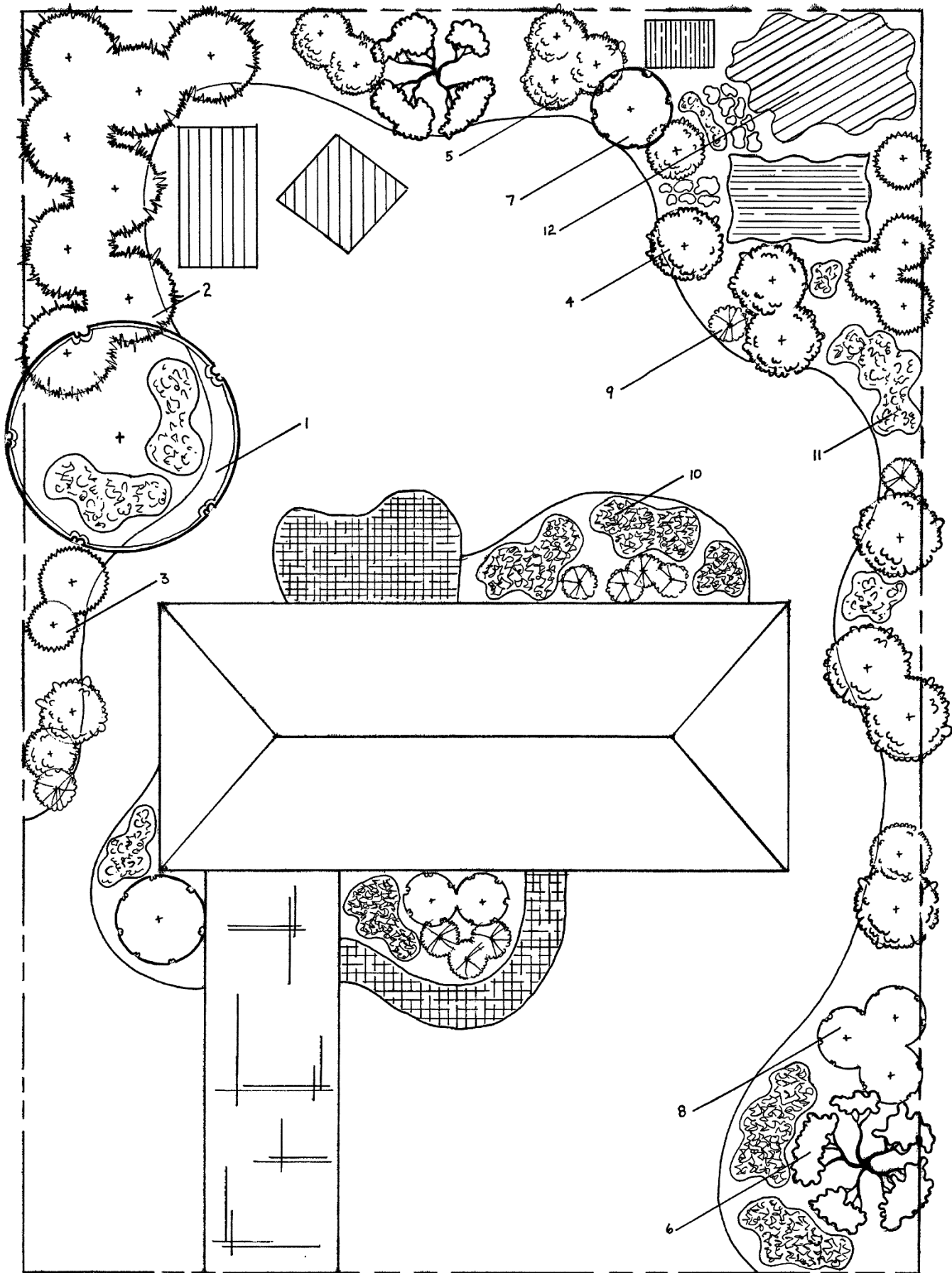   b. 390
    c. 286
    d. 260

12. The prairie wetland that is labeled #12 in the northeast corner will need the native soil removed to accommodate appropriate growing media. If the finished size is approximately 14 feet wide by 10 feet long and the special soil media must be 15 inches deep, what volume of soil needs to be excavated for the wetland?
    a. 2100 cubic feet
    b. 1750 cubic feet
    c. 210 cubic feet
    d. 175 cubic feet

13. The planted areas to be mulched around the outside edges of this lawn measure approximately 1350 square feet. You will use shredded bark mulch applied in a layer 3 inches thick. How many cubic yards of mulch will you need for this design?
    a. 337.5 cubic yards
    b. 1350 cubic yards
    c. 12.5 cubic yards
    d. 25 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?
    a. 4 yards
    b. 6 yards
    c. 13 yards
    d. 50 yards

15. You will sod the turf area. They total 2375 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 $5.10 per roll
    Company B: sod in squares = 24 inches by 36 inches at $1.80 per square
    Which offers the lower cost for the sod you need?
    a. Company A
    b. Company B
    c. Both will cost the same
    d. There is not enough information given to compare costs.

16. The five perennial flower beds throughout the property total 200 square feet. Each needs organic matter added. You will provide this by mixing in a 3-inch-deep layer of peat moss. You obtain peat moss in bags that hold 3 cubic feet each. How many bags will you use?
    a. 9 bags
    b. 17 bags
    c. 23 bags
    d. 34 bags

17. The large tree symbol, labeled #1 on the west side of the property, has a canopy diameter of 17 feet. Assuming the canopy is circular, what is the area of the tree canopy (area of a circle $A = \pi r^2$)?
    a. 907 square feet
    b. 681 square feet
    c. 454 square feet
    d. 227 square feet

18. You have a total of approximately 225 square feet of annual plants scattered throughout this design. You planned to space the plants 12 inches on center, which require 225 plants. The owners asked you to space the plants 9 inches apart for a denser look. At the 9 inches on center spacing, you will need _____ as many plants. ($144/x^2$ = plants per square foot, x = on center spacing)
    a. .56 times
    b. 1.5 times
    c. 1.78 times
    d. 3.56 times

19. A tree that will provide light, filtered shade with its small leaves is the plant choice for the tree labeled #1 on the west side of the lot. Which plant below would you choose for this characteristic?
    a. *Gleditsia tricanthos inermis*
    b. *Ajuga reptans cv.*
    c. *Picea pungeons*
    d. *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 = 10% discount
                                       21+ = 25% discount

    For the 8 small evergreen trees on the northwest corner labeled #2, you buy 2-gallon containers that list at $55.00 each. What will be your cost after discounts for these plants?
    a. $495.00
    b. $440.00
    c. $396.00
    d. $330.00

Scale: 1" = 10   **Landscape Estimation Plan**   **N**

2017 Landscape Estimation

KEY

1. (C) 3" * 10'/1" = 30'

2. (B) 60' /10' = 6" or 10*6 = 60 ft

3. (C) Measure with 10 scale = 3 ft

4. (D) Measure with 10 scale = 66 ft

5. (A) 14 ft x 8.5 ft = 119 sq ft

6. (C) 16" x 16" = 256 sq in/144 sq in per square foot = 1.78 sq ft per stone, 119/1.78 = 66.85 stones, round up to 67

7. (C) $15,628 * .35 = $5,469.80

8. (D) $175 * 2 = $350 + 7% ($24.50 tax) = $374.50

9. (A) Taxus baccata – English Yew is an evergreen tree.

10. (C) whole * % = part $317.25 - $235 = $82.25   235(x) = 82.25   82.25/235 = 35%

11. (A) 260 * 12 = 3120in/8 = 390 + 10% = 390 + 39 = 429 bricks

12. (D) V = L x W x D = 14' * 10' * 1.25' = 175 cubic feet

13. (C) 3" * 1'/12" = 0.25' mulch layer 1350 cu ft * 0.25 ft = 337.5 cu ft * 1 cu yd/27 cu ft = 12.5 cu yd

14. (B) Driveway is 30 ft long by 10 ft wide. 30 x 10 x .5 = 150 cu ft * 1 cu yd/27 cu ft = 5.55 yards, round up to 6 yards

15. (A) Company A: 18" x 12' = (18" * 1'/12") * 12' = 1.5' * 12' = 18 sq ft/roll @ $5.10 per roll
    $5.10/18 = $0.283 per sq ft
    Company B: 24" x 36" = 2' * 3' = 6 sq ft/square @ $1.80/square   1.8/6 = $0.30 per sq ft

16. (B) 3" * 1'/12" = 0.25'   200 sq ft * 0.25 ft = 50 cu ft/3 cu ft per bag = 16.67 round to 17 bags

17. (D) If d = 17' then r = 8.5 $A = \pi r^2$ π x 8.5² = 227 square feet

18. (B) (225 sq ft spaced/plant planned = 12" x 12" = 1' x 1' = 1 sq ft/plant = 225 plants
    Plant spacing requested = 9 inches on center 9" x 9" = .75' x .75' = .5625 ft/plant
    225 sq ft/.5625 sq ft per plant = 400 plants   400/225 = 1.78 times as many plants

19. (A) Honey locust has small leaflets on lower density branches providing filtered shade. Ajuga is not a tree, it's a ground cover. White Oak has large leaves and denser shade. The Spruce is an evergreen tree and would create very dense shade.

20. (C) $55 * 8 shrubs = $440 – 10% = $396.00