2016 Iowa FFA Nursery/Landscape CDE
General Knowledge Exam
June 14, 2016 – Kirkwood Community College

Directions:

All answers will be placed onto the score sheet provided. On the answer, be certain to fill in your name, your chapter, and your contestant number. When answering, fill in the bubbles completely and if you change an answer, be sure to erase completely.

1. Which statement is <u>not</u> true related to grafting?
   a. Budding is one method of grafting.
   b. 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)
   c. Fruit trees are grafted on to material that keeps them short in height.
   d. The upper and lower parts of the graft need to be put together such that the cambium layer of both parts match.

2. Pruning is very beneficial in producing desirable plants in the landscape. Which statement below is correct?
   a. Flowering crabapple trees should be pruned in the late fall or early spring.
   b. When practicing renewal pruning, cut out the oldest branches. Cut them at ground level.
   c. The pruning method called thinning means that you should trim the tips of new growth during mid summer.
   d. The prune cut should be made at 60% angle with the original stem.

3. As a plant breeder, you want to create a new color of flower on marigolds. Which method of propagation would likely provide you the fastest results?
   a. Sexual propagation
   b. Vegetative cuttings
   c. Separation and division
   d. Air layering

4. Which of the following are <u>not</u> considered to be a type of landscape plants?
   a. Deciduous broadleaves
   b. Broadleaf evergreens
   c. Deciduous conifers
   d. Evergreen Conifers
   e. All are types of a landscape plants.

5. Which statement below describes best about preparing and grading the soil around a new house?
    a. Be sure that you have 2 inches of sand at the surface so that that water does not sit on the surface for a long time.
    b. Make sure that the soil has plenty of clay to hold water in case of a drought.
    c. Make a slight grade away from the house so that water does not go to the basement.
    d. All statements are good advice.

6. When watering a newly seeded lawn, you should
    a. Apply 1 inch per day early in the morning until the lawn turns green and then water once per week.
    b. Water lightly as needed to keep the soil moist until the plants are well established. This likely will be at least once per day. Then water once per week if there is no rain. Apply 1 inch when you water.
    c. Apply ¼ to ½ inch of water each day for the 1st week. Then move to watering once per week with 1 inch.
    d. Water lightly as needed to keep the soil moist until the plants are well established. This likely will be at least once per day. Then apply ¼ inch of water per day for the first month. Then you can slow down and water once per week.

7. When cutting sod to establish a new lawn, the sod should be _____ inches thick.
    a. .75
    b. 1.5
    c. 2
    d. 2.5

8. What is the layer of active growth woody stems?
    a. Scion
    b. Xylem
    c. Phloem
    d. Cambium

9. We get lumber from the trunk of a tree. What material are we actually using?
    a. Scion
    b. Xylem
    c. Phloem
    d. Cambium

10. Which statement is false when working with bare root, deciduous broadleaf trees and shrubs?
    a. Transplant when the plant is dormant
    b. Transplant in mid summer
    c. Bare root trees are most commonly used when they are small
    d. One third of the top growth of the bare root plant should be pruned off at planting time.

11. Broadleaf trees can be purchased in three forms. They are
    a. Bare root, root pruned, and containerized
    b. Balled, burlapped, and bare root.
    c. Balled and burlapped, bare root, and containerized
    d. Root pruned, container grown, and root ball

12. Which of the following statements is true?
    a. A complete flower has stamens, a pistil, sepals, and petals.
    b. A stigma, which produces pollen.
    c. A stamen, which contains the egg, which becomes the fruit.
    d. All of the above are true

13. Which statements are true about the relationship between plants and oxygen?
    a. Plants use carbon dioxide to produce oxygen.
    b. All plant cells use oxygen 24/7.
    c. Plants do not produce oxygen at night.
    d. All statements are true.

14. Fertilizers are labeled with a 3 number sequence. Fifty pounds of 28-14-16 would have:
    a. 28 pounds of nitrogen
    b. 7 pounds of phosphorus
    c. 16 pounds of nitrogen
    d. 58 pounds of nutrients

15. An ideal soil for the landscape would be
    a. Sandy and contain 85 % mineral matter, 5 % organic matter, and 10 % pore space
    b. Clayey and contain 60% mineral matter, 7 %organic matter, and 33 % pore space
    c. A loam and contain 45 % mineral matter, 5 % organic matter, and 50 % pore space
    d. Black soil containing 35% organic matter, 50 % mineral matter, and 15 % pore space.

16. Which of the following are not methods of asexual plant propagation?
    a. Tissue culture
    b. Budding
    c. Root cuttings
    d. Bulbs
    e. Seeds

17. If you reuse artificial soils, you should sterilize it before use. The best way to sterilize the soils is to:
    a. Heat the soil to 120 degrees F for two hours.
    b. Heat the soil to 180 % for ½ hour.
    c. Run boiling water through it and then let dry for 2 days.
    d. Water with chemicals that will kill pathogens like insects, diseases, bacteria, and fungus.

18. The main difference between separation and division is that
    a. Separation is a natural method of propagation; in division, plants must be cut apart.
    b. Division is a natural method of propagation; in separation, plants must be cut apart.
    c. Separation is done in the spring of the year; division in the fall
    d. Division is done in the spring of the year; separation in the fall
    e. There is no real difference.

19. Whip and tongue grafts are typically done
    a. On evergreen trees
    b. When the plants are dormant
    c. To help repair the of a plant that has large limbs
    d. In mid summer

20. When using budding, the bud is inserted into the root stock
    a. On the south side of the rootstock 2 inches above the ground
    b. On the north side of the rootstock 2 inches above the ground
    c. On the north side of the rootstock 6 inches above the ground
    d. On the south side of the rootstock 6 inches above the ground

21. Which statement does not describe integrated pest management?
    a. Apply chemicals to the entire area to control pests at the first site of the pathogen.
    b. Continuously scout to determine the severity of the infestation
    c. Consider using cultural control, biological controls, and spot treatments.
    d. Apply chemicals only when the cost of the application can be paid for by the increased value of the crop.

22. Which of the chemicals below is the safest?
    a. Insecticide with an LD_{50} number of 92
    b. A herbicide with a LD_{50} number of 1000
    c. A fungicide with a LD_{50} number of 1250
    d. A rodenticide with an LD_{50} number of 750

23. If you have dandelions and crabgrass growing between the cracks of your sidewalks or in the gravel of your driveway, the best chemical to choose would be?
    a. 2, 4-D
    b. Pre-emergence herbicide
    c. Non-selective herbicide
    d. Selective herbicide

24. A healthy lawn is essential to a pleasing landscape. Which statement below is likely to be beneficial to that goal?
    a. Mow your cool season grass at least once a week at a height of 1 inch
    b. Apply lime to soils testing with a pH of 7.3
    c. Be sure that your lawn receives 1 inch of water per week, either by rain or watering.
    d. All will make your lawn the envy of your neighborhood.

25. A cool season grass that thrives in partial shade is
    a. Creeping red fescue
    b. Bermuda grass
    c. Kentucky bluegrass
    d. Centipede grass

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Answer Key

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

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Landscape Estimation

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 in 1" = 10'

Mark all answers carefully on your scantron sheet.
1. A line on the drawing that is 4 inches long with a designated scale of 1" = 10', then it represents a line _____ long in the landscape.
    a. 20 feet
    b. 40 feet
    c. 60 feet
    d. 80 feet

2. Based on the scale given for this plan, an actual measurement of 65 feet equals _____ in the design.
    a. 3 ½ inches
    b. 5 inches
    c. 6 inches
    d. 6 ½ inches

3. Based on the scale given for this plan, how wide are the stairs down from the deck near the lower center of the design?
    a. 7 ½ feet
    b. 15 feet
    c. 5 feet
    d. 3 ¼ feet

4. What is the length of the rear lot line (north edge of the property)?
    a. 70 feet
    b. 100 feet
    c. 140 feet
    d. 200 feet

5. If the deck has two levels measuring 30 feet by 12 feet and 14 feet by 16 feet, what is the total area that it covers?
    a. 480 feet
    b. 536 feet
    c. 584 feet
    d. 644 feet

6. Instead of a deck, the home owner wants a stone patio of the same square footage. How many stones will you need if you use a stone that measures 16 inches by 16 inches?
   a. 330 stones
   b. 363 stones
   c. 480 stones
   d. 584 stones

7. Your bill to the homeowner for the purchase and installation of the plant material in this plan was $14,124. Your profit is 36% of that total. How much money will you make from this job?
   a. $3,254.17
   b. $3,738.71
   c. $5,084.64
   d. $10,385.29

8. There are 5 ornamental trees proposed for this plan. If they cost $165 each, plus tax, what is the total cost of the trees with a 7% sales tax?
   a. $780.00
   b. $825.00
   c. $834.60
   d. $882.75

9. Which of the following would **NOT** be an appropriate choice for the tree in area C if the desire is a vibrant fall color?
   a. *Taxus baccata*
   b. *Amelancheir species*
   c. *Gingko biloba*
   d. *Acer fremanii*

10. You make a profit off the sale of a bench in area A. Your wholesale cost was $135 and you charged the client $180 retail. What was your percent mark-up?
    a. 20%
    b. 25%
    c. 33%
    d. 50%

11. The lawn area has a brick moving edge installed around it totaling 160 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. 160
    b. 176
    c. 240
    d. 264

12. The water feature in area A will be a small reflection pond. If the finished size is to be 3 feet wide by 7.5 feet long by 18 inches deep, what volume of soil needs to be excavated for the pond?
     a. 21.25 cubic feet
     b. 33.75 cubic feet
     c. 40.5 cubic feet
     d. 48 cubic feet

13. The planted areas to be mulched around the outside edges of this lawn measure approximately 2750 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. 21.5 cubic yards
     b. 23.1 cubic yards
     c. 25.5 cubic yards
     d. 27.5 cubic yards

14. The total amount of flagstone used in this design equals 1950 square feet in surface area. You buy flagstone by the pallet of 500 square feet each. How many pallets do you need to buy?
     a. 3 pallets
     b. 4 pallets
     c. 6 pallets
     d. 11 pallets

15. You will sod the turf area. They total 2650 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 = 15 inches by 10 feet long at $2.10 per roll
    Company B: sod in squares = 36 inches by 36 inches at $1.60 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 three perennial flower beds near the deck measure about 125 square feet. Each needs organic matter added. You will provide this by mixing in a 4-in-deep layer of peat moss. You obtain peat moss in bags that hold 6 cubic feet each. How many bags will you use?
     a. 5 bags
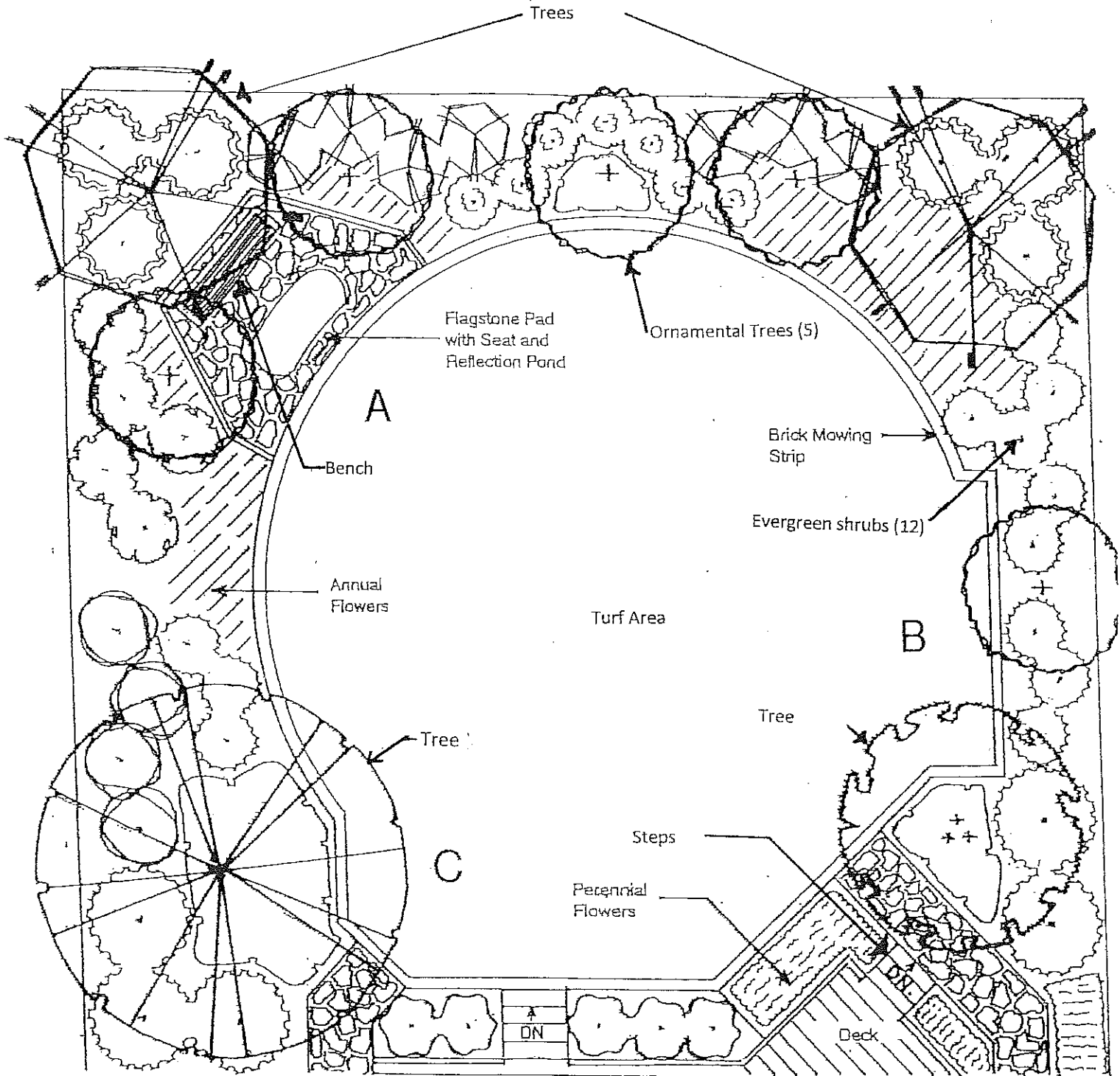   b. 6 bags
     c. 7 bags
     d. 8 bags

17. Tree canopy (shadow) area is sometimes used to calculate fertilizer amounts. The large tree symbol in area B (SE Corner) has a canopy diameter of 18 feet. Assuming the canopy is circular, what is the area of the tree canopy (area of a circle $A = \pi r^2$)?
    a. 254.5 square feet
    b. 508.9 square feet
    c. 1017.9 square feet
    d. 1800 square feet

18. You have a total of approximately 1000 square feet of annual plants scattered throughout this design. You planned to space the plants 12 inches on center, which require 1000 plants. The owners asked you to space the plants 8 inches apart for a denser look. At the 8 inches on center spacing, you will need _____ as many plants. ($144/x^2$ = plants per square foot, x = on center spacing)
    a. 1.5 times
    b. 2.25 times
    c. 3 times
    d. 4 times

19. A tree that will provide light, filtered shade with its small leaves is the plant choice for trees in the NW and NE corners 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 12 small evergreen shrubs on the west side in area C and along the east side of the yard in area B, you buy 2-gallon containers that list at $32.00 each. What will be your cost after discounts for these plants?
    a. $384.00
    b. $324.00
    c. $288.00
    d. $345.60

LANDSCAPE ESTIMATING PLAN #1

Trees

Ornamental Trees (5)

Flagstone Pad
with Seat and
Reflection Pond

A

Bench

Brick Mowing
Strip

Evergreen shrubs (12)

Annual
Flowers

Turf Area

B

Tree

Tree

C

Steps

Perennial
Flowers

DN

Deck

Scale: 1" = 10'

N

2016 Landscape Estimation

KEY

1. (B) 4" * 10'/1" = 40'

2. (D) 65' /10' = 6.5" or 10*6.5 = 65 ft

3. (C) Measure with 10 scale = 5 ft

4. (A) Measure with 10 scale = 140 ft

5. (C) 30 ft x 12 ft = 360 Sq ft 14 ft x 16 ft = 224 Sq ft 360 + 224 = 584 Sq ft

6. (A) 584 Sq ft of deck/patio area 16x16 in stone = 1.77 Sq ft   584/1.77 = 330 stones

7. (C) $14,124 * .36 = $5,084.64

8. (D) $165 * 5 = $825 + 7% (57.75 tax) = $882.75

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

10. (C) whole (%) = part $180 - $135 = $45   135(x) = 45   45/135 = 33%

11. (D) 160 * 12 = 1920in/8 = 240 + 10% = 264 or 264 bricks

12. (B) V = L x W x D = 7.5 * 3' * 1.5' = 33.75 cubic feet

13. (C) 3' * 1'/12" = 0.25' mulch layer 2750 ft2 * 0.25 ft = 687.5 ft3 * 1yd3/27 ft3 = 25.5
    yd3

14. (B) 1950/500 = 3.9 round up to 4 pallets

15. (A) Company A: 15" x 10' = (15" * 1'/12") * 10' = 1.25' * 10' = 12.5 ft2/roll

    $2.10/roll * roll/12.5ft2 = $0.168

    Company B: 36" x 36" = 3' * 3' = 9 ft2/square $1.60/square * square/9 ft2 = $0.177/ft2

16. (C) 4" * 1'/12" = 0.33'   125 ft2 * 0.33 ft = 41.25 ft3 * bag/6 ft3 = 6.87 round to 7 bags

17. (A) If d = 18' then r = 9 $A = \pi r^2$ π x 9^2 = 254.5 square feet

18. (B) (1000sqft0 Spaced/plant planned = 12" x 12" = 1' x 1' = 1 ft2/plant

   Plant spacing requested = 8 inches on center 8" x 8" = 1.5' x 1.5' = 2.25 ft2/plant

   1000 ft2 * plant/2.25 ft2 = 444.44 plants = 2.25 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. (D) $32 * 12 shrubs = $384 − 10% = $345.60