

2013 Iowa FFA Landscape/Nursery CDE

General Knowledge Examination

June, 2013 – Kirkwood Community College

Directions:

All answers will be placed onto the score sheet provided. On the answer sheet, 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 certain to erase fully.

1. Use the textural triangle, below, to **classify a soil** that is 20% clay and 40% silt:

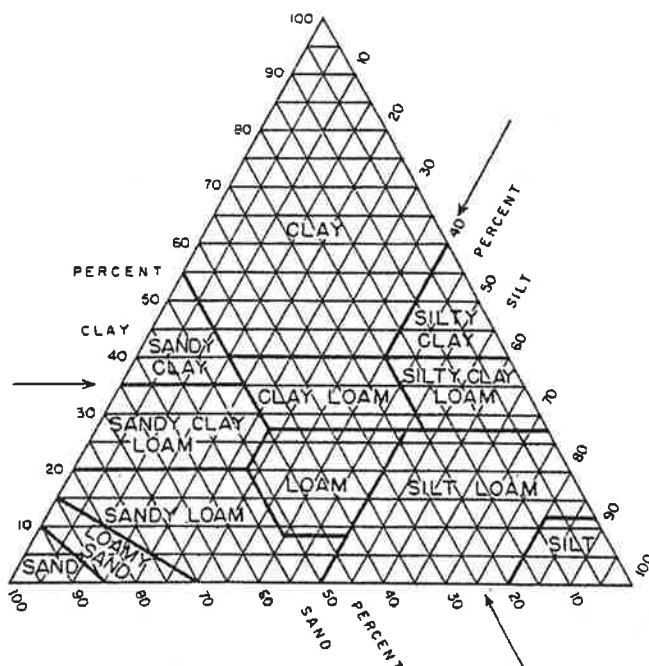


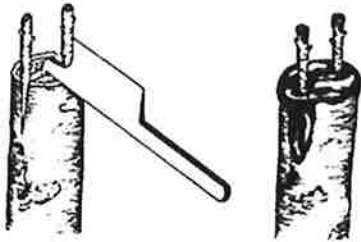
Figure 2-3. THE TEXTURAL CLASSIFICATION TRIANGLE

- A) loam
- B) sandy loam
- C) silt loam
- D) silty clay loam

2. Soil testing can involve many different measurements that provide horticulturalists with the information they need to determine the suitability of a site for the growth/production of ornamental plants. Which of the following measurements would be expressed in the units: **grams/cubic centimeter**

- A) soil texture
- B) bulk density
- C) cation exchange capacity
- D) pH

3. Which **grafting technique** is illustrated in the picture below:



- A) side veneer
- B) whip and tongue
- C) splice
- D) apical wedge or cleft

4. The **2012 USDA Plant Hardiness Zone Map** is the standard by which gardeners and growers can determine which plants are most likely to thrive at a location. According to this new map nearly the entire **state of Iowa** falls into which of the following zones:

- A) zone 6
- B) zone 5
- C) zone 4
- D) zone 3

5. **Multi-stemmed trees**, like a river birch for example, are graded by:
- A) spread
 - B) the caliper (diameter) of the largest stem
 - C) height
 - D) age
6. Which **plant biochemical reaction** is summarized by the reaction shown below:
- Glucose + Oxygen → Carbon Dioxide + Water + Cellular Energy (ATP) + Heat**
- A) respiration
 - B) transpiration
 - C) photosynthesis
 - D) translocation
7. Which of the following plants is considered a **broadleaved evergreen**:
- A) Oak (*Quercus*)
 - B) Spruce (*Picea*)
 - C) *Spiraea*
 - D) Holly (*Ilex*)
8. On warm, sunny days plants **lose** considerable amounts of **water vapor** through small pores on the undersides of their leaves called stomata. This important plant process is called:
- A) respiration
 - B) photosynthesis
 - C) transpiration
 - D) translocation
9. Which of the following **plant structures** consists of a modified stem called a basal plate, modified leaves called scales, and is covered in a dry, papery outer covering called a tunic:
- A) stolon
 - B) bulb
 - C) rhizome
 - D) tuber

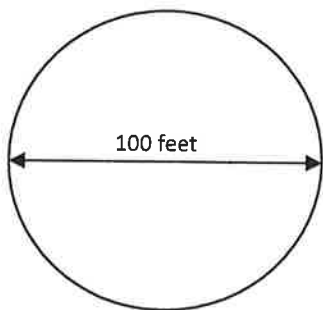
10. The **pruning technique** used to remove old, spent flowers and stimulate additional flowering is called:
- A) deadheading
 - B) heading back
 - C) pinching
 - D) shearing
11. Which of the following is considered an **herbaceous, perennial** plant:
- A) Flossflower (*Ageratum*)
 - B) Hosta (*Hosta*)
 - C) Sweet Alyssum (*Lobularia*)
 - D) White Oak (*Quercus alba*)
12. Trees and shrubs grown in hard, plastic containers can become **root-bound** if:
- A) they are fall planted
 - B) they are left in the same container for too long
 - C) they are not watered sufficiently
 - D) they are grown in a medium that contains too much pine bark
13. A rectangular planting bed measures 10 feet wide by 25 feet long. Use the "Spacing Chart", below, to determine **how many plants** will fit into the bed at an **6 inch spacing**:

Spacing Chart

Inches between plants	Plants needed per		
	1 square foot	100 square feet	1000 square feet
3	16.000	1,600.0	16,000
4	9.000	900.0	9,000
5	5.750	575.0	5,750
6	4.000	400.0	4,000
7	2.930	293.0	2,930
8	2.250	225.0	2,250
9	1.780	178.0	1,780
10	1.440	144.0	1,440

- A) 4 plants
- B) 62.5 plants
- C) 250 plants
- D) 1,000 plants

14. Herbicides that **are translocated** through the plant, either from foliar application down to the roots, or from soil application up to the leaves are called:
- A) systemic herbicides
 - B) pre-emergent herbicides
 - C) contact herbicides
 - D) 2,4-Dichlorophenoxyacetic acid (2,4-D)
15. A fertilizer with an **18-6-12 analysis** contains:
- A) 18% phosphate (source of phosphorous **P**)
6% nitrogen **N**
12% potash (source of potassium **K**)
 - B) 18% potash (source of potassium **K**)
6% phosphate (source of phosphorous **P**)
12% nitrogen **N**
 - C) 18% nitrogen **N**
6% phosphate (source of phosphorous **P**)
12% potash (source of potassium **K**)
 - D) 18% calcium **Ca**
6% iron **Fe**
12% magnesium **Mg**
16. How many **cubic yards** of mulch are required to cover a circular planting bed, with a diameter of **100 ft, 3 inches** deep:



$$\text{Area of a circle} = \pi \times (\text{radius})^2$$

$$\pi = 3.1416$$

$$1 \text{ cubic yard} = 27 \text{ cubic feet}$$

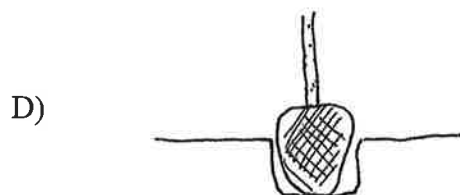
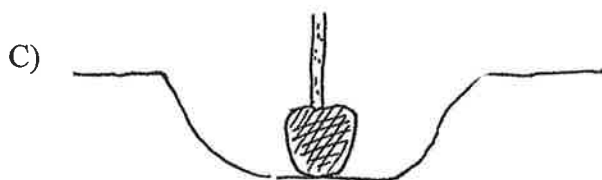
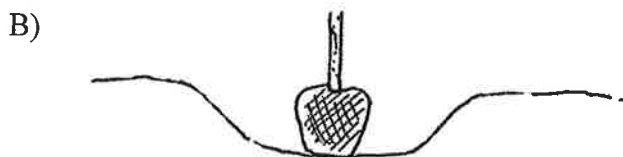
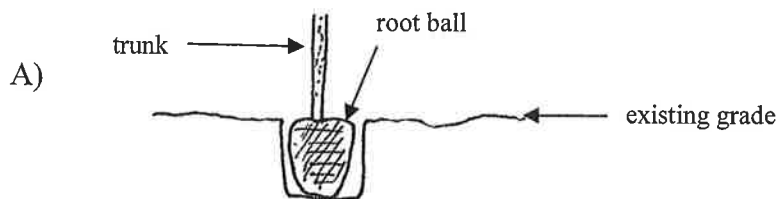
- A. 72.72 cubic yards
- B. 46.54 cubic yards
- C. 290.88 cubic yards
- D. 1,963.5 cubic yards

17. The **main reason** a berm (saucer) is built around a newly planted tree is to:
- A) capture and hold water allowing more time for absorption
 - B) prevent water from reaching the tree
 - C) prevent erosion
 - D) hold mulch in place
18. Most plants **growing in wet, waterlogged soils** will eventually die because their roots cannot absorb enough _____ to maintain _____.
- A) carbohydrates, photosynthesis
 - B) oxygen, respiration
 - C) carbon dioxide, transpiration
 - D) carbon dioxide, respiration
19. Mulches **reduce soil erosion and water runoff** by:
- A) the decomposition of organic matter and subsequent release of nutrients
 - B) reducing the evaporation of water from the soil
 - C) reducing rain drop impact and slowing water flow
 - D) keeping soil surface cooler in the summer and warmer in the winter
20. The **pruning technique** used to create a **formal hedge** is:
- A) thinning
 - B) heading back
 - C) pinching
 - D) shearing
21. Which part of the following scientific name is the **specific epithet**:
- Gleditsia triacanthos inermis* 'Skyline'
- A) 'Skyline'
 - B) *Gleditsia*
 - C) *triacanthos*
 - D) *inermis*

22. Which of the following is a **cultural practice** used to break through surface compaction and improve air and water infiltration in turfgrass:

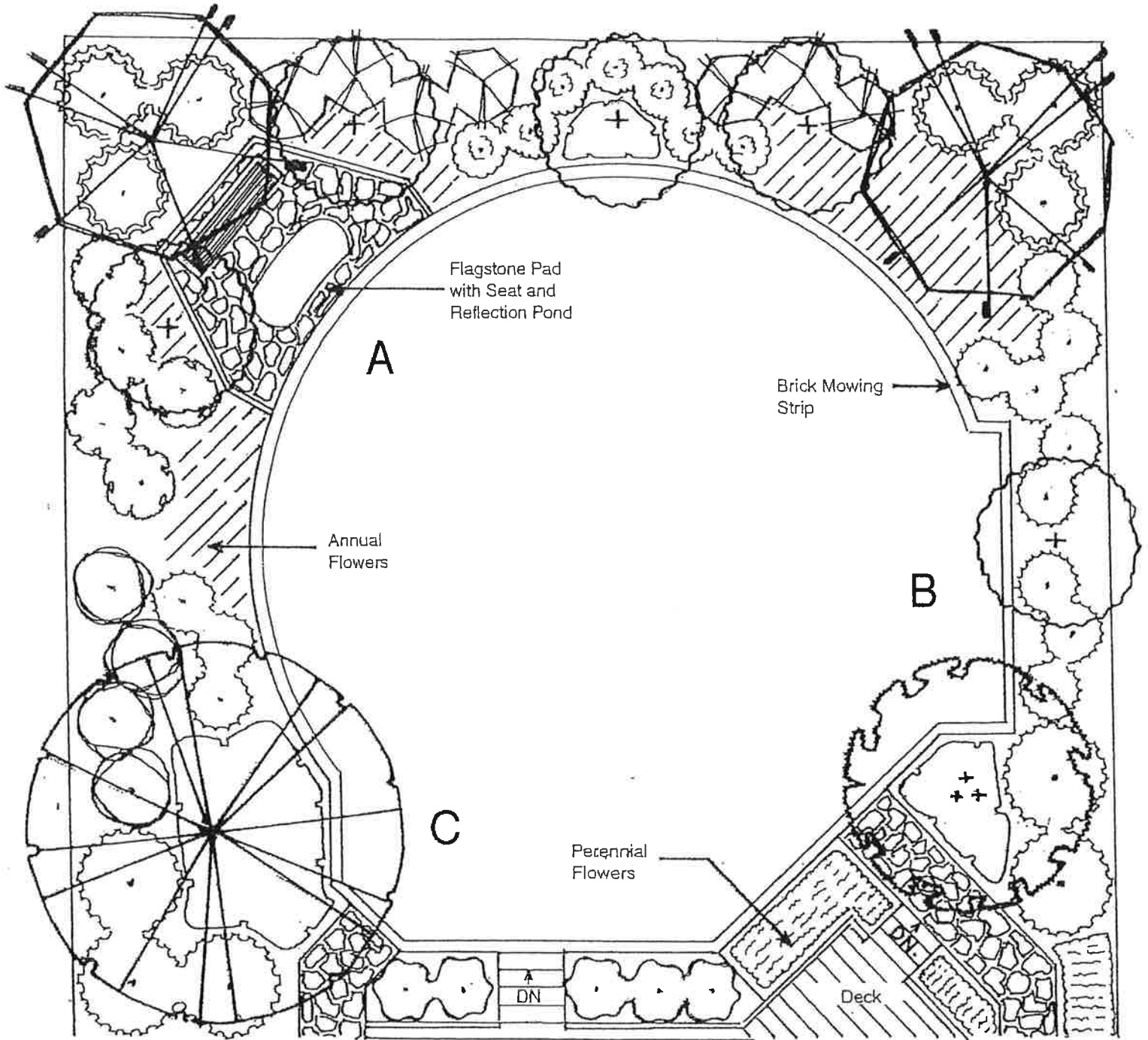
- A) mowing
- B) fertilization
- C) irrigation
- D) aeration
- E) dethatching

23. You desire to plant a tree. Which of the following illustrates **proper planting hole** width, depth, and tree placement:



24. Which of the following is a “**warm-season**” turfgrass:
- A) ryegrass
 - B) fescue
 - C) centipedegrass
 - D) bluegrass
25. **Anti-desiccants** are sprayed on _____ plants in the _____ to prevent _____.
- A) deciduous/spring/frost cracks
 - B) deciduous/fall/sunscald
 - C) evergreen/fall/winterburn
 - D) evergreen/spring/winterburn

LANDSCAPE ESTIMATING PLAN #1



Scale: 1" = 10'



Iowa FFA Association
2013 Nursery/Landscape CDE
Landscape Estimation

This residential property was purchased by a retired couple that enjoys gardening. They love the idea of a large lawn area, but also welcome the opportunity to maintain plants. They see landscaping as an investment in the value of their home.

NOTE: In photocopying, the drawing is slightly compacted (about 1% or 0.1" for every 10"). It is appropriate to round your answer up when choosing your answers for measuring or math problems.

Mark all answers carefully on your scantron sheet.

1. If a line is 8 inches long on a drawing that is designated as having a 1" = 10' scale, then it represents a line _____ long in the landscape.

- A. 64 feet
- B. 80 feet
- C. 160 feet
- D. 200 feet

2. Based on the scale given for this plan, a measurement of 105 feet equals

- A. 12 ½ inches
- B. 6 ¼ inches
- C. 8 ½ inches
- D. 10 ½ inches

3. Based on the scale given for this plan, how wide are the stairs down from the deck near the bottom of the design? *(Use your scale to measure this)*

- A. 57 ½ feet
- B. 9 feet
- C. 15 feet
- D. 4 ½ feet

4. What is the length of the rear lot line (to the north)? *(Use your scale to measure this)*

- A. 73 feet
- B. 112 feet
- C. 120 feet
- D. 140 feet

5. If the deck has two levels measuring 27 feet by 10 feet, and 11 feet by 12 feet. What is the total area it covers?

- A. 37.5 square feet
- B. 600 square feet
- C. 1200 square feet
- D. 402 square feet

2013 Landscape Estimation

6. Instead of a deck, the homeowner wants a stone patio of the same square footage. How many stones will you need if you use a stone that measures 14 inches by 14 inches?

(It's fine to round up)

- A. 1230 stones
- B. 296 stones
- C. 2476 stones
- D. 442 stones

7. Your bill to the homeowner for the purchase and installation of the plant material in this plan was \$13,326. Your profit is 37% of that total. How much money will you make from this job?

- A. \$4,930.62
- B. \$9,500
- C. almost \$15,900
- D. exactly \$3600

8. How many coniferous trees are proposed to be installed in this plan?

- A. 8
- B. 15
- C. 4
- D. none

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. *Liquidambar styraciflua*
- B. *Zelkova serrata*
- C. *Pacysandra terminalis*
- D. *Nyssa sylvatica*

10. You also made money off the sale of the bench in Area A. Your wholesale cost was \$125 and you charged the client \$180 retail. What was your percent mark up?

- A. \$23.00
- B. 13%
- C. \$49.00
- D. 44%

11. The lawn area has a brick mowing edge installed around it totaling 150 linear feet. The 4x8in 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? *(It's fine to round up)*

- A. 647 bricks
- B. 248 bricks
- C. 36 bricks
- D. 140 bricks

2013 Landscape Estimation

12. The water feature in area A will be a small pond. If the finished size is to be 3 ½ feet wide by 8 feet long by 18 inches deep, what volume of soil needs to be excavated for the pond?

- A. 35 cubic feet
- B. 28 cubic feet
- C. 42 cubic feet
- D. 19 cubic feet

13. The planted areas to be mulched around the outside edges of this lawn measure approximately 2500 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. 3.3 cubic yards
- B. 9.5 cubic yards
- C. 23.1 cubic yards
- D. 38 cubic yards

14. The total amount of flagstone used in this design equals 1890 square feet in surface area. You buy flagstone by the pallet of 500 square feet each. How many pallets do you need to buy?

(It's fine to round up)

- A. 23 pallets
- B. 13 pallets
- C. 4 pallets
- D. 225 pallets

15. You will sod the turf area. They total 2750 square feet. The two sources of sod listed below will cut to order the sod type you want, and they have equivalent shipping charges.

Company A: sod in rolls = 15 inches by 12 feet long at \$2.30 per roll

Company B: sod in squares = 36 inches by 36 inches at \$1.50 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 the costs.

16. The three perennial flower beds near the deck measure about 105 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 6 cubic feet each. How many bags will you use? *(It's fine to round up)*

- A. 11 bags
- B. 16 ½ bags
- C. 22 bag
- D. 6 bags

2013 Landscape Estimation

17. The large symbol with the cross hatch marks in the center in Area B indicates:

- A. 3 trees in that spot
- B. 3 perennials under the tree
- C. Mixed planting of different ground covers
- D. A multi-stemmed tree is proposed in this area

18. You have about 1000 square feet of annual plants scattered throughout this design. You planned to space the plants 12 inches on center, which will require 1000 plants. The owners asked you to space the plants 6 inches apart for faster coverage. At the 6-inch spacing you will need _____ as many plants.

- A. Half
- B. Two times
- C. Four times
- D. Eight times

19. Light, filtered shade from a small-leaved tree is the plan for the tree in Area C. Which plant below would you choose for this characteristic?

- A. *Gleditsia tricanthos inermis*
- B. *Ajuga reptans cv.*
- C. *Picea pungens*
- D. *Quercus alba*

20. Your preferred nursery source for evergreens offers the following discount on container plants when you buy large quantities:

Plant Quantities 1 – 5 = catalog price as indicated

Plants 6 – 20 = less 10%

Plants 21 or more = less 25%

For the small evergreen shrubs on the West side in Area C and along the East side of the yard in Area B, if you buy in 3-gallon containers that list at \$12.00 each. What will be your cost after discounts for these plants?

- A. \$160.40
- B. \$395.00
- C. \$432.00
- D. \$129.60