

# 2019 U of MN Winter Invite FFA Floriculture CDE Exam

Multiple Choice: Please bubble in the most correct answer on the exam section of the scantron sheet.

1. What is the proper term to describe the cold treatment, which lasts several weeks and precedes initiation of flower buds?
  - a. Pot cooling
  - b. Vernalization
  - c. Case cooling
  - d. CTF cooling
  
2. Lily bulb production requires \_\_\_\_\_ to \_\_\_\_\_ growth in the field, depending on size and whether scale production is used to plants are started from bulblets (small bulbs formed around the below ground stem above the bulb).
  - a. one, three months
  - b. two, four years
  - c. two, four months
  - d. five, seven years
  
3. Nature provides protection for plants to prevent them from becoming top heavy and unstable. \_\_\_\_\_ is the principle that provides this protection; it describes the hierarchy that has evolved in the plant world that makes certain that a plant's architecture is sound.
  - a. Pinching
  - b. Apical dominance
  - c. Lateral branching
  - d. Tertiary branching
  
4. A \_\_\_\_\_ is an area located in the lower half of the design that ties or visually pulls an arrangement together.
  - a. center of interest
  - b. candelabra design
  - c. conical centerpiece
  - d. calyx
  
5. The cornucopia, or horn of plenty, has been used for centuries as a symbol of \_\_\_\_\_.
  - a. fruitfulness
  - b. abundance
  - c. distinction
  - d. love
  
6. Filler flowers add a finishing touch to an arrangement. The two types of filler flowers used in flower arrangements are \_\_\_\_\_ and \_\_\_\_\_.
  - a. feather, wax
  - b. bunch, feather
  - c. wax, bunch
  - d. none of the above
  
7. The acceleration of flowering by manipulation of environmental conditions is known as:
  - a. Pulsing
  - b. Forcing
  - c. Leaching
  - d. After-ripening

8. A good substitute for sand, this material provides aeration in the root media.
- Peat moss
  - Perlite
  - Vermiculite
  - Rock wool
9. A method of applying pesticides to plants that can be effectively used in greenhouses, but not outdoors is:
- spraying
  - fumigation
  - dusting
  - soil drenching
10. The most important environmental factor regulating flower initiation in bulbous species is:
- Light
  - Temperature
  - Moisture
  - Ventilation
11. \_\_\_\_\_ describes the evaporation of water from the plant leaf.
- Turgidity
  - Precipitation
  - Transportation
  - Transpiration
12. Two main functions of stems are
- to store food and move water up to the flowering parts of the plant
  - movement of water and minerals and support plant parts
  - to manufacture food and store it for future use
  - to furnish food for human beings and other animals
13. Parallel leaf venation, lack of annular rings, and floral parts in multiples of three, are distinguishing characteristics of:
- Gymnosperms
  - Pteridophytes
  - Monocots
  - Dicots
14. The green color of leaves is caused by tiny particles in the food-producing cells called
- guard cells
  - epidermis
  - chloroplasts
  - starch
15. Leaf petiole cuttings can be used to propagate
- marigolds.
  - chrysanthemums.
  - boston ferns.
  - african violets

16. A group of vegetatively propagated plants from a single parent is known as a...
- clone
  - genus.
  - node.
  - sport.
17. Which of the following plant pairs require long night (short day) conditions for flowering?
- Azalea and Rose
  - Carnation and Poinsettia
  - Poinsettia and Chrysanthemum
  - Chrysanthemum and Azalea
18. The use of tints, tones, and shades of the same hue is termed:
- Split complementary
  - Monochromatic harmony
  - Analogous harmony
  - Direct complementary
19. When using spray Chrysanthemums for a corsage, the appropriate wiring technique is called:
- spiral
  - piercing
  - hookwire
  - clutchwire
20. Which flower would be most appropriate for establishing the lines for a symmetrical arrangement?
- Carnation
  - Gladiolus
  - Gardenia
  - Daisy
21. After removing bedding plants from the greenhouse they should be \_\_\_\_\_ before planting outside.
- pruned
  - fertilized
  - hardened off
  - pinched
22. \_\_\_\_\_ is a process of events whereby the seed embryo goes from a dormant state to an active growing state.
- Transpiration
  - Germination
  - Propagation
  - Marginalization
23. A \_\_\_\_\_ is the entire whorl of petals.
- A. receptacle
  - calyx
  - sepal
  - corolla
24. Which of the following is considered to be a *cool color* in a floral design?
- A. yellow
  - red
  - orange
  - green

25. The ability of a plant to withstand colder temperatures is known as \_\_\_\_\_.

- a. toughness
- b. strength
- c. temperate
- d. hardiness

26. A flower containing both stamens and pistils is known as a \_\_\_\_\_ flower.

- a. perfect
- b. incomplete
- c. imperfect
- d. pistilate

27. The showy red, pink, or white portion of the poinsettia are:

- a. Flowers
- b. Bracts
- c. Petals
- d. Sepals

)

28. Which of the following is not a part of the pistil of a flower?

- a. stigma
- b. style
- c. anther
- d. ovary

29. The advantage of single-eye (leaf-bud) cuttings is that:

- a. They produce flowers more quickly.
- b. They grow faster than stem cuttings.
- c. They are less likely to become infected with diseases.
- d. From the same amount of propagation material, they give more plants.

30. In a triangular rose corsage, the smaller rose buds are:

- a. not used
- b. placed near the lower portion of the design
- c. placed near the upper portion of the design
- d. are mixed with more open blooms

31. A greenhouse producer of young seedlings for shipping for finishing by others is referred to as a \_\_\_\_\_ producer.

- A. finisher
- B. seed
- C. plug
- D. knot

32. Percolation is...

- A. preparing coffee for your teacher
- B. downward movement of water in the soil
- C. movement of nutrients in a plant
- D. physical arrangement of soil particles

33. Transports water and nutrients from roots to other parts of the plant...
- A. xylem
  - B. phloem
  - C. pith
  - D. cambium
34. Pot mums in 6-inch pots should average flowering shoots per pot.
- A. 5 to 10
  - B. 20 to 30
  - C. 60 to 80
  - D. 80 to 100
35. There are three basic types of pots that are commonly used in the greenhouse industry. Which of the following is not one of the basic types?
- A. Designer pot
  - B. Standard pot
  - C. Azalea pot
  - D. Bulb pot or pan
36. A process used by growers to produce well branched, compact plants with many flowers is called?
- A. Stunting
  - B. Compacting
  - C. Pinching
  - D. Potting
37. Cut carnations are classified into two groups:
- A. Floral and greenhouse
  - B. Standards and miniatures
  - C. Premium and discount
  - D. None of the above
38. Light energy, carbon dioxide and water enter into the process of photosynthesis, through which:
- A. Respiration results
  - B. Carbohydrates are formed
  - C. Chlorophyll is formed
  - D. Amino acids are formed
39. These insects are identified by the cottony material found on stems and along leaf veins:
- A. Aphids
  - B. Mealybugs
  - C. Spider mites
  - D. Whiteflies
40. Where in a floral arrangement should light-colored flowers be placed?
- A. near the top of the flower arrangement.
  - B. near the center of the flower arrangement.
  - C. towards the bottom of the flower arrangement.
  - D. light-colored flowers should not be used as a rule.

# 2019 Winter U of MN FFA Floriculture CDE Exam Key

1. B
2. B
3. B
4. A
5. B
6. B
7. B
8. B
9. B
10. B
11. D
12. B
13. C
14. C
15. D
16. A
17. C
18. B
19. C
20. B
21. C
22. B
23. D
24. D
25. D
26. A
27. B
28. C
29. D
30. C
31. C
32. B
33. A
34. B
35. A
36. C
37. B
38. B
39. B
40. A

## 2019 University of MN FFA Winter Invitational Floriculture Problem Solving CDE

**Directions:** Select the best answer for each question and mark your selection on the separate scantron sheet provided. *Mark answers in the Assessment and Solutions section located on the bottom left of the scantron.*

### Area / Volume

1. Your agriculture class has a school vegetable garden beside the greenhouse that is 22 feet wide and 50 feet long. Your class plans to plant tomato plants in four rows wide that will be used in a salsa making class. When planting tomatoes, the spacing between the plants should be 24 inches in the length of row. How many plants will you need?

- A. 44                      B. 60                      C. 88                      D. 100

### Pricing

Price per plug	\$0.10
Fertilizer per flat	\$1.30
Soil per flat	\$2.00
Pesticide per flat	\$0.75

2. You are currently serving as the greenhouse manager for your school greenhouse. Your biggest seller in the spring is annual flats which you sell for \$12.00 a flat with 36 plants per flat. Using the chart above, determine how many flats you would need to sell to make \$600 in the first week of your plant sale?

- A. 106 flats              B. 118 flats              C. 124 flats              D. 36 flats

### Irrigation

#### NOZZLE DISCHARGE

Nozzle Pressure lbs./in <sup>2</sup>	Gallons per Minute for a given Nozzle Diameter (Inches)			
	1/16	1/8	3/16	1/4
<b>40</b>	0.74	2.96	6.7	11.7
<b>60</b>	0.90	3.62	8.2	14.5
<b>80</b>	1.05	4.19	9.4	16.8
<b>100</b>	1.17	4.67	10.4	18.7
<b>120</b>	1.23	5.17	11.5	20.4
<b>140</b>	1.28	5.70	12.4	22.1
<b>160</b>	1.32	6.30	13.3	23.6
<b>180</b>	1.36	6.92	14.1	25.0

3. While testing your school greenhouse irrigation system, it is determined that the irrigation system is operating at about 100 lbs. of pressure per nozzle. All of the over bench irrigation heads are 1/16 diameter nozzles. The irrigation is currently set to run for 30 minutes each morning and evening, 4 days a week. How much water does a single irrigation head use in a week?

- A. 236.90 gal.              B. 273.80 gal.              C. 280.80 gal.              D. 295.20 gal

### Media

4. The greenhouse management class is getting ready for the spring plant sale. The class has taken cuttings of Geraniums that will be planted in 6 inch azalea pots, Lantana that will be planted in 4 inch pots. Over a week period, the class will plant 180 Geraniums, and 160 Lantana. Using the chart below, how many cubic yards of media will be needed for these cuttings?

Container Size	# of pots / bushel	# of pots / cubic yards
6 in azalea	20	440
4 in standard	50	1,200
3 in standard	125	2,750
2 ¼ in standard	200	4,500
2 in standard	300	6,500

- A. 0.41 cubic yards      B. 0.54 cubic yards      C. 0.66 cubic yards      D. 0.87 cubic yards

### Chemical

5. Whiteflies have overtaken your classes' poinsettia crop. You are going to use Safari Insect Killer, at the recommended dosage of ¼ teaspoon per gallon of water sprayed over 100 square feet. You currently have 4 benches in your greenhouse dedicated to Poinsettias. Each bench is 5 feet wide and 60 feet long. How much Safari would be needed to treat the area? *Round up to the nearest teaspoon*

- A. 9 tsp      B. 12 tsp      C. 15 tsp      D. 18 tsp

### Fertilizer Dilution of liquid fertilizer at various concentrations

#### Amount Desired

Dilution (ppm)	1 gal	3 Gal	5 Gal
1:100	2 tbs + 2tsp	½ cup	1 cup + 3 tbsp
1:200	4 tsp	¼ cup	½ cup + 2tbsp
1:400	2 tsp	2 tbsp	4 tbsp + 2 ½ tsp
1:800	1 tsp	1 tbsp	3 tbsp + 2 ½ tsp
1:1000	¾ tsp	2 ¼ tsp	1 pt + ¼ cup

6. While your school is closed for spring break, your teacher plans to have the fertilizer injector water and fertilizer the spring bedding plants for the spring plant sale. The fertilizer injector is set up with a dilution ratio of 1:200 ppm. The injector is on continuous feed and applies 3 gallons solution per day over the entire greenhouse. How many tablespoons of water soluble fertilizer would be needed the entire spring break (Saturday-Sunday) (9 total days)? 1 cup = 16 tablespoons

- A. 9 tbsp      B. 16 tbsp      C. 36 tbsp      D. 76 tbsp

### Disorders

7. In examining your house plants you notice yellowing of the green parts of the leaves. It is likely \_\_\_\_\_ caused by a \_\_\_\_\_ deficiency.

- a. Chloroplasts, potassium      c. Hormonal, phosphorus  
 b. Wilting, water      d. Chlorosis, nitrogen

# 2019 University of MN FFA Winter Invitational

## Floriculture Problem Solving CDE Key

1. **Answer: D. 100**

- 24 inches = 2 feet
- 50 feet / 2 feet = 25 plants for one row
- 25 x 4 = 100 plants total

2. **Answer: C. 124 flats**

- $\$0.10 \times 36 = \$3.60$  total cost of plants per flat
- $\$3.60 + \$1.50 + \$1.30 + \$0.75 = \$7.15$
- $\$12.00 - \$7.15 = \$4.85$  per flat profit
- $\$750 / \$4.85 = 123.71$  or 124

3. **Answer: C. 280.8 gallons**

- 1.17 gallons per minute
- Irrigation runs for 60 minutes a day x 4 days a week = 240 minutes
- $240 \times 1.17 = 280.8$  gallons per week

4. **Answer: B. 0.54 cubic yards**

- 180 Geraniums / 440 = 0.41
- 160 Lantana / 1200 = 0.13
- $0.41 + 0.13 = 0.54$  cubic yards

5. **Answer: A. 9 teaspoons**

- $5 \times 60 = 300$  ft<sup>2</sup> per bench
- $300 \times 4 = 1,200$  for all three benches
- $1200 / 100 = 12$
- $12 \times .75$  teaspoon = 9 teaspoons needed

6. **Answer: C. 36 tablespoons**

- $\frac{1}{4}$  cup X 9 days = 2.25 X 16 tbsp/cup = 36 tablespoons

7. **Answer: D. Chlorosis, Nitrogen**

## 2019 Winter Floral Arrangement Questions

**Directions: Select the best answer for each question and mark your selection on the exam 2 portion of the scantron.**

1. In the most basic sense, a \_\_\_\_\_ is an element of design that is repeated to form a decorative design. Designers use this element to create emphasis in the arrangement.
  - a. Line
  - b. Balance
  - c. Pattern
  - d. Size
  
2. In floral design, \_\_\_\_\_ is the visual path that creates the foundation for an arrangement's style and form.
  - a. Pattern
  - b. Shape
  - c. Form
  - d. Line
  
3. A \_\_\_\_\_ is a hue that has been lightened by mixing it with white.
  - a. Tint
  - b. Shade
  - c. Tone
  - d. Chroma
  
4. A \_\_\_\_\_ color scheme consists of one hue that varies in value (from light to dark) or intensity (from intense to dull).
  - a. Analogous
  - b. Monochromatic
  - c. Complementary
  - d. Schemes
  
5. Three colors that are adjacent on the 12-slice color wheel are \_\_\_\_\_. These will only include one primary color. The primary color is usually dominant with the colors filling in and adding interest.
  - a. Analogous
  - b. Monochromatic
  - c. Complementary
  - d. Schemes

6. Together all of the petals on a flower are called a \_\_\_\_\_, which in turn forms a variety of shapes.
- Corolla
  - Calyx
  - Sepal
  - Complete flower
7. \_\_\_\_\_ are usually one-sided, and placed against a wall or in an area where most people will see only one side, such as in front of a church. Each side of this design are the same in length.
- Isosceles Triangle Designs
  - Equilateral Triangle Designs
  - Cone Designs
  - Symmetrical Triangle Designs
8. The \_\_\_\_\_ actually is a three-dimensional vertical design. Usually these designs are formal and generally appear the same on all sides.
- Isosceles Triangle Designs
  - Equilateral Triangle Designs
  - Cone Designs
  - Symmetrical Triangle Designs
9. This type of floral arrangement design is also symmetrical having two sides equal in length, with the third side unequal.
- Isosceles Triangle Designs
  - Equilateral Triangle Designs
  - Cone Designs
  - Symmetrical Triangle Designs
10. \_\_\_\_\_ flowers are named simply for their linear shape. Their shape is generally tall and long with several blossoms, they can be used effectively to create height, width and depth, increasing visual movement.
- Filler
  - Base
  - Line
  - Form

## Floral Questions Key

- |       |                             |                            |                         |        |
|-------|-----------------------------|----------------------------|-------------------------|--------|
| 1. C  | Principles of Floral Design | Goodheart-Wilcox Publisher | pg 147                  |        |
| 2. D  | Principles of Floral Design | Goodheart-Wilcox Publisher | pg 146                  |        |
| 3. A  | Principles of Floral Design | Goodheart-Wilcox Publisher | pg 136                  |        |
| 4. B  | Principles of Floral Design | Goodheart-Wilcox Publisher | pg 139                  |        |
| 5. A  | Principles of Floral Design | Goodheart-Wilcox Publisher | pg 139                  |        |
| 6. A  | Principles of Floral Design | Goodheart-Wilcox Publisher | pg 82                   |        |
| 7. B  | The Art of Floral Design    | Delmar                     | 3 <sup>rd</sup> Edition | pg 250 |
| 8. C  | The Art of Floral Design    | Delmar                     | 3 <sup>rd</sup> Edition | pg 251 |
| 9. A  | The Art of Floral Design    | Delmar                     | 3 <sup>rd</sup> Edition | pg 251 |
| 10. C | The Art of Floral Design    | Delmar                     | 3 <sup>rd</sup> Edition | pg 233 |