



**2016 National FFA Floriculture  
Career Development Event  
General Knowledge Exam**



**Directions:** Select the best answer for each question and mark your selection on the separate scan-tron sheet provided. *Mark answers in the Exam section on the scan-tron located in the bottom right hand corner.*

1. DIF, used for height management of crops, is the difference between the daytime temperature and
  - A) temperature requirement
  - B) morning temperature
  - C) nighttime temperature
  - D) none of the above.
2. In commercial greenhouses, which of the following methods are commonly used as a way to regulate plant growth without using chemicals?
  - A) crop timing
  - B) water stress
  - C) container size
  - D) all of the above
3. *Agrobacterium tumefaciens* is a pathogen that is commonly known as
  - A) crown gall
  - B) flower distortion
  - C) chlorotic mottle
  - D) none of the above
4. The recommended pH level for greenhouse crops in a soilless medium is
  - A) 3.0-3.5
  - B) 5.6-6.2
  - C) 4.0-4.3
  - D) all of the above
5. The virtual visual path that directs eye movement through a composition is\_\_\_\_\_.
  - A) pattern
  - B) line
  - C) form
  - D) none of the above
6. Orange, green and violet are\_\_\_\_\_ colors.
  - A) primary
  - B) secondary
  - C) intermediate
  - D) tertiary

7. The fundamental guidelines to aesthetic design that governs the organization of the elements and materials in accordance with the laws of nature are known the \_\_\_\_\_.
- A) Elements of Design
  - B) Transitions of Design
  - C) Principles of Design
  - D) none of the above
8. Which of the following is NOT a plant hormone that can be used as a plant growth regulator?
- A) ethylene
  - B) anthocyanin
  - C) abscisic acid
  - D) gibberellin
9. A 28 gauge florist wire is \_\_\_\_\_ than 18 gauge florist wire.
- A) thicker
  - B) thinner
  - C) longer
  - D) shorter
10. The LD<sub>50</sub> of a pesticide indicates:
- A) the amount of the pesticide required to kill half of a test population of the test subject
  - B) the time before re-entry into a chemically treated area
  - C) the amount of chemical needed for effective pest control
  - D) none of the above
11. Pesticide toxicity is measured in LD<sub>50</sub> or LC<sub>50</sub> numbers. Which of the following LD<sub>50</sub> numbers for pesticides is the most toxic?
- A) 295 mg/kg
  - B) 1217 mg/kg
  - C) 34 mg/kg
  - D) 4,237 mg/kg
12. The planned area within a floral design, which is devoid of flowers, foliage or other objects, but is still integral to the design is known as \_\_\_\_\_.
- A) the focal area
  - B) positive space
  - C) negative space
  - D) all of the above

13. The placement of materials at different levels within and around a floral arrangement helps to establish \_\_\_\_\_.
- A) pattern  
B) form  
C) depth  
D) balance
14. With mat irrigation, water moves by \_\_\_\_\_ from the mat into the root substrate in the pot to maintain constant moisture.
- A) zero-leaching  
B) capillary action  
C) xeri-action  
D) overhead
15. The cost of the plant materials (i.e. cost of seeds, cuttings, bulbs, or other plant propagules) would be examples of \_\_\_\_\_ costs on a financial planning sheet.
- A) wholesale  
B) overhead  
C) fixed  
D) direct
16. Achromatic, monochromatic, analogous and complementary are a few of the classically recognized \_\_\_\_\_.
- A) hues  
B) color values  
C) color harmonies  
D) none of the above
17. When propagating asexually, roses can be reproduced from \_\_\_\_\_.
- A) vegetative cuttings  
B) budded plants  
C) grafted plants  
D) all of the above.
18. Soil pH is based on the concentration of \_\_\_\_\_ ions in the soil.
- A) calcium  
B) hydrogen  
C) oxygen  
D) sulfur
19. Which of these describes edema in geraniums?
- A) water soaked blisters generally on the underside of the leaf  
B) swelling of the stem of the plant  
C) no visual effects to the foliage of the plant  
D) root disorder causing the demise of the plant

20. Which of the following is NOT a part of the pistil of the plant?  
A) Style  
B) Ovary  
C) stigma  
D) filament
21. The \_\_\_\_\_ phase begins when a plant's seed germinates and grows, producing leaves, stems, and roots.  
A) annual  
B) dormancy  
C) reproductive  
D) vegetative
22. The tiny pores in the epidermis of a leaf through which gas enters and escapes are \_\_\_\_\_.  
A) Cuticle  
B) Petiole  
C) stipule  
D) stomata
23. The process of a plant losing water through the leaves in the form of water vapor is referred to as \_\_\_\_\_.  
A) dehydration  
B) photosynthesis  
C) respiration  
D) transpiration
24. The waxy coating, called the \_\_\_\_\_, serves to prevent excessive water loss from the leaf tissues.  
A) axil  
B) blade  
C) cuticle  
D) vein
25. Lime furnishes \_\_\_\_\_, one of the most important of the macro food elements.  
A) potassium  
B) phosphorus  
C) sulfur  
D) calcium
26. Auxin is responsible for apical dominance in plants. Auxin is produced in three places in the plant located in the  
A) main stem, older leaves, and flowers  
B) flower buds, leaf buds, and fruit  
C) leaf petiole, shoot tips, and main older roots  
D) Shoot tips, young leaf blades, and root tips
27. A complete fertilizer is recommended for a greenhouse crop. Which fertilizer analysis below is NOT a complete fertilizer?  
A) 16-4-8  
B) 10-0-10  
C) 5-10-10  
D) 17-17-17

28. Mass flowers include all of the following except:
- |                   |               |
|-------------------|---------------|
| A) chrysanthemums | C) carnations |
| B) baby's Breath  | D) zinnias    |
29. Two hues directly opposite each other on the color wheel are \_\_\_\_\_ colors.
- |                  |                  |
|------------------|------------------|
| A) diadic        | C) polychromatic |
| B) monochromatic | D) complementary |
30. Broken, implied, and continuous are all part of which element of floral design?
- |          |            |
|----------|------------|
| A) space | C) color   |
| B) line  | D) texture |
31. Light inside a greenhouse is measured in \_\_\_\_\_.
- |                 |                  |
|-----------------|------------------|
| A) solar energy | C) foot candles  |
| B) foot light   | D) solar candles |
32. Poinsettias require a \_\_\_\_\_ to produce colored bracts.
- A) short day photoperiod
  - B) long day photoperiod
  - C) cool day temperature regime
  - D) cool night temperature regime
33. Thrips can be effectively managed in the greenhouse by using:
- A) a biological control such as the predator 'swirski mite'
  - B) a chemical control such as the insecticide spinosad
  - C) screening over vents and other openings
  - D) all of the above
34. An insect \_\_\_\_\_ generally does not kill insects, but instead drives them away before they attack the plant.
- |               |              |
|---------------|--------------|
| A) attractant | C) repellent |
| B) pheromone  | D) sterilant |
35. To help identify plants, flower forms are grouped as to their position or arrangement on a stem. The flower position or arrangement is known as
- |                         |                     |
|-------------------------|---------------------|
| A) flower inflorescence | C) imperfect flower |
| B) perfect flower       | D) flower calyx     |

36. After pollination and fertilization, the flower petals begin to drop and the ovary and other surrounding parts enlarge and develop into a \_\_\_\_\_.
- A) fruit
  - B) leaf
  - C) new flower
  - D) raceme
37. Which of the following diseases does NOT affect the root system of plants?
- A) Botrytis
  - B) Pythium
  - C) Rhizoctonia
  - D) Phytophthora
38. The Environmental Protection Agency establishes toxicity categories for pesticides based on how soon one can reenter the area after it has been treated with the pesticide. Which toxicity level can be reentered immediately after pesticide application?
- A) Toxicity 1
  - B) Toxicity 2
  - C) Toxicity 3
  - D) Toxicity 4
39. In order to preserve foliage in a more natural, pliable state, place stems in:
- A) glycerin
  - B) bleach
  - C) herbicidal soap
  - D) borax
40. Greenhouse glazing is:
- A) material sprayed on the roof of a greenhouse to change light intensity
  - B) the transparent cover of the greenhouse frame
  - C) the amount of solar energy that reaches the plants in a greenhouse
  - D) a measure of heat loss from a greenhouse
41. When water is not applied frequently enough, plants wilt and
- A) photosynthesis is slowed.
  - B) plant growth is slowed.
  - C) cell production is reduced.
  - D) all of the above
42. Plants are divided into C<sub>3</sub> and C<sub>4</sub> groups. C<sub>4</sub> plants are differentiated from C<sub>3</sub> plants by which of the following?
- A) C<sub>4</sub> plants flower in shades of red where as C<sub>3</sub> plants do not
  - B) C<sub>4</sub> plants have a higher relative photosynthesis rate
  - C) C<sub>4</sub> plants are not as efficient at using carbon dioxide
  - D) C<sub>4</sub> plants cannot function as well under high temperature and light conditions

43. A plant that is genetically identical to the parent plant is known as a \_\_\_\_\_.
- A) clone
  - B) seedling
  - C) replica
  - D) hybrid
44. Cross-pollination occurs when pollen grains from the flowers on one plant transfer to the \_\_\_\_\_ of flowers on another plant.
- A) anther
  - B) ovary
  - C) stigma
  - D) style
45. \_\_\_\_\_ is a process of events whereby the seed embryo goes from a dormant state to an actively growing state.
- A) broadcasting
  - B) fertilization
  - C) germination
  - D) pollination
46. Some seeds have a hard seed coat that must be soaked or scratched before the seeds are able to germinate. This process is called \_\_\_\_\_.
- A) drenching
  - B) forcing
  - C) scarification
  - D) stratification
47. The \_\_\_\_\_ is the food storage tissue in the seed that nourishes the plant during germination.
- A) embryonic root
  - B) endosperm
  - C) seed coat
  - D) seed leaf
48. \_\_\_\_\_ is a gray-white soil mix material of volcanic origin that is most commonly used to improve aeration of growing media.
- A) Coir
  - B) Peat moss
  - C) Perlite
  - D) Vermiculite
49. The ability of a plant to withstand colder temperatures is known as \_\_\_\_\_.
- A) cold-sensitive
  - B) heat-tolerant
  - C) hardiness
  - D) morphology
50. \_\_\_\_\_ are plants characterized by one cotyledon in the seedling stage, flower parts in threes or multiples thereof, and parallel leaf venation.
- A) Dicots
  - B) Evergreens
  - C) Monocots
  - D) Perennials

**2016 National FFA Floriculture CDE  
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ANSWER KEY**

Question #	Answer	Reference	Page #	Corresponding Standards
1	C	Ball Red Book	67	ABS.07.01, PS.01.03.01.c, PS03.02.05.a, and PS.01.03.04.c
2	D	Ball Red Book	85	PS.01.03.03.c and PS.03.02.05.a
3	A	Introduction to Floriculture	34	PS.03.03.01.b
4	B	Ball Red Book	34	PS.02.03.02.a
5	B	The AIFD Guide to Floral Design	99	PS.04.01.01.c and PS.04.01.02.c
6	B	The AIFD Guide to Floral Design	106	PS.04.01.02.c
7	C	The AIFD Guide to Floral Design	112	PS.04.01.01.c and PS.04.01.02.c
8	B	Nelson. Greenhouse Operation & Management, 7 <sup>th</sup> ed.	381-383	PS.02.03.0.a
9	B	Scace and DelPrince. Principles of Floral Design	60	PS.04.02.02.a
10	A	Nelson. Greenhouse Operation & Management, 7 <sup>th</sup> ed.	432-433	PS.03.03.04.a
11	C	Introductory Horticulture, 7 <sup>th</sup> edition, Delmar	177	BS.02.04.01.b, CS.03.01.01.c, and CS.03.01.02.c
12	C	The AIFD Guide to Floral Design	129	PS.04.01.01.c and PS.04.01.02.c
13	C	The AIFD Guide to Floral Design	125	PS.04.01.01.c and PS.04.01.02.c
14	B	Greenhouse Operations and Maintenance, 6 <sup>th</sup> edition	283	PS.01.03.03.b
15	D	Nelson. Greenhouse Operation & Management, 7 <sup>th</sup> ed	572-576	CRP.03.02.01.a and CRP.03.02.02.a
16	C	The AIFD Guide to Floral Design	107	PS.04.01.02.c
17	D	Introduction to Floriculture	75-76	PS.03.01.03.c
18	B	Introduction to Horticulture, Revised 4 <sup>th</sup> edition	147	ESS.01.01.01.c, PS.03.02.05.c, and PS.03.02.06.b
19	A	Introduction to Floriculture	472	CRP.07.01.01.c, CRP.07.01.02.b, CRP.08.01.01.c, NRS.01.02.03.b, NRS.04.02.01.b, and PS.03.02.01.b



20	D	Introduction to Horticulture, 3 <sup>rd</sup> Edition	83	PS.02.03.05.c and PS.03.01.01.b
21	D	Introduction to Horticulture; Revised 4 <sup>th</sup> Ed; Interstate	75	PS.01.01.01.c
22	D	Introduction to Horticulture; Revised 4 <sup>th</sup> Ed; Interstate	78	PS.01.02.04.c
23	D	Introduction to Horticulture; Revised 4 <sup>th</sup> Ed; Interstate	81	PS.01.03.02.c
24	C	Introduction to Horticulture; Revised 4 <sup>th</sup> Ed; Interstate	81	PS.01.02.04.c
25	D	Introductory Horticulture, 6 <sup>th</sup> edition	42	PS.01.01.01.c, PS.01.01.02.c, and PS.03.02.05.c
26	D	Ball Red Book, Crop Production, Volume 2	91	PS.02.02.04.c and PS.03.02.05.c
27	B	Introduction to Horticulture, 3 <sup>rd</sup> Edition	139	PS.01.03.01.c, PS.01.03.03.c, and PS.01.03.06.c
28	B	Scace and DelPrince. Principles of Floral Design	144-145	PS.04.02.01.b
29	D	The AIFD Guide to Floral Design	108	PS.04.01.02.c
30	B	The AIFD Guide to Floral Design	99	PS.04.01.02.c
31	C	Introduction to Horticulture, Revised 4 <sup>th</sup> edition	364	PS.02.03.01.a
32	A	Nelson. Greenhouse Operation & Management, 7 <sup>th</sup> ed.	354-355	PS.01.01.01.b
33	D	Nelson. Greenhouse Operation & Management, 7 <sup>th</sup> ed	401-416	PS.03.03.01.c
34	C	Introductory Horticulture; 8 <sup>th</sup> Ed; Delmar	198	PS.03.03.03.c, PS.03.03.01.c, and PS.03.03.02.c
35	A	Introduction to Horticulture, Revised 4 <sup>th</sup> edition	95	PS.01.02.05.c and PS.01.01.01.c
36	A	Introduction to Horticulture; Revised 4 <sup>th</sup> Ed; Interstate	97	PS.01.01.05.c and PS.01.02.06.c
37	A	Ball Red Book, Crop Production, Volume 2	Chapter 10	CS.04.01.02.b, CRP.07.01.01.c, CRP.07.01.01.c, CRP.07.02.02.b, CRP.08.01.01.c, NRS.01.02.03.b, and NRS.04.02.01.b
38	D	Introductory Horticulture, 7 <sup>th</sup> edition, Delmar	180	BS.02.04.01.b, CS.03.01.01.c, CS.03.01.02.c, CS.03.02.01.c, CS.03.02.02.c, CS.03.03.01.b,

				CS.02.02.02.c, and PS.03.03.04.b
39	A	Scace and DelPrince. Principles of Floral Design	441-444	PS.03.05.04.a
40	B	Ball Red Book, Greenhouse & Equipment, Volume 1	35	CS.01.02.01.b, CS.01.02.02.b, CS.02.02.02.c, CS.02.02.03.b, CRP.11.01.01.b, CRP.11.01.02.b, ESS.01.02.02.a, PS.03.02.06.b
41	D	Greenhouse Operations and Maintenance, 6 <sup>th</sup> edition	257	ABS.04.03.02.a, CS.01.01.02.b, CS.02.01.02.c
42	B	Introduction to Horticulture, 3 <sup>rd</sup> Edition	69	PS.01.01.03.c, PS.02.03.01.c, and PS.02.03.02.c
43	A	Introduction to Horticulture, Revised 4 <sup>th</sup> edition	111	PS.01.01.01.c
44	C	Introduction to Horticulture; Revised 4 <sup>th</sup> Ed; Interstate	94	PS.03.01.01.a
45	C	Introduction to Horticulture; Revised 4 <sup>th</sup> Ed; Interstate	98	PS.01.01.01.c and PS.01.02.06.c
46	C	Introductory Horticulture; 8 <sup>th</sup> Ed; Delmar	76	PS.01.02.06.c
47	B	Introductory Horticulture; 8 <sup>th</sup> Ed; Delmar	76	PS.01.02.06.c
48	C	Introductory Horticulture; 8 <sup>th</sup> Ed; Delmar	78	PS.02.02.01.b and PS.02.02.02.b
49	C	Introduction to Horticulture; Revised 4 <sup>th</sup> Ed; Interstate	73	PS.01.02.03.c
50	C	Introduction to Horticulture; Revised 4 <sup>th</sup> Ed; Interstate	73	PS.01.01.01.c