

GENERAL KNOWLEDGE EXAM

ANSWER SHEET

- 1) The optimum range for most crops growing in a soilless medium is ____ - ____, because in this range micronutrients are _____ enough to satisfy plant needs without becoming so _____ as to be toxic)
 - a) 7.35, 7.45, soluble, soluble
 - b) **5.8, 6.4, soluble, soluble**
 - c) 5.14, 5.75, insoluble, insoluble
 - d) 7.35, 7.45, insoluble, soluble
- 2) High humidity in the greenhouse causes plugs to _____ and be soft due to lack of _____ uptake.
 - a) stretch, oxygen
 - b) shrink, nitrogen
 - c) shrink, calcium
 - d) **stretch, calcium**
- 3) _____ can become a problem when plugs are older and the plant canopy is tight.
 - a) **Botrytis**
 - b) Lobularia
 - c) Vinca
 - d) Celosia
- 4) Snapdragons can be stored for three to four days, dry or in water, at 40°F (4°C).
 - a) **True**
 - b) False

- Page 2 of 11

- 10) Azaleas are vegetatively propagated from stem or tip cuttings harvested from actively growing plants. While rooting is relatively easy, growing a “florist” azalea takes as long as ____ to _____.

a) 12, 24 months
c) **2, 3 years**

b) 2, 3 months
d) 1, 2 years
- 11) The goal of propagation is to reproduce a selected plant type, such as a plant species, subspecies, variety, or cultivar. A plant species is defined as having naturally occurring, generic set of characteristics and is united with other closely related species by color, flowering time, and so on.

a) True

b) **False**
- 12) Exacum affine is an example of a species that is commercially cultivated)

a) **True**

b) False
- 13) Geophytes include any species that form modified plant _____ for _____ storage including bulbs, corms, tubers, tuberous roots, rhizomes, and pseudobulbs.

a) fungus, oxygen
c) organs, nitrogen

b) **organs, carbohydrate**
d) fungus, nitrogen
- 14) _____ induces adventitious roots to form on stems while they are still attached to the parent plant.

a) Division
c) **Layering**

b) Budding
d) Grafting
- 15) _____ is used in research to study physiological processes or plant diseases.

a) **Grafting**
c) Layering

b) Division
d) Budding
- 16) Various lamp types are available for floriculture use which can be divided into three basic types, incandescent, _____ and _____.

- a) HID
b) Fluorescent
c) Neither a or b
d) **Both a and b**
- 17) Two common ways to reduce the light intensity in a greenhouse are with shade cloths and shading compounds. Shade cloth is available in a variety of types which reduce light by ____ to ____%.
- a) 5, 15
b) 13, 24
c) 12, 18
d) **25, 98**
- 18) Yellow margins and necrotic edges, especially on lower leaves; leaves may curl up or down; root tips may be necrotic are all symptoms of what type of toxicity?
- a) Nitrogen
b) Calcium
c) **Ammonium**
d) Sulfur
- 19) _____ regulation is defined as any chemical or process used to produce a specific type of growth response, such as inhibition of internode elongation or root development.
- a) **Plant growth**
b) Absciscic acid
c) Tissue Culture
d) Root development
- 20) Chemical growth retardants are registered for use on vegetable or other edible bedding plants such as tomatoes (*Lycopersicon esculentum*), peppers (*Capsicum annuum*), and herbs.
- a) True
b) **False**

21) Tropical flowers like birds –of- paradise, anthurium, ginger and orchids should be kept in a separate cooler set with _____ temperatures (_____ ° to _____ °).

a) Cooler, 39°, 44°

b) Warmer, 61°, 66°

c) **Warmer, 45°, 50°**

d) Cooler, 57°, 60°

For the next 4 questions match the Common name with the scientific name of the Indoor flowering Plants.

a) Clivia miniata

b) Primula malacoides

c) Rhododendron

d) Pelargonium hortorum

22) Primrose **b**

23) Azalea **c**

24) Kafir Lily **a**

25) Geranium **d**

26) Corsages are most commonly worn on the _____.

a) **left shoulder**

b) right shoulder

c) left wrist

d) right wrist

27) Which one of the four plants listed below originated in the Mediterranean region?

a) **Mystus Communis**

b) Monstera deliciosa

c) Maranta leuconeura

d) Magnolia grandiflora

28) Name the plant that fits the following description. Long, round, hollow, leafless stems up to 4 feet long and ¼ to ½ inch wide with furrowed ridges running the length of stem segments. Silica in ridges gives surface rough quality.

- a) *Euonymus japonica* (*Euonymus*) b) *Dracaena sanderana* (*Ribbon Plant*)
- c) **Equisetum hyemale** (**Horsetail, Scouring Rush**) d) *Eucalyptus pulverulenta* (*Eucalyptus*)
- 29) Name the plant that fits the following description. Twisting vine with bunches of bright orange berries, revealed when fruit dehisces (bursts open).
- a) *Chamaecyparis lawsoniana* (Port Orchard Cedar) b) *Camellia japonica* (*Camellia*)
- c) *Calocedrus decurrens* (*Incense Cedar*) d) **Celastrus scandens** (**Bittersweet**)
- 30) What is blue or violet in color; individual flowers shaped like a helmet or hood with a beak in front. Flowers arranged on a spike-like raceme while available in summer and fall.
- a) **Monkshood** b) *Acacia, Mimosa*
- c) Yarrow d) Lily-of-the-Nile, African Lily
- 31) The classical period of floral design from (28 BC – 325 AD) was the _____ period)
- a) Egyptian b) Greek
- c) **Roman** d) Byzantine

c) texture, fluffer leaf

d) depth, height

42) The temperature that benefits the majority of the flowers held by a florist is 35°-40° F _____ °C)

a) 4°, 4.5°

b) 7°, 12°

c) 5°, 7.5°

d) 15°, 17°

43) The size of the wire is listed according to its gauge number. The higher the gauge number, the _____ wire.

a) heavier

b) lighter

c) **finer**

d) none of the above

44) Several different types of grafting have been developed including _____, splice, side, _____, side-veneer, cleft, bark, and approach grafting.

a) swirl (tongue), budding

b) whip (tongue), ring (annular)

c) T (shield), inverted T

d) **whip (tongue), side-tongue**

45) Soluble salts refer to the total dissolved ions in media water solutions. Soluble salts are measured by means of electrical conductivity (EC); the lesser the soluble salt concentration, the more easily an electrical current will pass through a medium water solution.

a) True

b) **False**

- 46) _____ are/is the fiber of a palm tree used like string or ribbon to tie things together.
- a) Salal leaves
 - b) Cornucopia
 - c) **Raffia**
 - d) none of the above
- 47) _____, commonly called _____ throughout the trade, is the traditional filler flower for mixed bouquets and arrangements.
- a) Gladiolus, gla
 - b) Gloxinia, Glox
 - c) Godetia, Gode
 - d) **Gypsophila, gyp**
- 48) Sunflower is also known as _____.
- a) **Helianthus**
 - b) Helichrysum
 - c) Heliotropium
 - d) Hemerocallis
- 49) Daylily also known as _____.
- a) Helianthus
 - b) Helichrysum
 - c) Heliotropium
 - d) **Hemerocallis**
- 50) Amaryllis also known as _____.
- a) Hosta spp.
 - b) **Hippeastrum hybrids**
 - c) Hydrangea
 - d) Hibiscus moscheutos/H. hybrids

**2014 National FFA Floriculture Career Development
GENERAL KNOWLEDGE EXAM
REFERENCE SHEET**

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 2. Ball Redbook Crop Production, Vol. 2; page 160
 3. Ball Redbook Crop Production, Vol. 2; page 161
 4. Ball Redbook Crop Production, Vol. 2; page 237
 5. Ball Redbook Crop Production, Vol. 2; page 283
 6. Ball Redbook Crop Production, Vol. 2; page 365
 7. Ball Redbook Crop Production, Vol. 2; page 412
 8. Ball Redbook Crop Production, Vol. 2; page 414
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 10. Ball Redbook Crop Production, Vol. 2; page 595
 11. Floriculture Principles and Species, page 3
 12. Floriculture Principles and Species, page 3
 13. Floriculture Principles and Species, page 23
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 16. Floriculture Principles and Species, page 41
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 20. Floriculture Principles and Species, page 93
 21. Floral Design & Marketing, page 465
 22. Floral Design & Marketing, page 360
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 24. Floral Design & Marketing, page 360
 25. Floral Design & Marketing, page 360
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 31. Floral Design and Arrangements, page 5
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 35. Floral Design and Arrangements, page 15
 36. Floral Design and Arrangements, page 15
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 44. Floriculture Principles and Species, page 25
 45. Floriculture Principles and Species, page 69
 46. Floral Design & Interior Landscape Management, page 198
 47. Ball Redbook Crop Production, Vol. 2; page 418
 48. Ball Redbook Crop Production, Vol. 2; page 423
 49. Ball Redbook Crop Production, Vol. 2; page 428
 50. Ball Redbook Crop Production, Vol. 2; page 437

**2015 National FFA Floriculture
Career Development Event
General Knowledge Examination**

1. The most important consideration in setting up an irrigation system is _____ quality.
 - a) Air
 - b) Water
 - c) Soil
 - d) Piping
2. _____ refers to the brightness or dullness of the color within a hue.
 - a) Value
 - b) Intensity
 - c) Chroma
 - d) Triad
3. A standard water analysis usually includes _____, _____, and _____.
 - a) pH, EC, alkalinity
 - b) fluoride, aluminum, zinc
 - c) iron, sulfates, boron
 - d) potassium, calcium, sulfates
4. True or False: Pinching naturally accelerates a plant's branching.
 - a) True
 - b) False
5. The process of pinching a plant removes the _____ factory and eliminates the _____ concentration of the _____ hormone from the upper portion of the plant.
 - a) auxin, high, inhibitory
 - b) tunic, low, hibitory
 - c) auxin, low, hibitory
 - d) high, low, inhibitory
6. True or False: *Oriental style* arrangements are based on carefully placed branches, flowers, and small amounts of foliage.
 - a) True
 - b) False

7. Acid is injected into the irrigation water to neutralize the _____.
- a) growth
 - b) volume
 - c) alkalinity
 - d) light
8. The most common acids used for alkalinity control are _____, _____ and _____.
- a) phosphoric, sulfuric, nitric
 - b) sodium, calcium, potassium
 - c) sulfuric, magnesium, manganese
 - d) citric, ethanoic, tartaric
9. Packaging foiled plants for removal from the shop is most easily done by using:
- a) a plastic tub
 - b) a cardboard box
 - c) a sleeve
 - d) a large bag
10. True or False: Mold growth is almost always nonpathogenic to your crop.
- a) True
 - b) False
11. When several types of smaller specimens of foliage plants are placed in a brass or pottery container, a _____ is created.
- a) split complementary design
 - b) triad design
 - c) garden dish
 - d) floral leaf bowl
12. In plant nutrition, EC refers to _____.
- a) Economic Conditions
 - b) Electrical Conductivity
 - c) Environmental Conditions
 - d) Electrical Conduit
13. The general pH range for greenhouse crops in a soilless medium is _____.
- a) 5.4 – 6.8
 - b) 4.0 – 6.0
 - c) 7.2 – 8.1
 - d) 4.5 – 8.6

14. In floral design, _____ gives the illusion that all of the flower stems are coming from one point.
- a) radiation
 - b) physical balance
 - c) visual balance
 - d) symmetrical balance
15. True or False: Water alkalinity is a measure of basic ions, mainly bicarbonates and carbonates, dissolved in the water.
- a) True
 - b) False
16. _____ analysis can be conducted to determine the nutrient status of the crop or for problem solving.
- a) Stem
 - b) Foliar
 - c) pH
 - d) Chemical
17. The _____ design makes an excellent centerpiece because it is attractive when viewed from either the front or the back.
- a) right-triangular
 - b) horizontal
 - c) equilateral triangular
 - d) vertical
18. True or False: Boutonnieres should not be designed with a bow.
- a) True
 - b) False
19. Immediate steps to lower the medium's EC are _____ and _____.
- a) Increase fertilizer rate, increase fertilization frequency
 - b) Lower fertilizer rate, decrease fertilization frequency
 - c) Increase alkalinity levels, increase potassium bicarbonate
 - d) Lower potassium-calcium-magnesium ratio, decrease magnesium sulfate
20. True or False: In general, plants will become heat stressed at night temperatures above 75°F (24°C) and day temperatures above 90°F (32°C).
- a) True
 - b) False

21. The _____ tube is used to provide a stem for tube-shaped flowers.
- a) stephanotis
 - b) hairpin
 - c) skeleton
 - d) corsage
22. The four elements of design in floral arrangements are _____, _____, _____, and _____.
- a) simplicity, beauty, custom, symbolism
 - b) custom, line, color, texture, space
 - c) line, form, texture, color
 - d) none of the above
23. DIF is defined as:
- a) the difference in daytime temperature and the nighttime temperature
 - b) the difference in fertilization
 - c) data interchange format
 - d) difficulty in fertilization
24. The term *daily light integral* is used to describe the total quantity of light delivered within a 12 hour period.
- a) True
 - b) False
25. The wholesale pricing method is based on the concept that _____ of the retail selling price is made up of the wholesale value of materials being used.
- a) 20%
 - b) 40%
 - c) 60%
 - d) 50%
26. The biggest insect problems in plugs are _____ and _____.
- a) fungus gnats, shore flies
 - b) foxglove aphids, chrysanthemum aphids
 - c) silverleaf whiteflies, banded wing whiteflies
 - d) broad mites and bulb mites
27. The area of emphasis on an arrangement is called the _____.
- a) recessed focal point
 - b) radiation focal point
 - c) weak focal point
 - d) focal point accent

28. Traditional temperature regimes for greenhouse production are to run _____ days and _____ nights.
- a) cool, warm
 - b) warm, cool
 - c) cool, cool
 - d) warm, warm
29. A common flaw in establishing a focal area is to:
- a) using flowers that are too large
 - b) using flowers that are too small
 - c) crowd the flowers together very closely
 - d) not using enough flowers
30. Nitrogen deficiency, ammonium toxicity and phosphorus deficiency are some of the common reasons of _____ disorders in greenhouse crops.
- a) media
 - b) nutrient
 - c) water quality
 - d) heating
31. Line-mass arrangements which are based on straight lines include vertical, diagonal, L-shaped, and _____.
- a) crescent
 - b) inverted-T
 - c) S-curve
 - d) Hogarth curve
32. The formula for determining average daily temperature (ADT) is:
- a) $(\text{day temperature} \times \text{hours}) \div 24$
 - b) $(\text{day temperature} \times \text{hours}) \div 12$
 - c) $(\text{day temperature} \times \text{hours}) + (\text{night temperature} \times \text{hours}) \div 24$
 - d) $(\text{day temperature} \times \text{hours}) + (\text{night temperature} \times \text{hours}) \div 12$
33. True or False: A common guideline in floral design is to make the height of the arrangement at least 1-1/2 times the height of the container.
- a) True
 - b) False
34. _____ is the art of organizing the design elements inherent in plant materials, container, and accessories according to the principles of design.
- a) Color design
 - b) Flower arrangement
 - c) Proportional balance
 - d) Floral design

35. The most widely used mechanics item used for supporting flowers in arrangements is:

- a) chicken wire
- b) plastic grid
- c) tape
- d) floral foam

36. The premier student organization for young people interested in the floral industry is the _____.

- a) National Florist Association
- b) National FFA Organization
- c) National Horticulture Association
- d) Future Business Leaders Organization

37. Correcting high pH can be achieved by _____.

- a) using a high-ammonium fertilizer combined with low alkalinity
- b) using a low-ammonium fertilizer combined with high alkalinity
- c) applying potassium bicarbonate
- d) drenching soil with flowable lime

38. True or False: The stitch method is a foliage wiring technique used on solid or wide leaves so the leaves can be shaped and curved to fit the style and shape of a corsage or boutonniere.

- a) True
- b) False

39. A *half-couch casket spray* is:

- a) A triangular one-sided, hand-tied design.
- b) A small design displayed inside the casket lid.
- c) A large casket piece that is placed in the center of a closed full couch.
- d) A floral piece that is placed on the right of side of a half couch.

40. True or False: Boutonnieres should never be designed with more than a single flower.

- a) True
- b) False

41. Flower arrangements are more pleasing to the eye when their outline creates a _____ pattern.

- a) geometric
- b) round
- c) triangular
- d) crescent

42. True or False: Tulips, hyacinths, crocus, and daffodils are all flowering bulbs.
- a) True
 - b) False
43. The _____ orchid is the largest of the orchid types used by florists for corsages.
- a) Cattleya
 - b) Cymbidium
 - c) Dendrobium
 - d) Phalaenopsis
44. By tradition, on Mother's Day, a _____ flower or corsage is worn by a daughter as a symbol of love and honor for a living mother, and _____ flowers are worn as a memorial for a mother who is no longer living.
- a) white, pink
 - b) yellow, white
 - c) red, white
 - d) pink, yellow
45. High or low fertility levels can _____ crop susceptibility to _____ and _____.
- a) decrease, heat, cold
 - b) increase, insects, mites
 - c) increase, heat, cold
 - d) decrease, insects, mites
46. A _____ bouquet is a round bouquet that is based on the English nosegay of the Georgian and Victorian eras.
- a) cascade
 - b) colonial
 - c) arm
 - d) crescent
47. _____ is the application of water-soluble fertilizers through the irrigation of water.
- a) Fertigation
 - b) Irrigation
 - c) Pre-plant fertilization
 - d) Water motor-controlled injection
48. Considerations when planning a wedding include:
- a) Location of the wedding
 - b) Time of year
 - c) Budget range
 - d) All of the above

49. Accented neutral, monochromatic, analogous, and split complementary are the most common _____ used by florists in designs.

- a) color schemes
- b) floral arrangements
- c) texture arrangements
- d) lines

50. _____ is a technique of positioning plant materials very close together to cover floral foam in organized lines or areas.

- a) Binding
- b) Pillowing
- c) Pavé
- d) Terracing

Exam Key

| | |
|-----|---|
| 1. | B |
| 2. | C |
| 3. | A |
| 4. | B |
| 5. | A |
| 6. | A |
| 7. | C |
| 8. | A |
| 9. | C |
| 10. | A |
| 11. | C |
| 12. | B |
| 13. | A |
| 14. | A |
| 15. | A |
| 16. | B |
| 17. | B |
| 18. | A |
| 19. | B |
| 20. | A |
| 21. | A |
| 22. | C |
| 23. | A |
| 24. | B |
| 25. | B |
| 26. | A |
| 27. | D |
| 28. | B |
| 29. | C |
| 30. | B |
| 31. | B |
| 32. | C |
| 33. | A |
| 34. | D |
| 35. | D |
| 36. | B |
| 37. | A |
| 38. | A |
| 39. | D |
| 40. | B |
| 41. | A |
| 42. | A |
| 43. | A |
| 44. | C |
| 45. | B |
| 46. | B |
| 47. | A |
| 48. | D |
| 49. | A |
| 50. | C |



**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 LD₅₀ 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 LD₅₀ or LC₅₀ numbers. Which of the following LD₅₀ 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
 - B) baby's Breath
 - C) carnations
 - D) zinnias
29. Two hues directly opposite each other on the color wheel are _____ colors.
- A) diadic
 - B) monochromatic
 - C) polychromatic
 - D) complementary
30. Broken, implied, and continuous are all part of which element of floral design?
- A) space
 - B) line
 - C) color
 - D) texture
31. Light inside a greenhouse is measured in _____.
- A) solar energy
 - B) foot light
 - C) foot candles
 - 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
 - B) pheromone
 - C) repellent
 - 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
 - B) perfect flower
 - C) imperfect 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_3 and C_4 groups. C_4 plants are differentiated from C_3 plants by which of the following?
A) C_4 plants flower in shades of red whereas C_3 plants do not
B) C_4 plants have a higher relative photosynthesis rate
C) C_4 plants are not as efficient at using carbon dioxide
D) C_4 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
General Knowledge Exam
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 th 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 th ed. | 432-433 | PS.03.03.04.a |
| 11 | C | Introductory Horticulture, 7 th 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 th edition | 283 | PS.01.03.03.b |
| 15 | D | Nelson. Greenhouse Operation & Management, 7 th 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 th 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 rd Edition | 83 | PS.02.03.05.c and PS.03.01.01.b |
| 21 | D | Introduction to Horticulture; Revised 4 th Ed; Interstate | 75 | PS.01.01.01.c |
| 22 | D | Introduction to Horticulture; Revised 4 th Ed; Interstate | 78 | PS.01.02.04.c |
| 23 | D | Introduction to Horticulture; Revised 4 th Ed; Interstate | 81 | PS.01.03.02.c |
| 24 | C | Introduction to Horticulture; Revised 4 th Ed; Interstate | 81 | PS.01.02.04.c |
| 25 | D | Introductory Horticulture, 6 th 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 rd 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 th edition | 364 | PS.02.03.01.a |
| 32 | A | Nelson. Greenhouse Operation & Management, 7 th ed. | 354-355 | PS.01.01.01.b |
| 33 | D | Nelson. Greenhouse Operation & Management, 7 th ed | 401-416 | PS.03.03.01.c |
| 34 | C | Introductory Horticulture; 8 th 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 th edition | 95 | PS.01.02.05.c and PS.01.01.01.c |
| 36 | A | Introduction to Horticulture; Revised 4 th 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 th 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 th edition | 257 | ABS.04.03.02.a, CS.01.01.02.b, CS.02.01.02.c |
| 42 | B | Introduction to Horticulture, 3 rd 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 th edition | 111 | PS.01.01.01.c |
| 44 | C | Introduction to Horticulture; Revised 4 th Ed; Interstate | 94 | PS.03.01.01.a |
| 45 | C | Introduction to Horticulture; Revised 4 th Ed; Interstate | 98 | PS.01.01.01.c and PS.01.02.06.c |
| 46 | C | Introductory Horticulture; 8 th Ed; Delmar | 76 | PS.01.02.06.c |
| 47 | B | Introductory Horticulture; 8 th Ed; Delmar | 76 | PS.01.02.06.c |
| 48 | C | Introductory Horticulture; 8 th Ed; Delmar | 78 | PS.02.02.01.b and PS.02.02.02.b |
| 49 | C | Introduction to Horticulture; Revised 4 th Ed; Interstate | 73 | PS.01.02.03.c |
| 50 | C | Introduction to Horticulture; Revised 4 th Ed; Interstate | 73 | PS.01.01.01.c |



**2017 National FFA Floriculture
Career Development Event
General Knowledge Exam**



Directions: Select the best answer for each question and mark your selection on the separate scantron sheet provided. *Mark answers in the General Knowledge Exam section on the scantron located in the left side of the scantron.*

1. The following is not a characteristic of an insect:
 - A. Three segmented body
 - B. Six legs
 - C. Two pairs of wings
 - D. Two tentacles

2. The following is not used to measure greenhouse crop nutrient levels:
 - A. Soil tests
 - B. Soluble salts meter
 - C. Foliar analysis
 - D. Tensiometer

3. Light intensity can be measured in units of:
 - A. Nanometers
 - B. Micrometers
 - C. Foot-candles
 - D. Newtons

4. A _____ results from crossing parents of different genotype for a trait.
 - A. clone
 - B. scion
 - C. species
 - D. hybrid

5. The _____ transports water and nutrients from the roots to other parts of the plant.
 - A. phloem
 - B. xylem
 - C. pith
 - D. cambium

6. *Crassula argentea* is the botanical name for Jade Plant. *Crassula* is the _____ of the plant.
 - A. family
 - B. cultivar
 - C. species
 - D. genus

7. Indolebutyric acid (IBA) is commonly used to:

- A. control insects
- B. control diseases
- C. raise soil pH
- D. promote rooting of cuttings

8. Signal words on labels alert the user to the toxicity of a pesticide. Which of the following words is not used as a signal word?

- A. DANGER
- B. HAZARDOUS
- C. CAUTION
- D. WARNING

9. Which of the following flower parts is contained in the pistil?

- A. sepal
- B. receptacle
- C. anther
- D. style

10. _____ is the process of softening or breaking a seed coat in order to overcome seed dormancy.

- A. Scarification
- B. Stratification
- C. Ratification
- D. Augmentation

11. Prior to transplanting, seedlings should be _____.

- A. kept in the dark.
- B. grown at a temperature of 90°F.
- C. hardened-off
- D. allowed to dampen-off.

12. In order to lower the pH of a soil, materials containing _____ are used.

- A. dolomite
- B. lime
- C. hydrated lime
- D. sulfur

13. Which of the following nutrients would be retained more by a root medium with high cation exchange capacity (CEC)?

- A. Potassium
- B. Phosphate
- C. Nitrate
- D. Sulfate

14. Soluble salts in medium is measured by electrical conductivity (EC). An appropriate EC range for flowering potted crops using the pour through extraction method is:

- A. 0.25mS/cm to 0.75 mS/cm
- B. 0.5 mS/cm to 2.0 mS/cm
- C. 1.0 mS.cm to 4.6 mS/cm
- D. 3.0 mS.cm to 6.2 mS/cm

15. Soilless medium can be amended with which of the following materials prior to potting to provide magnesium?

- A. Epsom Salt
- B. Gypsum
- C. Micronutrients mix
- D. Triple superphosphate

16. The Worker Protection Standards (WPS) developed for agriculture pesticides was implemented by what government agency?

- A. United States Department of Agriculture
- B. Agriculture Cooperative Extension Service
- C. Department of Homeland Security
- D. Environmental Protection Agency

17. Cytokinins are responsible for cell division and differentiation in the plant. Cytokinins are produced in what plant part?

- A. Lateral shoots
- B. Roots
- C. Terminal shoots
- D. Cambium

18. Which of the following auxins is naturally produced in the plant?

- A. Indole-3-acetic acid (IAA)
- B. Naphthalene acetic acid (NAA)
- C. Indolepropionic acid (IPA)
- D. Indole-3-butyric acid (IBA)

19. Carbon is an essential plant element. Plants obtain carbon from carbon dioxide gas (CO₂). Air on the average contains what percent CO₂?

- A. 0.30 percent
- B. 30 percent
- C. 0.03 percent
- D. 3 percent

20. A plant's growth response to temperature is called:

- A. Vernalization
- B. Thermotropism
- C. Photoperiodism
- D. Thermoperiodic

21. Which of the following is not an advantage of hydroponics?

- A. Plant nutrition is completely controlled through prepared nutrient solutions.
- B. Yield per unit area is reduced since plants may be planted closer together.
- C. Roots do not spread as much because H₂O and nutrients are pumped directly to the plant.
- D. The need for weed, disease, and insect control is greatly reduced due to the absence of soil.

22. Allelopathy is a plant phenomenon that does the following to plants:

- A. Prevents the formation of bacteria organisms
- B. Stops fungus organisms from growing on plants
- C. Creates a mechanism within the plant to induce flowering
- D. Production of a chemical compound by one plant that slows down or stops the growth of another plant

23. Pesticides can be purchased for use in the greenhouse as a wettable powder (WP) or as an emulsifiable concentrate (EC). Which of the following is true about these two pesticide formulations.

- A. WP are diluted (dissolved) in water and can settle during application while EC are suspended in water and do not settle during application.
- B. There is no difference in the two formulations
- C. EC must be added to water in correct rates where WP are applied as it exist in the container
- D. WP and EC both are purchased as dry formulations

24. Tulle in florist work is:

- A. The ribbon added to any floral piece being created
- B. Florist netting that can add color, texture, and support for some flowers
- C. Silk leaves used instead of fresh foliage in corsages
- D. Other accessories used in corsages such as pearl sprays, rhinestones, butterflies, or chenille letters

25. The country that is the leading exporter of cut flowers to the United States floral industry is:

- A. Holland
- B. Ecuador
- C. Mexico
- D. Columbia

26. The climatic conditions that are needed for carnations to be grown successfully as a cut flower include?

- A. Low light intensity, mild climate requiring minimal amount of protection, uniform temperature and day length
- B. High light intensity, mild climate requiring minimal amount of protection, and cold nights and hot days
- C. High light intensity, mild climate requiring minimal amount of protection, uniform temperature and day length
- D. Low light intensity, mild climate requiring minimal amount of protection, and short days

27. In growing chrysanthemums as cut flowers the plant requires which of the following conditions to maintain a vegetative state of growth?

- A. Day length at less than 9.5 hours growing at 60 degrees
- B. Day length between 11 and 12 hours growing at 80 degrees
- C. Day length at 10.5 hours growing at 60 degrees
- D. Day length greater than 14.5 hours growing at 60 degrees

28. The advantages of an ebb and flood irrigation system in the greenhouse are:

- A. Labor savings
- B. Reduced water and nutrient use
- C. Lower pesticide use
- D. All of the above

29. 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

30. The best root medium pH for a majority of spring bedding plants, but not including petunias or geraniums, is:

- A. 4.5 to 5.5
- B. 5.5 to 6.5
- C. 6.5 to 7.5
- D. 7.5 to 8.5

31. In grafting, such as for grafted tomato transplants,

- A. the scion is the top part of the graft and the rootstock is the lower part
- B. the rootstock is the top part of the graft and the scion is the lower part
- C. the scion often imparts disease resistance to the grafted plant
- D. the rootstock often provides desirable fruiting characteristics

32. The pistil is
- A. the female part of the flower
 - B. the male part of the flower
 - C. contains both the male and female parts of a flower
 - D. becomes seeds
33. The pH of the root medium indicates to a greenhouse grower its
- A. volumetric water content
 - B. salt ions dissolved in water
 - C. hydrogen ion concentration
 - D. organic matter content
34. On a financial planning sheet, the costs of the plant materials (i.e. purchase cost of seeds, cuttings, bulbs, or other plant propagule) would be examples of:
- A. wholesale costs
 - B. overhead costs
 - C. fixed costs
 - D. direct costs
35. A 6-inch 'azalea pot' has an inside rim diameter of _(i)_ inches and a depth of __(ii)__ inches.
- A. (i) 6-inches, (ii) 8 inches
 - B. (i) 6-inches, (ii) 6-inches
 - C. (i) 6-inches, (ii) 4.5-inches
 - D. (i) 6-inches, (ii) 3-inches
36. Respiration:
- A. produces sugars in the plant
 - B. occurs only during the night
 - C. releases oxygen to the atmosphere
 - D. none of the above
37. What type of environment do poinsettias require to produce red bracts?
- A. short day photoperiod
 - B. long day photoperiod
 - C. cool day temperature regime
 - D. cool night temperature regime
38. Botanical names are written in:
- A. English
 - B. Latin
 - C. Greek
 - D. German

39. The greenhouse insect pest problem of aphids can be effectively managed by using:
- A. biological control such as lady beetles
 - B. chemical control such as the use of an insecticidal soap
 - C. the cultural control of washing them off the plant with a strong stream of water
 - D. all of the above
40. In order to preserve foliage in a more natural, pliable state, place stems in:
- A. glycerin
 - B. bleach
 - C. antifreeze
 - D. borax
41. Which glazing material for greenhouses allows the greatest light transmittance?
- A. fiberglass
 - B. polyethylene
 - C. glass
 - D. polycarbonate
42. To pasteurize a container root medium, heat it to:
- A. 120 degrees for 30 minutes
 - B. 120 degrees for 60 minutes
 - C. 180 degrees for 30 minutes
 - D. 180 degrees for 60 minutes
43. A guideline for estimating the size for a floral design for a defined space is known as
- A. Rule of Thirds
 - B. Third Rule
 - C. The Golden Ratio
 - D. The Golden Rule
44. The term variegated means?
- A. Leaves can only be both yellow and green.
 - B. Leaves have patches, stripes, or marks of different colors.
 - C. Leaves have only stripes of different colors.
 - D. Leaves are solid green with no other colors.
45. Systemic dyeing occurs by plants absorbing color through the
- A. Petal
 - B. Leaf
 - C. Sepal
 - D. Stem



Figure 1

46. A Freesia (**Figure 1**) is an example of a _____.
- A. Bulb
 - B. Tuber
 - C. Corm
 - D. Rhizome
47. _____ is the single most important element to keep flowers fresh after delivery from a supplier.
- A. Air/ Ventilation
 - B. Water
 - C. Light
 - D. Cool Temperatures
48. The three primary ingredients in floral preservatives are sugar, _____, and an acidifier.
- A. Biocide
 - B. Salt
 - C. Chlorophyll
 - D. Iodine
49. The sense of stability in a design both physically and visually is known as
- A. Rhythm
 - B. Balance
 - C. Scale
 - D. Unity
50. A floral design with a strong sense of _____ shows an organization of elements so they appear to belong together.
- A. Rhythm
 - B. Balance
 - C. Scale
 - D. Unity

**2017 National FFA Floriculture CDE
General Knowledge Exam
ANSWER KEY**

| Question # | Answer | Reference | Page # | Corresponding Standards |
|-------------------|---------------|--|---------------|--------------------------------|
| 1 | D | Introduction to Horticulture, Interstate | 165 | NRS.01.02.03.b |
| 2 | D | Introduction to Horticulture, Interstate | 226 | PS.01.03.01.c |
| 3 | C | Introduction to Horticulture, Interstate | 719 | PS.01.01.01.c |
| 4 | D | Introduction to Horticulture, Interstate | 720 | PS.02.01.02.c |
| 5 | B | Introductory Horticulture, Delmar | 24 | PS.02.02.03.c |
| 6 | D | Introductory Horticulture, Delmar | 13 | PS.02.01.02.c |
| 7 | D | Introductory Horticulture, Delmar | 52 | PS.01.03.01.c |
| 8 | B | Introductory Horticulture, Delmar | 165 | BS.02.04.02.a |
| 9 | D | Introduction to Horticulture, Interstate | 83 | PS.02.02.05.c |
| 10 | A | Introduction to Horticulture, Interstate | 98 | PS.02.02.06.b |
| 11 | C | Introduction to Horticulture, Interstate | 100 | PS.02.02.06.b |
| 12 | D | Introduction to Horticulture, Interstate | 141 | PS.01.03.02.c |
| 13 | A | Introduction to Horticulture, Interstate | 141 | PS.01.03.01.c |
| 14 | C | Ball Red Book, Ball Publishing, 17 th edition, volume 2 | 35 | PS.01.03.01.c |
| 15 | A | Ball Red Book, Ball Publishing, 17 th edition, volume 2 | 39 | PS.01.03.01.c |
| 16 | D | Ball Red Book, Ball Publishing, Greenhouse and Equipment | 209 | BS.02.04.01.b |
| 17 | B | Floriculture, Interstate Publishers | 102 | PS.02.02.01.b |
| 18 | A | Greenhouse Operation and Mgt, Prentice Hall, 4 th edition | 395 | PS.01.03.01.c |
| 19 | C | Greenhouse Operation and Mgt, Prentice Hall, 4 th edition | 347 | NRS.01.02.05.a |
| 20 | B | Introduction to Horticulture, Interstate, 2 nd edition | 232 | PS.01.01.02.c |
| 21 | B | Introduction to Horticulture, Interstate, 2 nd edition | 109 | PS.03.02.07.b PS.01.01.03.c |
| 22 | D | Introduction to Horticulture, Delmar, 7 th edition | 60 | PS.01.03.01.c |
| 23 | A | Introduction to Horticulture, Delmar, 7 th edition | 186 | PS.03.03.04.b |
| 24 | B | Floriculture-Greenhouse and Floral Design, Interstate | 423 | PS.04.02.02.c |
| 25 | D | Floriculture-Greenhouse and Floral Design, Interstate | 235 | CS.01.01.02.b |

| | | | | |
|----|---|--|---------|----------------------------------|
| 26 | C | Introduction to Floriculture, Academic Press | 46 | PS.03.05.04.b |
| 27 | D | Introduction to Floriculture, Academic Press | 15 | PS.03.05.03.b |
| 28 | D | Ball Red Book, Ball Publishing, Greenhouse and Equipment | 75 | PS.01.01.03.c |
| 29 | B | Greenhouse Operation & Management, 7 th ed | 381-383 | PS.01.03.06.c PS.02.03.0.a |
| 30 | B | Greenhouse Operation & Management, 7 th ed. | 207 | PS.01.03.02.c |
| 31 | A | Greenhouse Operation & Management, 7 th ed. | 207 | PS.03.01.03.c |
| 32 | A | Greenhouse Operation & Management, 7 th ed | 432-433 | PS.02.02.05.c PS.03.03.04.a |
| 33 | C | Greenhouse Operation & Management, 7 th ed | 214-215 | PS.01.03.03.b PS.01.03.02.c |
| 34 | D | Greenhouse Operation & Management, 7 th ed | 572-576 | CRP.03.02.01.a CRP.03.02.02.a |
| 35 | C | Greenhouse Operation & Management, 7 th ed | 587 | CRP.11.01.02.b |
| 36 | D | Greenhouse Operation & Management, 7 th ed | 319 | PS.02.03.01.a PS.02.03.02.c |
| 37 | A | Greenhouse Operation & Management, 7 th ed | 354-355 | PS.01.01.01.b PS.01.01.01.c |
| 38 | B | Introduction to Horticulture, Interstate | 74 | PS.02.01.02.c |
| 39 | D | Greenhouse Operation & Management, 7 th ed | | PS.03.03.01.c PS.03.03.02.b |
| 40 | A | Principles of Floral Design, Scace and DelPrince | 441-444 | PS.03.05.04.b |
| 41 | C | Introduction to Horticulture, Interstate | 41 | PS.01.01.01.c |
| 42 | C | Greenhouse Operation & Management, 7 th ed | 238 | PS.01.02.01.c |
| 43 | A | Principles of Floral Design, G-W Publisher | 121 | PS.04.02.01.c |
| 44 | B | Principles of Floral Design, G-W Publisher | 210 | NRS.01.02.02.b |
| 45 | D | Principles of Floral Design, G-W Publisher | 141 | PS.02.02.05.c |
| 46 | C | Principles of Floral Design, G-W Publisher | 87 | PS.02.02.05.c |
| 47 | B | Principles of Floral Design, G-W Publisher | 100 | PS.03.05.04.b |
| 48 | A | Principles of Floral Design, G-W Publisher | 102 | PS.03.05.04.b |
| 49 | B | Principles of Floral Design, G-W Publisher | 115 | PS.04.02.01.c |
| 50 | D | Principles of Floral Design, G-W Publisher | 127 | PS.04.02.01.c |



**2018 National FFA Floriculture
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Directions: Select the best answer for each question and mark your selection on the separate scantron sheet provided. *Mark answers in the General Knowledge Exam section on the scantron located in the left side of the scantron.*

1. A circular design does not have _____.
 - a. Balance
 - b. Filler flowers
 - c. A focal point
 - d. Massing flowers
2. Most fungal diseases grow best in _____.
 - a. Dry, arid air
 - b. Low moisture conditions
 - c. High moisture conditions
 - d. Seasons with drought
3. Mums are considered a short-day crop; that is, the plant sets flower buds and blooms only when _____.
 - a. Nights and days are long
 - b. Nights are long and days are short
 - c. Nights are short and days are long
 - d. Nights and days are short
4. During respiration, plants _____.
 - a. Use the sun's energy
 - b. Produce sugars
 - c. Use oxygen
 - d. Form complex compounds
5. If green plants show a _____ color, this suggests a nitrogen deficiency.
 - a. White
 - b. Yellow
 - c. Dark green
 - d. Purple

6. _____ exists when the terminal bud produces hormones that inhibit or prevent the growth of axillary buds on the same shoot.
- Cell dominance
 - Root dominance
 - Atypical dominance
 - Apical dominance
7. Floral foam is sufficiently soaked when _____.
- It changes to a darker shade of green
 - The foam floats back to the top of the water
 - Particles of the foam begin to float in the water
 - Air bubbles are no longer coming out of the foam
8. _____ seeding is when seeds are sown in a separate place from where the plants will eventually grow to maturity.
- Direct
 - Sideways
 - Indirect
 - Top
9. _____ is used to accentuate the flowers and colors used in a design.
- Harmony
 - Unity
 - Accent
 - Repetition
10. _____ are chemicals used to control snails and slugs.
- Fungicides
 - Rodenticides
 - Molluscicides
 - Nematocides
11. Small green insects with piercing mouth parts are _____.
- Aphids
 - Mealybugs
 - Scale
 - Mites

12. The recommended daytime temperature range for indoor plants is _____.
a. 60-70° F
b. 55-80° F
c. 60-85° F
d. 50-85° F
13. _____ is one of the basic floral design shapes.
a. Fan
b. Diagonal
c. Oval
d. Circular
14. In the list of flowers/materials below, which list is not all line flowers:
a. Liatris, gladiolus, snapdragons, cattail
b. Bells of Ireland, carnations, branches, snapdragons
c. Liatris, delphinium, gladiolus, bells of Ireland
d. Foxglove, branches, lupine, cattail
15. Joe placed a box of apples in his flower cooler. The next day he saw some cut flowers looking bad and deteriorating. Could the apples have caused this problem?
a. Yes, fruit produces ethylene gas which can cause flowers to senesce.
b. Yes, diseases on fruit are easily transferred to cut flowers causing their deterioration.
c. No, storing fruit in a cooler with cut flowers is never a problem. The flowers deteriorated from some other pathogen,
d. No, the apples could not have caused damage to the cut flowers in such a short time.
16. Floral foam should be hydrated before use in a flower arrangement. Which of these methods is the best for accomplishing the soaking of the foam?
a. The foam is forced by weight to be totally immersed in the water
b. The foam is pushed down into the water by hand
c. The foam is allowed to float on the surface until it is soaked
d. The foam is placed in the bottom of a water reservoir one-half of the height of the block of foam

17. A wholesale greenhouse operation has grown 4,250 six inch pots of poinsettias. At the end of the Christmas season, 3,789 pots were sold. The wholesale selling price was \$3.85 per pot. The retail businesses sold the pots of poinsettias for \$6.89. The cost per pot grown was \$2.16 per pot. What was the net return on the poinsettia crop to the greenhouse operation?
- \$14,587.65
 - \$6,403.41
 - \$5,407.65
 - \$11,518.56
18. You work for a retail flower shop in Bloomington, Indiana. You are figuring a bill for a customer. In Bloomington the state sales tax is 5%, the city sales tax is 0.5%, and the county sales tax is 1%. The cost of the arrangement for the customer is \$72.45. What is the total of the customer's bill?
- \$72.45
 - \$72.81
 - \$77.16
 - \$76.07
19. The wire services that a retail flower shop can use are:
- Society of American Florists, FTD, and Teleflora
 - FTD, Teleflora, Florafax, American Floral Services, and Carik
 - Florafax, FTD, American Floral Services
 - American Floral Services, American Academy of Floriculture, Florafax, and Carik
20. In growing potted chrysanthemums, the desirable temperature range for flower bud initiation is:
- 62 to 65 degrees F at night
 - Above 68 degrees F at night
 - 60 to 62 degrees F at night
 - 65 to 68 degrees F at night
21. As a grower you want to use "soft" pesticides for plant pest control. Which group below includes "soft" pesticides?
- Fungicides, bactericides, insect growth regulators
 - Insect growth regulators, botanical insecticides, horticultural oils
 - Horticulture oils, insecticidal soaps, insecticides
 - Miticides, insecticidal soaps, horticulture oils
22. The place in the plant where the process of photosynthesis occurs is:
- In all plant cells
 - In all cells within the leaf
 - In green chloroplasts within cells
 - In cells in the leaf petiole

23. A solenoid valve is used in greenhouses:
- As an electrical device used to control the flow of water in greenhouses
 - As a valve controlled totally by water pressure to cut water on and off
 - As a valve controlled by temperature to cut heat on and off
 - As an electrical shut on and off system for ventilation fans
24. A manometer is used in a greenhouse to measure:
- Water pressure in an irrigation system line
 - Difference between low and high temperature
 - Air pressure between layers of plastic
 - Gas pressure in a gas heater
25. In horticulture, the term “explant” is:
- A cross between cultivars within a species
 - A plant that came from a genetic mutation
 - A plant part other than stem or leaves such as a bulb or corm
 - Small pieces of plant material used in tissue culture
26. In greenhouse plant growing a zero DIF will result in:
- Shorter plants compared to plants grown with a positive DIF
 - Taller plants compared to plants grown with a positive DIF
 - A decrease in how much light a plant receives each day
 - A wide range between daytime and nighttime temperatures in a greenhouse
27. The three secondary colors in flower arrangements are:
- Red, yellow, and blue
 - Orange, green, and violet
 - Purple, yellow, and blue
 - Green, purple, and red
28. The nutrient iron is essential in plants because:
- Iron is required for strong stems
 - Iron is required for leaf formation
 - Iron is required for root development
 - Iron is required to produce chlorophyll
29. _____ buds are found at the base of a leaf petiole and next to the stem.
- apical
 - axillary
 - dominant
 - epidermal

30. A plant with a tunicate bulb is a(n) _____.
a. peony
b. tulip
c. iris
d. Easter lily
31. Binomial classification of a plant requires a _____ and _____ for the name.
a. genus and specific epithet
b. family and order
c. common and scientific component
d. species and family
32. A tissue in a seed that provides stored food for the embryo is _____.
a. endosperm
b. zygote
c. seed coat
d. hypocotyl
33. The process of propagating plants on an agar gel or nutrient medium is known as _____.
a. grafting
b. budding
c. micropropagation
d. none of the above
34. A florists' wire with a gauge of 18 will be _____ than florists' wire with a gauge of 28.
a. shorter
b. longer
c. thinner
d. thicker
35. On a financial planning sheet, the costs of the plant materials (i.e. purchase cost of seeds, cuttings, bulbs, etc.) would be examples of _____.
a. wholesale costs
b. overhead costs
c. direct costs
d. fixed costs

36. Floral preservatives for cut flowers should contain all of the following except _____:
- a. nitrogen fertilizer
 - b. a sugar source
 - c. an acidifier
 - d. a microbicide
37. What type of environment do chrysanthemums require to produce flowers?
- a. short day photoperiod
 - b. long day photoperiod
 - c. cool day temperature regime
 - d. cool night temperature regime
38. Injecting dilute sulfuric acid into the irrigation system during greenhouse production will:
- a. increase the root medium pH
 - b. decrease the root medium pH
 - c. decrease and then increase the root medium pH
 - d. not change root medium pH
39. What are the organelles that capture and process the light that a plant intercepts?
- a. mitochondria
 - b. nuclei
 - c. chlorophylls
 - d. chloroplasts
40. The process of _____ is when a plant loses water through stomates.
- a. transpiration
 - b. translocation
 - c. transduction
 - d. acclimatization
41. Which glazing material for greenhouses allows the lowest light transmittance?
- a. fiberglass
 - b. polyethylene
 - c. double-layer polyethylene
 - d. polycarbonate

42. The calculated difference between the day temperature and night temperature in a greenhouse production situation is known as _____.
a. HID
b. STS
c. DIF
d. IPM
43. Before using a chemical you should refer to the SDS or
a. Safety Detail Sheet
b. Safety Data Sheet
c. Storage Detail Sheet
d. Storage Data Sheet
44. The binomial system for naming plants is
a. used on the North American continent only.
b. used only in the United States.
c. used Internationally.
d. no longer used today.
45. Plants that have two _____ are known as dicots.
a. nucleus
b. cells
c. flowers
d. cotyledons
46. Chloroplasts contain chlorophyll that _____ green light giving plants their green color.
a. reflect
b. absorb
c. produce
d. create
47. _____ insecticides are pesticides that are translocated throughout the plant and kill any insects that feed on the plant.
a. Insecticidal Soaps
b. Horticulture Oils
c. Botanical
d. Systemic

48. When dealing with plant diseases, there must be _____ things present for any plant disease to form.
- a. one
 - b. two
 - c. three
 - d. four
49. _____ plants are plant material kept specifically for the purpose of propagation.
- a. Stock
 - b. Parent
 - c. Cutting
 - d. Hardwood
50. Grasshoppers begin their life cycle as an egg, transition into a larva, and change into an adult. This would be classified as _____ metamorphosis.
- a. complete
 - b. incomplete
 - c. holometabolous
 - d. ametabolous



**2018 National FFA Floriculture
Career Development Event
General Knowledge Exam
Answer Key**



| Number | Answer | Standard(s) |
|--------|--------|--|
| 1 | c | <u>PS.04.02.01.c.</u> |
| 2 | c | <u>PS.01.01.03.c.</u> |
| 3 | b | <u>PS.03.02.05.c.</u> |
| 4 | c | <u>PS.02.03.02.c.</u> |
| 5 | d | <u>PS.01.03.01.c.</u> |
| 6 | d | <u>PS.03.05.01.b.</u> |
| 7 | d | <u>PS.04.02.02.c.</u> |
| 8 | c | <u>PS.03.02.05.c.</u> |
| 9 | d | <u>PS.04.02.01.c.</u> |
| 10 | c | <u>PS.03.03.01.c.</u> |
| 11 | a | <u>PS.03.03.02.b.</u> |
| 12 | d | <u>PS.03.02.05.c.</u> |
| 13 | d | <u>PS.04.02.01.c.</u> |
| 14 | b | <u>PS.02.02.05.c.</u> |
| 15 | a | <u>PS.03.05.04.b.</u> |
| 16 | c | <u>PS.04.02.02.c.</u> |
| 17 | c | <u>CS.02.02.03.b.</u> |
| 18 | c | <u>CRP.02.01.01.c.</u> |
| 19 | b | <u>ABS.05.03.02.a.</u> |
| 20 | a | <u>PS.03.02.05.c. ; PS.01.01.01.c.</u> |
| 21 | b | <u>PS.03.03.01.c.</u> |
| 22 | c | <u>PS.02.02.05.c.</u> |
| 23 | a | <u>NRS.01.02.05.a.</u> |
| 24 | c | <u>NRS.01.02.05.a.</u> |
| 25 | d | <u>PS.03.01.03.c.</u> |
| 26 | a | <u>PS.01.01.02.c.</u> |
| 27 | b | <u>PS.04.02.01.c.</u> |
| 28 | d | <u>PS.02.02.04.c.</u> |
| 29 | b | PS.03.01.03.c. |
| 30 | b | NRS.01.02. |
| 31 | a | PS.02.01.02.c. |
| 32 | a | PS.03.01.03.b. |
| 33 | c | <u>PS.03.01.03.c.</u> |
| 34 | d | CRP.10.04.01.c. |
| 35 | c | CRP.03.02 |

| | | |
|----|---|--|
| 36 | a | CRP.10.04.01.c. |
| 37 | a | PS.01.01.02.c. |
| 38 | b | PS.01.03.05.b. |
| 39 | d | PS.02.02.03.c. |
| 40 | a | PS.02.02.03.c. |
| 41 | c | CRP.10.04.01.c. |
| 42 | c | ESS.01.01. |
| 43 | b | <u>PS.03.03.04.b. ; BS.02.04.02.a.</u> |
| 44 | c | <u>NRS.01.02.02.b.</u> |
| 45 | d | <u>NRS..01.02.02.b.</u> |
| 46 | a | <u>PS.01.01.01.c.</u> |
| 47 | d | <u>PS.03.03.01.c.</u> |
| 48 | c | <u>PS.03.03.01.c.</u> |
| 49 | a | <u>PS.03.01.03.c.</u> |
| 50 | b | <u>PS.03.03.02.b.</u> |