

**NATIONAL FFA NURSERY/LANDSCAPE
CAREER DEVELOPMENT EVENT
GENERAL KNOWLEDGE EXAM
2010**

Directions: Select the best answer for each question and mark your selection on the separate answer sheet provided. Using a #2 pencil, completely darken in the letter on the answer sheet that corresponds to the best answer for each item.

1. A flower that has a stamen but is lacking a pistil is called a _____ flower.
* A. male
B. female
C. complete
D. radical

2. Which of the following is NOT a guideline used in planning and implementing an integrated pest management program (IPM)?
A. Use control that will cause the least amount of injury to the pest's natural enemies.
B. Use the control that has the least potential to cause harm to humans.
* C. Use the control that is safest no matter the cost or effectiveness.
D. Use the control that will cause the least damage to the environment.

3. Which type of propagation would generally result in the greatest genetic variation?
* A. tip cuttings
B. seeds
C. root cuttings
D. air layering

4. A _____ soil has the largest pore spaces, drains the quickest, and has the poorest nutrient holding ability.
A. clay
* B. sandy
C. clay loam
D. silt loam

5. Which of these is most difficult to control in an individual plant once the plant is infected?
A. mildew
B. bacteria
C. fungi
* D. virus

6. The metabolic rate of most seed would be expected to slow down significantly when:
* A. stored in a cool, dry place.
B. planted in moist soil.
C. stored in humid and warm conditions.
D. exposed to indirect sunlight.

7. Life in a good landscape topsoil contains all the following EXCEPT:
- A. worms
 - B. bacteria
 - * C. aphids
 - D. fungi
8. Lichens growing on a landscape plant are a sign that the plant is:
- * A. declining in health or vigor.
 - B. under attack by the lichen organism.
 - C. in a slow growth mode while preparing for winter.
 - D. in a vigorous stage of growth.
9. Plants such as ginkgo and holly that have only male or female flowers on a single plant are called _____ plants.
- A. imperfect
 - B. perfect
 - C. monocious
 - * D. dioecious
10. Water standing on a lawn for long periods of time is a sign of poor internal soil drainage, also known as:
- A. effective depth capacity.
 - B. continuity.
 - C. soil tilth.
 - * D. permeability.
11. Slope of the land is an important factor in planning a landscape. Lawns with a slope over about ____ are a challenge to mow safely.
- A. 6 inches of fall in 100 feet
 - B. 1 foot of fall in 100 feet
 - C. 2 percent
 - * D. 5 percent
12. The type of _____ an insect has is most important to know in the selection of a control method.
- A. eye sight
 - B. eggs
 - * C. mouthparts
 - D. wings
13. A nurseryman who has purchased scion stock of a popular plant variety probably will use the stock for:
- * A. grafting.
 - B. sexual reproduction.
 - C. rooting.
 - D. micro-propagation.
14. Two of the most common tests performed on potting soil are to determine pH and _____ levels.
- * A. soluble salts
 - B. nitrogen
 - C. oxygen
 - D. silt

15. Disease-producing agents such as bacteria and fungi are known as:
- A. mosaic vectors.
 - B. mutant organisms.
 - * C. pathogens.
 - D. biogenes.
16. A _____ is sometimes useful in an area to prevent the growth of any plants.
- A. direct emergent herbicide
 - B. selective herbicide
 - C. growth regulator
 - * D. soil sterilant
17. A _____ soil is one that contains a combination of sand, silt, and clay particles in relatively equal amounts. It is a soil ideal for most garden plants because it holds plenty of moisture but also drains well so that sufficient air can reach the roots.
- A. platy
 - * B. loamy
 - C. prismatic
 - D. horizon
18. Plant hardiness zone maps are based on:
- * A. temperature.
 - B. sunlight.
 - C. frost date.
 - D. elevation.
19. Where would you find the following warning? "For retail sale to and application only by certified applicators or persons under their direct supervision."
- A. On a pesticide container used as a wettable powder.
 - * B. On a restricted-use pesticide container.
 - C. On a pesticide container with the word "Caution" on the label.
 - D. On all pesticides for which an MSDS has been issued.
20. An emitter, backflow prevention valve, and solenoid valve are items used in:
- A. control of soluble salts.
 - B. fumigation.
 - * C. irrigation.
 - D. toxicity analysis.
21. A biological control that could be used to control an insect might be:
- A. Captan with less than 25% active insecticide.
 - * B. the insect's natural enemy such as a wasp.
 - C. Daconil with 25% Captan.
 - D. any of the cultural control methods.
22. The configuration of the surface of the land, including hills, valleys, and flat areas, is referred to as:
- A. aesthetic declination.
 - B. surface declination.
 - * C. topography.
 - D. permeability.

23. The hardscape includes items such as:
- A. ornamental grasses.
 - B. ornamental vegetable plants.
 - C. fruits, nuts, and vegetables.
 - * D. fences and patios.
24. Plants that have a life cycle of more than two growing seasons are known as:
- A. annuals.
 - * B. perennials.
 - C. hardy annuals.
 - D. succulent plants.
25. Which time is generally best to prune most deciduous trees?
- A. early fall
 - B. late summer
 - * C. late winter
 - D. early winter
26. A bag of fertilizer with an analysis of 5–10–15 consists of:
- A. 5 percent nitrogen, 10 percent potash and 15 percent phosphorus.
 - B. 5 percent potash, 10 percent nitrogen and 15 percent phosphorus.
 - C. 5 pounds of nitrogen, 10 pounds of phosphorus and 15 pounds of potash.
 - * D. 5 percent nitrogen, 10 percent phosphorus and 15 percent potash.
27. This pest control method may be used to kill weed seeds, insects, and underground plant parts. It may also be used to kill nematodes and disease organisms in potting soil or in an outdoor plot that will be planted in a high-value crop.
- * A. soil fumigants
 - B. systemics
 - C. nematocides
 - D. emulsifiable concentrates
28. When a pollen grain lands on the stigma, _____ has taken place.
- A. fertilization
 - * B. pollination
 - C. pollephytic stimulation
 - D. germination
29. Which of the following is true?
- A. Inorganic fertilizers have been proven to be much better than organic fertilizers.
 - B. Organic fertilizers have been proven to be much better than inorganic fertilizers.
 - C. Inorganic fertilizers have been proven to be safer than organic fertilizers.
 - * D. Inorganic fertilizers generally release their nutrients quicker than organic fertilizers.
30. Most of the damaging white grubs found in lawns are the larvae of:
- A. crickets.
 - B. wasps.
 - C. moths.
 - * D. beetles.

31. Which of the following is true about slopes in the landscape?
- A. Slopes less than 2 percent do not drain well.
 - * B. Drive up and down the slopes when mowing with a riding mower on slopes over about 4 percent.
 - C. Mow across any slope when operating a riding mower.
 - D. Mow up and down slopes when mowing with a walk-behind mower on slopes over about 4 percent.
32. A well-designed landscape becomes an extension of the:
- * A. indoor living space.
 - B. garage area.
 - C. public area.
 - D. service area.
33. The process of removing a portion of the seed coat to allow water to enter the seed for germination is known as:
- A. propagation.
 - B. mastication.
 - * C. scarification.
 - D. stratification.
34. Heavy equipment used to grade landscape sites, especially if work is done when the soil is wet, may:
- A. improve air movement through the soil layers.
 - B. reduce the soil organic content.
 - * C. damage the soil structure.
 - D. improve the organic content of the soil.
35. At what point on the cutting will roots normally develop first?
- * A. close to a node
 - B. just above the soil line
 - C. at the very base of the cutting
 - D. along the internode
36. Most hollies are prized for their:
- A. flowers
 - * B. berries
 - C. fall leaf color
 - D. fragrance
37. One method of seeding grass is by mixing a mulch-like material, seed, fertilizer, and water into a slurry and spraying it onto the ground with a pump sprayer. This process is referred to as:
- A. hydromulching.
 - B. hydrozoning.
 - * C. hydroseeding.
 - D. mulchseeding.
38. Plant _____ is the science of describing, identifying, categorizing, and naming plants.
- A. anatomy
 - B. delineation
 - * C. taxonomy
 - D. protocol

39. Which of these soil mix ingredients is made up of partially decomposed aquatic plants that have been preserved under water and improves the water holding capacity of growing media?
- * A. peat moss
 - B. perlite
 - C. mineral matter
 - D. vermiculite
40. To kill existing crabgrass in a lawn, a _____ should be applied.
- * A. post-emergence herbicide
 - B. selective fungicide
 - C. nonselective herbicide
 - D. pre-emergence fungicide
41. When practical, the best time of day to water a lawn is:
- A. early evening.
 - B. noon.
 - * C. early morning.
 - D. mid-afternoon.
42. Cuttings made from the new growth of woody plants, just as they begin to harden (mature), are called _____ cuttings.
- * A. softwood
 - B. succulent
 - C. new season
 - D. summer
43. Which of these treatments would likely stimulate the greatest growth of lateral buds in woody plants?
- A. spraying with an antidessicant
 - B. heavy watering in the fall
 - C. fertilization just before dormancy
 - * D. pruning of the terminals
44. Plants store reserve energy in the form of _____ .
- A. fats
 - B. carbon dioxide
 - * C. carbohydrates
 - D. carbon credits
45. A good soil pH range for most nursery plants would be _____ .
- A. 7.0 to 8.5
 - B. 4.5 to 5.5
 - * C. 5.5 to 6.5
 - D. 6.5 to 7.0
46. For better and faster rooting, bottom heat is sometimes applied to cuttings in rooting beds to keep the soil temperature _____ .
- * A. 75 to 80 degrees F
 - B. 60 to 65 degrees F
 - C. 55 to 60 degrees F
 - D. 45 to 55 degrees F

47. The application of efficient, water-wise practices in the landscape to minimize water use is known as:
- A. zeroscaping.
 - * B. xeriscaping.
 - C. microclimatizing.
 - D. arboriculture.
48. In the landscape of a very large industrial building, the landscape designer placed trees in the front of the building in a "V" shape with the point of the V at the main entrance to the building. In this design she was using the straight lines of the V to:
- A. distract the viewer from the size of the building.
 - * B. lead the viewer's eye to the entry.
 - C. lead the viewers eye away from the entry to emphasize the size of the building.
 - D. establish textural differences in the landscape.
49. The law dealing with the requirement to educate workers on chemical safety and to make workers aware of the chemical hazards in their work environment is known as the _____ law.
- A. MSDS
 - * B. Right to Know
 - C. Workplace Hazards
 - D. Comprehensive Chemical Safety
50. Which of the following best describes an attractive and easily maintained design for landscape beds and lawn areas?
- A. acute angles of less than 30 degrees, with sloping lines
 - * B. long, curved, sweeping bed lines with distinct edges
 - C. obtuse angles, straight bed lines
 - D. parallel lines with wide angles and narrow edging

End
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Directions: Select the best answer for each question and mark your selection on the separate answer sheet provided. Using a #2 pencil, completely darken in the letter on the answer sheet that corresponds to the best answer for each item.

1. Locally owned, independent garden centers have found it difficult to compete with chain stores on price. In many cases, they have been able to remain competitive by providing:
 - A. longer hours of operation.
 - B. better guarantees.
 - C. cleaner and brighter stores.
 - * D. better service.

2. Which of these plants is most likely to survive in the landscape if temperatures go below freezing for extended periods?
 - A. Wax Begonia
 - * B. Pansy
 - C. Striped Dracaena
 - D. Benjamin Fig

3. Which of the following hardiness zones is warmer than Zone 3?
 - A. Zone 1
 - B. Zone A
 - C. Zone B-2
 - * D. Zone 6

4. Which LD-50 rating listed is most toxic to humans?
 - * A. 17
 - B. 84
 - C. 905
 - D. 1000

5. Watering plants _____ will to help reduce disease in nursery crops.
 - A. late in the afternoon
 - * B. in the morning
 - C. in the late evening
 - D. in the early evening

6. An advantage of using a landscape fabric around plantings rather than black polyethylene film is that landscape fabric:
 - A. warms the root zone.
 - B. eliminates the need for mulch.
 - * C. provides for the exchange of gases between soil and air.
 - D. provides color to the landscape as desired.

7. Sand used in potting mixes for horticultural crops should generally be _____ textured.
- A. smooth
 - B. very fine
 - C. fine to medium
 - * D. coarse
8. In the commercial nursery trade, additions are often made to the binomial name of a plant, such as, 'Crimson King' to the name *Acer platanoides*. In this case, 'Crimson King' is the _____ name.
- A. species
 - * B. cultivar
 - C. genus
 - D. order
9. *Ginkgo biloba* is a tree known for its:
- * A. excellent fall color.
 - B. fragrant spring flowers.
 - C. ease of transplanting.
 - D. colorful, edible fruit.
10. The soil should be firmed around newly transplanted plants to prevent:
- * A. drying of plant roots.
 - B. soil heaving in winter.
 - C. disease.
 - D. insects from invading the soft soil.
11. A plant pathologist studies:
- A. diseases and insects of plants.
 - B. plant propagation methods.
 - * C. plant diseases.
 - D. adaptation of plants to the landscape.
12. Which of the following landscape materials is derived from a naturally occurring organic source?
- A. perlite
 - * B. peat moss
 - C. pea gravel
 - D. vermiculite
13. The most commonly used propagation method for shrubs such as Japanese and Chinese hollies is:
- A. layering.
 - * B. stem cuttings.
 - C. cleft grafting.
 - D. root cuttings.
14. In most asymmetrical landscape designs when using fewer than 10 shrubs, they should be planted in:
- A. groups of two.
 - B. even numbered groups.
 - C. groups of four.
 - * D. odd numbered groups.

15. What are the major advantages of adding mulch around landscape plantings?
- A. conserve nutrients, prevent runoff, reduce disease, and prevent carbon dioxide loss
 - * B. retain moisture, improve appearance, moderate temperatures, and suppress weeds
 - C. control insects, improve aeration, control weeds, and provide air exchange
 - D. retain moisture, cool plant trunks, control disease, and store nutrients
16. Field-grown trees are root pruned to:
- A. force more of the tree's energy into top growth.
 - * B. encourage a more compact root system.
 - C. encourage tap root growth.
 - D. prevent entanglement of roots with the roots of nearby plants.
17. A _____ plant ~~that~~ produces male flowers on one plant and female flower parts on another plant.
- A. staminate
 - B. monocious
 - * C. dioecious
 - D. gymnosperm
18. Which of the following is correct about scalping lawns?
- * A. Scalping is generally undesirable, occurring on uneven ground or when a mower blade is set too low.
 - B. Scalping is recommended to be done only one time per year and in mid-summer.
 - C. Scalping is most beneficial if done in the fall.
 - D. Lawns in good condition need scalping only once every two to three years.
19. This nutrient is generally not tested for in soil tests. Instead, standard recommendations are given for its rate of application, depending on the plants or crop to be grown.
- * A. nitrogen
 - B. phosphorus
 - C. potassium
 - D. magnesium
20. To assure a soil test covers most of the root zone, soil core samples should be taken to a depth of about _____ inches.
- A. 2
 - B. 3
 - * C. 6
 - D. 14
21. In what position should a deciduous tree be planted to shade a building from the hot afternoon sun during the summer and allow the warming sun rays to reach the building in winter?
- A. East
 - B. North
 - C. Northwest
 - * D. Southwest

22. Iron deficiency in plants is exhibited by:
- * A. yellowing between the leaf veins while the veins remain green.
 - B. browning leaf margins.
 - C. pathogenic materials forming in the leaves.
 - D. leaves with a scorched appearance.
23. The _____ of the front of the home is usually the front door, with plantings leading the viewer's eye toward the door.
- A. attractive focus
 - B. social area
 - * C. focal point
 - D. attention focus
24. About _____ elements are considered essential nutrients for plant growth and development.
- A. 7
 - B. 9
 - * C. 16
 - D. 32
25. Suppose a home, when viewed from the front, has the same architectural features on each side of the front door. A(n) _____ balanced landscape would fit this home best.
- * A. symmetrically
 - B. informally
 - C. asymmetrically
 - D. rhythmically
26. An unthrifty potted plant that has dead roots at the bottom of the container but healthier roots near the top of the pot may indicate:
- * A. that the pot has been overwatered for an extended period of time.
 - B. the drain holes in the pot are too large.
 - C. that the pot is too small for the plant.
 - D. under-fertilization over an extended period of time.
27. Plants to be used in interiorscapes are produced in conditions for best plant growth. Before being placed in interiorscapes, where the growing conditions will be less desirable, the plants should be _____ to the new environment.
- * A. acclimated
 - B. softened
 - C. scaled
 - D. espaliered
28. Most plants do not grow well in wet, poorly drained soils because of:
- * A. low oxygen content.
 - B. high pH.
 - C. excess nitrogen.
 - D. low soil temperature.

29. The process of converting food energy into energy for plant growth is called:
- * A. respiration.
 - B. photosynthesis.
 - C. acclimatization.
 - D. transpiration.
30. Providing _____ is one technique often used to help speed up the rooting of cuttings.
- A. soil cooling
 - * B. bottom heat
 - C. leaf heating
 - D. extra fertilizer
31. Plant clones may be produced in several ways, including:
- * A. stem cuttings.
 - B. sexual and asexual propagation.
 - C. sexual propagation.
 - D. seeds.
32. Herbicides may be classified as _____ based on the time of their application.
- A. pre-selective or post-selective
 - * B. pre-emergence or post-emergence
 - C. utility or general purpose
 - D. selective or nonselective
33. Most plants grow best in soil with a pH range of _____.
- A. 3.5 to 5
 - B. 4 to 5
 - * C. 6 to 6.5
 - D. 7 to 8
34. When using a riding lawn mower on slopes, it is safer to mow:
- A. in a circular pattern on the slope.
 - B. across the slope.
 - C. diagonally across the slope.
 - * D. up and down the slope.
35. The best time of day to take stem cuttings of landscape plants for propagation is:
- A. mid-day.
 - * B. early morning.
 - C. early evening.
 - D. mid-afternoon.
36. To help assure grass seeds are distributed evenly during planting:
- A. use a drop spreader with a setting of seven.
 - B. use a rotary spreader with a setting of nine.
 - C. sow one-half of the seed by hand and one-half of the seed with a spreader.
 - * D. sow one-half the seed in one direction and sow one-half at right angles to the first direction of seeding.

37. As general rule, when applying liquid pesticides:
- * A. spray just until the solution begins to drip slightly from the leaves.
 - B. spray until approximately 1/3 of the solution applied has dripped from the plant.
 - C. apply two short blasts of spray to each area of the plant.
 - D. apply three short blasts of spray to each area of the plant.
38. In landscape terms, which of the following best defines an invasive species?
- A. a native plant that grows rapidly, over-taking cultivated landscape plants.
 - * B. a non-native aggressive plant species that crowds-out native plants and other cultivated species.
 - C. a plant species with an aggressive and extensive root system that clogs septic and water lines.
 - D. any undesirable plant.
39. The rooting medium for cuttings of most landscape plants should be:
- A. high in fertility.
 - * B. low in fertility.
 - C. very fine textured.
 - D. inorganic only.
40. Which of the following would be found on a four-cycle engine but not on a two-cycle engine?
- A. carburetor
 - * B. oil tank
 - C. spark plug
 - D. fuel tank
41. The term organic means:
- * A. a material derived from plant or animal materials.
 - B. better than non-organic products.
 - C. safer than non-organic products.
 - D. All of these.
42. Plants that are very tolerant of dry conditions are called:
- A. conifers.
 - * B. xerophytes.
 - C. monocotyledonous.
 - D. dicotyledonous.
43. When grafting, special attention is given to:
- * A. matching the cambium layer of the rootstock with the cambium layer of the scion.
 - B. making sure that the scion is smaller than the rootstock.
 - C. selecting a scion that is at least two times larger than the rootstock.
 - D. selecting scion wood from the same tree as the rootstock.
44. Should employees become injured or ill due to work-related causes, they can receive financial assistance through their state's _____ program.
- A. OSHA Reimbursement
 - * B. Workers' Compensation
 - C. FEMA Assistance
 - D. APHIS Worker Assistance

45. Which of the following are all fixed assets?
- A. land, buildings, cash-on-hand
 - B. buildings, inventory, bank balance
 - C. cash-on-hand, Inventory, tractors
 - * D. land, buildings, irrigation pond
46. To prevent destroying good soil structure, do not till the soil:
- A. when it is humid.
 - * B. when it is very wet.
 - C. when the moon is full.
 - D. when the air temperature is below 30° F or above 90° F.
47. The depth seeds should be planted is determined mainly by:
- * A. the size of the seeds.
 - B. the depth of the flat.
 - C. the viability of the seeds.
 - D. all the above.
48. Xeriscaping is best defined as:
- A. the use of techniques to minimize landscape plants and maximize hardscape materials.
 - B. the absence of landscaping.
 - * C. a type landscaping that utilizes techniques to conserve water.
 - D. a landscape using mostly hardscape materials with no in-ground plants, and limited containerized plants.
49. When "orientalis" is used in the botanical name of a plant, it means that the plant:
- * A. is native to, or originated in, eastern Asia.
 - B. should be planted with a specific orientation.
 - C. is closely related to occidentalis plants.
 - D. is a 'shade loving' plant.
50. Which Federal agency was established to make the workplace safer?
- * A. OSHA
 - B. EPA
 - C. USDA
 - D. APHIS

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1. An agriculture teacher was teaching plant parts and trying to give her students a good way to remember the definition of each part. One student wrote the definitions down but got one wrong. Which of these is wrong?
*
 - A. endosperm: the male portion of the flower
 - B. stolon: a creeping horizontal plant stem or runner that grows on the ground
 - C. rhizome: an underground stem that can rise up to form a new plant
 - D. internode: the section of stem in between two nodes

2. If the temperature dips below freezing for several days, which of these plants would most likely NOT survive in the landscape without protection?
*
 - A. Wax Begonia
 - B. Pansy
 - C. Cotoneaster
 - D. Forsythia

3. Hedges, a common feature in many landscapes, are commonly used to do all of the following EXCEPT:
*
 - A. define property lines and buffer noises
 - B. provide privacy and block strong winds
 - C. block the view of unpleasing objects
 - D. define legally binding property boundaries

4. Which of these best defines simplicity in landscape beds?
*
 - A. use several plant species; separate plants so they will not touch at maturity; use sharp-curved bed lines
 - B. use only a few plant types; use gently curving bed lines; mass like plants together
 - C. use only two of each of six or more plant species; do not mass plants; do not put like plants together
 - D. use many curves in the bed lines; use several species of plants; avoid massing plants together

5. An example of items commonly used as a focal point in the non-public area of the home landscape are:
*
 - A. specimen plants, birdbaths, statuary, and fountains.
 - B. large trees, the front door, concrete walls, and windows.
 - C. tall single-trunk trees, walkways, and vegetable gardens.
 - D. turf pads, tall plants, and hedges.

6. The slope of the home landscape should be graded so that the:
*
 - A. lot slopes toward the home between .5 and 1 percent so that rainwater is directed to the foundation
 - B. slope is as near level as possible
 - C. lot has a gentle slope away from the foundation
 - D. lot slopes toward the house 1 percent or more so that the foundation plants serve as a catch basin

7. When heat is used to pasteurize potting soil, the soil should be heated to about:
- A. 100 degrees for 30 minutes
 - B. 115 degrees for 1 hour
 - * C. 180 degrees for 30 minutes
 - D. 190 degrees for 4 hours
8. The practice of _____ is often used to quickly stabilize steep embankments.
- A. plugging
 - B. stolonizing
 - * C. hydroseeding
 - D. enviro-seeding
9. Subcontractors on large landscape installations may be used to:
- A. install a fountain
 - B. install an irrigation system
 - C. grade the site
 - * D. all of the above
10. All of the following are landscape lighting types used for various lighting effects EXCEPT:
- A. up lighting
 - B. down lighting
 - C. silhouette lighting
 - * D. sketch lighting
11. If the architecture of the structure being landscaped is symmetrical, then a _____ landscape would probably fit best.
- A. asymmetrical
 - * B. symmetrical
 - C. bilateral
 - D. vertical
12. Generally, _____ focal point(s) should be seen by the viewer from any one point in the landscape.
- * A. no more than one
 - B. all landscape
 - C. only two to five
 - D. only two
13. The planting season of _____ is generally restricted to the late fall through early spring.
- * A. bare-root shrubs and trees
 - B. containerized shrubs and trees over 5 gallons
 - C. containerized shrubs and trees less than 5 gallons
 - D. herbaceous plants
14. Which of the following is the LEAST important question to ask while interviewing the client about a total home landscape plan?
- A. How many cars are in the family?
 - B. What are the hobbies or special interests of the family members?
 - C. Tell me about your pets?
 - * D. Where does the family like to go on vacation?

15. Material safety data sheets (MSDS) are best obtained from:
- A. the USDA.
 - B. wholesale nurseries.
 - * C. the manufacturer of the product.
 - D. the State Department of Agriculture.
16. Which of these is used to record the slope of different areas of the property?
- A. genome map
 - * B. contour map
 - C. eco-map
 - D. enviro-map
17. Generally, which of the following is true about the foliage texture of landscape plants?
- * A. small leaved plants give a fine textured appearance
 - B. large leaved plants provide a pubescence textured appearance
 - C. coarse textured plants should not be used near fine textured plants
 - D. fine textured plants should not be used in the foundation
18. If landscape plants need severe pruning, generally it is best done in the:
- A. summer when the plants are actively growing
 - * B. winter when the plants are dormant
 - C. spring just as the buds begin to break
 - D. spring just after the plants are in full leaf
19. A very large tree next to a one story home would make the house appear _____ to the viewer and violates the principle of proportion.
- A. longer
 - B. wider
 - C. larger
 - * D. smaller
20. Which of these is true of cloned plants?
- A. Meiosis is a part of the cloning process that produced the plant.
 - B. Cloned plants are genetically superior to the parent plant.
 - * C. Cloned plants are genetic duplicates of the parent plant.
 - D. Cloned plants are genetically superior to plants propagated from seed.
21. Which of these is a governmental agency with duties that include preventing the importation of plant diseases, insects, and non-native invasive species?
- A. PLANET
 - * B. APHIS
 - C. NLCA
 - D. OSHA
22. A fertilizer with an analysis of 5-10-15 contains _____ percent magnesium.
- A. 5
 - B. 10
 - C. 15
 - * D. The percent magnesium cannot be determined from the information given.

23. The total value of goods and services sold over a given period of time is defined as:
- A. marginal sales
 - B. gross profit
 - * C. gross sales
 - D. marginal revenue
24. The three most distinct areas of a residence to be landscaped are known as:
- * A. public, private, and service
 - B. front, back, and extended
 - C. commercial, residential, and private
 - D. commercial, service, and public
25. When planting seeds, the most important factor to consider in determining how deep to plant the seed is the:
- * A. size of the seeds
 - B. viability of the seeds
 - C. soil temperature
 - D. depth of the topsoil
26. Which of these plants can best survive freezing temperatures in the landscape?
- A. Marigold
 - B. Zinnia
 - C. Impatiens
 - * D. Pansy
27. To help assure that granular fertilizer is spread evenly over the lawn it is best to:
- A. broadcast the fertilizer by hand
 - * B. spread one-half of the fertilizer in one direction and one-half at right angles to the first direction
 - C. use a drop spreader with a setting of seven to nine
 - D. use a drop spreader with a setting of nine or ten
28. Other than a three dimensional model of a proposed landscape project, nothing allows a better visualization of the proposed design than a _____.
- A. base map drawing
 - * B. perspective drawing
 - C. contour display
 - D. plot plan drawing
29. Which of these are NOT traditional drawing tools used in drawing landscape plans?
- A. protractor, compass, scale
 - B. T-square, triangle, lettering template
 - C. French curve, erasers, flexible curve
 - * D. bow arch, twist curve, inch meter
30. Maintaining the proper soil pH is a must for the efficient use of other crop inputs. Understanding that soil pH controls the _____ is important for plant producers.
- * A. availability of most nutrients
 - B. amount of moisture available to the plant
 - C. germination of most crop seeds
 - D. effectiveness of herbicides

31. A plant transplanted into the landscape or potted into a larger pot should be planted:
- A. about 2-3 inches deeper than it was originally growing
 - B. about 2-3 inches higher than it was originally growing
 - * C. at the same depth it was originally growing
 - D. so that at least one inch of the main stem is covered
32. The following size trees were advertised in a wholesale catalog. Which tree is the largest?
- * A. 6 inch caliper
 - B. 18 - 24 inch whip
 - C. 5 - 6 feet
 - D. It is impossible to determine by the information provided
33. A soil that contains nearly equal amounts of sand, silt, and clay is called a(n) _____.
- A. sandy, silty clay soil
 - * B. loam
 - C. silty clay
 - D. equilaterally textured soil
34. Which of these are NOT terms used for irrigation materials and equipment, or in irrigation calculations?
- A. velocity, pressure rated pipe, rotary head
 - B. impact drive head, gear drive head, emitter
 - C. precipitation rate, drip tubing, pop-up head
 - * D. pressure site, surge gate, micro header
35. A common choice for producing plants in poorly drained sites is to:
- * A. use raised beds
 - B. incorporate clay into the site
 - C. install drying tubes
 - D. establish moisture zones
36. Which of the following is a hybrid cross between a red maple and silver maple?
- * A. *Acer x freemanii*
 - B. *Acer palmatum*
 - C. *Acer rubrum* 'October Glory'
 - D. *Acer platanoides*
37. Which of the following would need the most protection from hot and dry locations in the landscape, especially the hot afternoon sun?
- * A. Gardenia
 - B. Red Maple
 - C. Sweet Gum
 - D. Bermudagrass
38. A good growing medium for potted crops contains solids, air, and water. The medium, by volume, should be _____ percent solids with the balance made up of air and water.
- * A. 30 to 50
 - B. 75 to 90
 - C. 85 to 95
 - D. 95 to 99

39. Which of these in a home compost pile serves as an inoculant by adding beneficial microorganisms to the compost pile?
- A. plant parts killed by disease
 - * B. topsoil
 - C. leaves
 - D. limbs
40. It is important to keep the air filter on a lawn mower clean and free of debris to:
- A. prevent crankcase fatigue
 - B. keep the spark plug clean and in operating condition
 - C. prevent oil reservoir contamination
 - * D. prevent dust and debris from entering the carburetor
41. Which of the following statements is true about applying fertilizer to a lawn?
- A. lawn fertilizer should always be applied as a dry, granular product
 - B. it is best to apply fertilizer in the morning when the grass is wet from the morning dew
 - C. modern lawn fertilizer should always be applied as a liquid
 - * D. it is a good practice to water-in fertilizer that is applied to the lawn in granular form
42. The USDA Plant Hardiness Zone Map is based on the _____ for an area.
- * A. minimum expected temperatures
 - B. maximum expected temperatures
 - C. weather and soil characteristics
 - D. all of the above
43. A Slow Moving Vehicle sign is required on the back of any farm vehicle or implement that travels on the road at less than 25 miles per hour. Which of these best describes a Slow Moving Vehicle sign?
- A. a sign with a yellow border and black center
 - B. a green and white sign with the words 'Slow Moving Vehicle' in black lettering.
 - * C. a fluorescent yellow-orange triangle with a dark red reflective border
 - D. a red sign with the reflective letters 'SMV' in the center
44. The success of a compost pile in the process of decomposition can be estimated to some degree by the:
- * A. amount of heat given off
 - B. type odor given off
 - C. color of the exterior surface
 - D. moisture generated in outer-most layers
45. Auxin is:
- A. a growth inhibitor used in the production of dwarf landscape plants
 - B. the capital of Texas and an area known for landscape plant production
 - * C. a hormone produced in the terminal bud; it accounts for apical dominance and is used in rooting cuttings
 - D. a pesticide used to control white flies and certain other insects on ornamentals
46. A _____ is a material added to a liquid spray solution to reduce surface tension between the liquid and the leaf surface.
- A. pheromone
 - B. condensate
 - * C. surfactant
 - D. flocculent

47. Which of these is a reason to recommend the selection of a grass seed blend of two or more grass species rather than the seed of a single species?
- * A. the client has a combination of sunny and shady locations in the area to be planted
 - B. the slight color contrast of different grass species adds interest to the landscape
 - C. a blend of grass species helps reduce grass allergies
 - D. grass blends are easier to irrigate and fertilize
48. Which of these is sometimes planted to hold the soil in place until a permanent turfgrass can be established?
- * A. Annual Ryegrass
 - B. Bermudagrass
 - C. Bentgrass
 - D. Annual Bluegrass
49. For maximum benefits and cost effectiveness, mulch is generally applied about ____ inch(es) deep around landscape plantings.
- A. 1
 - * B. 3 - 4
 - C. 10
 - D. 10 - 16
50. Soil sample cores from the lawn should be taken about ____ inch(es) deep.
- A. 1
 - B. 3
 - * C. 6
 - D. 14

End
FBF

**NATIONAL FFA NURSERY/LANDSCAPE
CAREER DEVELOPMENT EVENT
GENERAL KNOWLEDGE EXAM
2014**

Directions: Select the best answer for each item and mark your selection on the answer sheet provided. Using a #2 pencil, completely darken in the letter on the answer sheet that corresponds to your answer for each item.

1. A method used to measure the acute oral and dermal toxicities of pesticides is called:
 - A. Insecticide Tolerance Dosage (ITD).
 - * B. LD₅₀.
 - C. 2, 4-D₂₅.
 - D. Toxicology Dose (TD).

2. In which of the following situations would a soil sterilant be used most appropriately?
 - * A. On a gravel parking lot
 - B. Under mature trees
 - C. Around shrubs planted in beds
 - D. Under small to medium sized trees

3. Which of these is NOT a type of plant grafting or budding?
 - A. Whip and tongue grafting
 - B. Cleft grafting
 - * C. Root-budding
 - D. T-budding

4. In a weed-infested lawn where there are large bare spots, and less than one-third of the lawn is covered with a desirable grass, a landscaper may decide it is best to start over by spraying the lawn with _____ to kill all existing grass and weeds and then replant the lawn.
 - * A. Glyphosphate (Roundup)
 - B. A selective insecticide
 - C. Mercaptan (Captan)
 - D. 2, 4-D

5. Which of the following is NOT true about leaf galls on trees and shrubs?
 - A. Leaf galls look unattractive but most are harmless to the overall health of the tree or shrub.
 - B. Leaf galls are abnormal growths of plant tissue caused by an organism attacking the leaf.
 - C. Leaf galls may be caused by insects, mites, fungi, or bacteria.
 - * D. Once leaf galls appear, a comprehensive spray regime must be followed to save the plant.

6. A bright orange triangle on the back of a vehicle means:
 - * A. Slow moving vehicle.
 - B. Disabled veteran.
 - C. Oversized load.
 - D. Farm truck.

7. Which of these statements about turf irrigation is most accurate?
 - A. It is best to water turf each day with shallow watering.
 - B. It is best to irrigate turf every other day with shallow watering rather than deep watering.
 - C. Turf should be watered only during mid-day.
 - * D. Turf should be watered deeply about once a week as needed.

8. An important factor in applying pesticides is knowing what part of the plant is generally attacked by the pest and where the pest is usually found on the plant. Spider mites usually congregate:
- * A. Under the leaves.
 - B. Along the main trunk and stems.
 - C. On top of the leaves along the midrib.
 - D. Along the petioles of new-growth leaves.
9. Many nursery and landscape operations are incorporating more environmentally sustainable practices into their businesses to reduce their carbon footprint. These include all of the following EXCEPT:
- A. Reducing energy and fossil fuel use.
 - B. Conserving natural resource inputs.
 - C. Recycling materials.
 - * D. Decreasing production efficiency.
10. Larger landscape projects, such as commercial building complexes, should include a storm water management plan to help route storm water runoff into:
- * A. Infiltration swales and basins.
 - B. Small creeks that flow to rivers.
 - C. Municipal sewer systems.
 - D. Rivers that flow to lakes.
11. Which of the following concerning the inventory of nursery and landscape businesses is true?
- * A. Items in inventory are assets.
 - B. If items are in inventory at the end of the year, it indicates that a profit was made in the business.
 - C. Inventory items are reported as a loss in the business analysis.
 - D. An increase in inventory is not considered in the business analysis.
12. If production and sales at a container nursery increase dramatically, variable costs most likely would:
- A. Remain the same.
 - B. Decrease.
 - C. Not be a factor in increased production.
 - * D. Increase.
13. In monocots, the number of cotyledons is ____, while the number of cotyledons in dicots is ____.
- * A. One; two
 - B. One; three
 - C. Two; three
 - D. Two; four
14. Rooting softwood cuttings requires management of several environmental factors for the highest rate of success. These factors include which of the following?
- A. Low humidity, saturated rooting media, full sunlight
 - * B. High humidity, bright but indirect light, moist rooting media
 - C. Cool rooting media, warm air temperature, and low light
 - D. Fine textured rooting media, low light, and low soil temperature

15. It is always wise to have the landscape site checked for underground utility lines before digging. Call _____ to request that utility lines be located and marked before beginning a landscaping job.
- A. 911
 - * B. 811
 - C. 711
 - D. 611
16. Which of these generally increases the rooting percentage of softwood cuttings?
- * A. Applying gentle bottom heat
 - B. Fertilizing cuttings heavily for the first thirty days
 - C. Providing soil moisture through sub-irrigation
 - D. Allowing the soil and plants to dry between irrigation cycles
17. Blackspot on roses, as well as powdery and downy mildews on plants, are caused by:
- * A. Fungi
 - B. Insects
 - C. Viruses
 - D. Bacteria
18. Which of these trees, depending on variety, may bloom white or pink?
- A. Tuliptree
 - B. Sweet Gum
 - C. European Beech
 - * D. Dogwood
19. Which of the following is considered a landscape maintenance task?
- A. Laying sod
 - * B. Deadheading marigolds
 - C. Harvesting sod
 - D. Planting trees
20. Generally, the best time to prune deciduous trees is:
- A. Early winter and early fall.
 - B. Late summer and early fall.
 - * C. Late winter and early spring.
 - D. Mid-winter and mid-summer.
21. A bag of fertilizer with an analysis of 5-10-15 consists of:
- A. 5% nitrogen, 10% potash, and 15% phosphorus.
 - B. 5% potash, 10% nitrogen, and 15% phosphorus.
 - C. 5% phosphorus, 10% potash, and 15% nitrogen.
 - * D. 5% nitrogen, 10% phosphorus, and 15% potash.
22. Which of the following is a characteristic of dicotyledons?
- * A. Dicot veins are net-like, branching from the midrib into a network of finer veins.
 - B. Dicots have parallel leaf veins.
 - C. Dicot seedlings have one cotyledon.
 - D. Grasses are dicotyledons.

23. Which of these fertilizers is most likely to cause the greatest flush of new vegetative growth if applied to lawn grasses when other conditions are favorable for growth?
- * A. 33-0-0
 - B. 5-10-15
 - C. 0-10-10
 - D. 15-25-10
24. If the pH of a Bermudagrass or fescue lawn is 5.0, then an application of _____ would most likely be recommended to adjust the pH.
- A. Sulfur
 - * B. Lime
 - C. Ammonium nitrate
 - D. Aluminum
25. Overhead watering of nursery crops in the evening, especially after the sun sets may:
- A. Cause leaching.
 - B. Increase insect problems.
 - C. Cause damage to the leaf stomata.
 - * D. Increase the chance of disease development.
26. Which signal word on a pesticide label indicates the most serious hazard?
- A. Caution
 - B. Warning
 - * C. Danger
 - D. Harmful
27. A foundation planting with 10 foot high plants in the background and 1 foot high plants in front of them would most likely violate this principal or element of design:
- * A. Proportion.
 - B. Simplicity.
 - C. Variety.
 - D. Texture.
28. Which items should be included in variable costs for a container plant nursery?
- * A. Containers and plant labels
 - B. Utilities and computer equipment
 - C. Equipment payments and land payments
 - D. Land payments and utility bills
29. PLANET is best described as:
- * A. A national trade association serving the landscape and lawn care industry.
 - B. The national organization of plant hobbyists.
 - C. A federal agency charged with protection of the nursery and landscape industry.
 - D. An arm of the USDA for tracking and controlling pests in the nursery and landscape industry.
30. A plant process in which stored sugars are used as energy by the plant for growth is:
- A. Photosynthesis.
 - * B. Cellular respiration.
 - C. Chlorosis.
 - D. Embryonic exchange.

31. A number of good management practices may be used to control pests, including removing infested plants, maintaining healthy propagation stock, and applying pesticides. When used together as needed, these methods are best described as:
- A. Regulated Plant Management.
 - * B. Integrated Pest Management.
 - C. Integrated Plant Observation.
 - D. Regulated Pest Control.
32. If sand and organic matter are incorporated into a growing media for container plants, it would be expected that _____ will be improved.
- * A. Drainage
 - B. Topography
 - C. Silt content
 - D. Clay content
33. How many trees can be grown on an acre if they are planted in rows that are 6 feet apart with trees in the row spaced 4 feet apart?
- A. 20,708
 - B. 13,560
 - C. 10,893
 - * D. 1,815
34. Most hollies are _____, having male parts on one plant and female parts on another plant.
- * A. Dioecious
 - B. Monecious
 - C. Dichotomous
 - D. Monogamous
35. If a tree is a weeping variety, such as a weeping willow or weeping cherry, it would be expected to:
- A. Lose unusually large amounts of water through transpiration.
 - * B. Develop gracefully drooping limbs.
 - C. Be highly susceptible to breaking limbs.
 - D. Require regular shearing to control growth.
36. Crowding container-grown shrubs closely together for long periods during growth will most likely result in plants being too:
- * A. Tall and leggy.
 - B. Short and wide.
 - C. Compact.
 - D. Stiff and easily broken by wind.
37. Some non-native landscape plants have spread out of control into the surrounding natural landscape. They grow aggressively and compete with native plants. In the landscape trade they are known as:
- A. Natives.
 - * B. Invasives.
 - C. Perennials.
 - D. Occidentals.

38. A lawn is observed to have hundreds of rod-shaped plugs of soil about three inches long lying on top of the turf where they have been pulled from the soil. What landscape practice is most likely to have been performed on this turf?
- * A. Core aeration
 - B. Spike aeration
 - C. Fertilizer injection
 - D. Pesticide injection
39. One guideline for retail face-to-face sales is to:
- A. Show the customer all items that meet their need as well as all the items they should not consider.
 - B. Provide the customer with the two least expensive items for them to choose from.
 - C. Tell the customer your favorite item and don't offer any other choices until they have refused that item.
 - * D. Help the customer narrow their choices and provide a few, two to three, items to choose from.
40. A 50 pound bag of fertilizer with an analysis of 16-4-8 contains _____ pounds of nitrogen.
- * A. 8
 - B. 16
 - C. 28
 - D. 30
41. A soil with a pH of 4.0 would probably be too _____ for most landscape plants.
- A. Alkaline
 - * B. Acidic
 - C. Dry
 - D. High in potash
42. The use of parasitic wasps and lady bird beetles to control insects is considered:
- A. Insecticidal pest control.
 - B. Cultured pest management.
 - * C. Biological pest control.
 - D. Cannibalistic pest management.
43. Two closely related plants may be the same genus and species yet have different characteristics because they are:
- A. In different kingdoms.
 - * B. In different cultivars.
 - C. In different families.
 - D. In different orders.
44. A dichotomous key may be used to:
- * A. Identify an unknown plant.
 - B. Initiate safety procedures.
 - C. Analyze the profitability of a business.
 - D. Determine the proper spacing of plants in the growing area.
45. A light covering of straw is sometimes placed over newly seeded turf areas to:
- * A. Hold moisture.
 - B. Supply nitrogen.
 - C. Conserve nutrients.
 - D. Supply organic nutrition.

46. Which of the following is NOT true about the proper construction and maintenance of a compost pile?
- A. Food scraps are usually excluded from compost piles to prevent rodent infestation.
 - * B. The compost pile should be kept as cool as possible.
 - C. Topsoil may be added as an inoculant to a compost pile.
 - D. A compost pile should be kept moist.
47. Which of these parts on a small gasoline engine allows electricity to jump a gap during the cranking process, creating a spark that ignites the fuel and starts the engine?
- A. Cylinder
 - B. Air gap
 - C. Flywheel
 - * D. Spark plug
48. Most plant diseases are caused by:
- A. Pythium and rhizoctonia.
 - * B. Bacteria, fungi, and viruses.
 - C. Nematodes.
 - D. Molds, nematodes, and mildew.
49. One of the primary safety features on a chainsaw is the:
- A. Pressure valve.
 - * B. Chain brake.
 - C. Differential.
 - D. Plastic handle.
50. Focalization in the home landscape is used to:
- * A. Focus the viewer's eye on a feature of the landscape or home.
 - B. Balance the landscape between each end of the home.
 - C. Unify the public and private areas of the landscape.
 - D. Simplify the overall landscape complexity.

End
FBF

**2013 Nursery/Landscape CDE
Written Exam Key**

Directions: Select the best answer for each question and mark your selection on the separate answer sheet provided. Using a #2 pencil, completely darken in the letter on the answer sheet that corresponds to the best answer for each item.

1. What is the advantage of using plants in the landscape that are native to the area or plants that are derived from native species?
 - A. Native plants and selected varieties of native plants are less expensive.
 - B. Native plants and selected varieties are smaller at maturity and require less pruning.
 - C. Native plants and selected varieties will grow in all soil conditions in the area.
 - * D. Native plants and selected varieties are usually more resistant to pests and are better adapted to the environment of the area.

2. A pesticide that enters the plant system and moves throughout the plant to control plant pests as they feed on the plant tissues is best defined as which of the following?
 - A. systemic.
 - B. internal poison.
 - C. fumigant.
 - D. contact poison.

3. Which nutrient is most readily lost from the soil and is applied according to general recommendations for plant needs rather than soil test results?
 - * A. nitrogen
 - B. phosphorous
 - C. calcium
 - D. magnesium

4. Generally, solid wooden fences should be about ___ feet high to provide privacy, some wind protection, and reduced noise.
 - A. 4
 - * B. 6
 - C. 8
 - D. 10

5. Which of the following is the best definition of “massing plants” in landscape design?
 - A. many plants that grow at different heights so that a vertical wall of green is formed.
 - B. one half deciduous and one half evergreen plants in a bed.
 - C. one-third each of deciduous plants, blooming plants, and evergreen plants.
 - * D. many plants of one or a few species in a group to fill large amounts of landscape space.

6. An example of items commonly found in the service area of the home landscape include:
 - A. birdbaths, statuary, and fountains.
 - B. specimen trees, fruiting shrubs, and fountains.
 - C. miniature putting greens, vegetable gardens, and sitting areas.
 - * D. tool sheds, garbage cans, and storage.

7. The walkway leading to the front door of a home should be at least ____ feet wide.
- A. 2
 - * B. 4
 - C. 6
 - D. 8
8. Hydroseeding, which is the process of _____, is often used to establish grass on steep slopes.
- * A. applying a mixture of seed, water, fertilizer, and mulch in a spray slurry
 - B. infusing hydrogen into seed for quick germination
 - C. planting seeds by air pressure
 - D. soaking seeds in water and a mild paste before application
9. Turf that is to be maintained at 2 inches high should be mowed when it is about ____ inches tall.
- * A. 3
 - B. 5
 - C. 7
 - D. 9
10. Grasses that are to be maintained at a low height, such as bentgrass on golf greens, are best cut with a _____ mower.
- * A. reel
 - B. rotary
 - C. flail
 - D. riding
11. Which federal agency is responsible for inspecting businesses to ensure that employers provide employees with a workplace that is free from recognized hazards that are likely to cause harm to the employees?
- A. American Community and Workplace Administration.
 - B. Cooperative Extension Service.
 - * C. Occupational Safety and Health Administration.
 - D. Hazard Prevention Administration.
12. In the process of obtaining bids on large landscape projects, a _____ bond is often required to assure that the contractor who is selected as the winning bidder for the job will actually sign the contract and follow through to complete the landscape job he/she bid.
- A. bail
 - * B. bid
 - C. loss
 - D. materials
13. Upright trees generally have a center, main branch called a _____ and side branches often called _____ branches.
- A. top, terminal
 - B. sucker, scaffold
 - C. main, terminal
 - * D. leader, lateral

14. A Federal governmental agency which, among other responsibilities, protects plant health by inspecting for plant diseases that may be brought into the U.S. by international travelers at airports, ports, etc., is:
- A. PLANET.
 - * B. APHIS.
 - C. NLCA.
 - D. OSHA.
15. Carrying adequate liability insurance on the business helps reduce _____ for the business.
- A. inventory
 - B. gross sales
 - * C. risk
 - D. costs
16. A simple plant leaf is made up of which of the following?
- A. lenticels, internode, and serrations.
 - B. petiole and lenticels.
 - C. internode, node, petiole, and leaf blade.
 - * D. petiole and leaf blade.
17. In the analysis of a landscape business the following data for the year were collected. Which single item is most accurate in indicating the profitability of the business?
- A. Gross sales = \$68,000
 - * B. Payroll = \$185,000
 - C. Inventory = \$213,000
 - D. Payroll = \$350,000
18. A customer tells you that a large limb about 5 inches in diameter was broken off of their tree recently in a storm leaving a frayed stub about 15 inches from the tree trunk. What is the best advice for this customer?
- A. Spray the frayed stub with wound spray.
 - B. Cut the frayed stub back about 5 inches from the trunk and seal with wound dressing.
 - C. Do nothing. Research has shown that treating wounds of this nature is not beneficial.
 - * D. Make a clean cut next to the trunk, avoiding the collar area. Apply wound spray if desired.
19. Which of the following is a Federal tax that is deducted from the pay checks of full time employees?
- A. property tax
 - B. Medicaid
 - * C. Social Security
 - D. state income tax
20. A call to _____ is always advisable if you think you may be digging anywhere near underground utility lines.
- A. 411
 - * B. 811
 - C. 888
 - D. 977

21. Patented plants cannot legally be propagated without _____ being paid to the patent holder.
- A. development taxes
 - B. patent rentals
 - C. hybrid taxes
 - * D. royalties
22. Which of the following would be the most likely to survive being planted into the landscape during the hot summer months?
- A. bare root deciduous plants
 - * B. containerized plants
 - C. bare root evergreens
 - D. balled and burlapped trees
23. The gap on a spark plug must be a specified width in order to:
- A. provide for the proper flow of gasoline into the cylinder.
 - B. allow air flow into the cylinder, which vaporizes the gasoline.
 - C. regulate the mixture of air and gasoline.
 - * D. allow electricity to jump the gap, creating a spark to ignite the fuel.
24. In most landscape plants, pruning stimulates:
- * A. regrowth of shoots near the cut.
 - B. development of V-shaped crotches.
 - C. root growth.
 - D. internode growth near the cut.
25. USDA Plant Hardiness Zones are based on the _____ for an area.
- * A. lowest expected temperatures
 - B. highest expected temperatures
 - C. rainfall and soil characteristics
 - D. all the above
26. Which of the statements below is true concerning the turfgrass species specified?
- * A. Annual Ryegrass is sometimes used as a nurse grass to hold soil in place until a permanent turfgrass is established.
 - B. Bermudagrass is always grown from seed and is one of the most shade tolerant turfgrasses.
 - C. Bentgrass is a noxious weed that invades lawns and golf greens in USDA Hardiness Zones 7 to 12.
 - D. Annual Bluegrass is often used on putting greens due to its cold hardiness and fine texture.
27. Astilbe, Purple Coneflower, Shasta Daisy, and Day Lily are all classified which of the following?
- A. bulbous
 - B. annuals
 - * C. perennials
 - D. biennials
28. In pruning shrubs, heading back cuts should be made:
- A. just below a bud, and as close to the bud being removed as possible
 - B. just above a bud in the middle of the internode
 - C. diagonally across the center of a node
 - * D. just above a node, about one fourth of an inch above a bud

29. Plants that are unusually colorful or have striking growth habits, as well as fountains and statuary, are often used in the landscape as which of the following?
- * A. focalization points
 - B. convex balance points
 - C. silhouettes for balance
 - D. mass materials for rhythm
30. Which of the following is the recommended type of turf aeration that allows for maximum penetration of air and water into the soil?
- * A. core
 - B. triangular
 - C. spike
 - D. square
31. In general, when pruning trees which of the following should be removed?
- A. crossing branches
 - B. branches that grow toward the center of the plant
 - C. water sprouts
 - * D. all the above
32. Which of the following should NOT generally be added to a potting mix for azaleas?
- A. perlite
 - * B. lime
 - C. peat moss
 - D. sand
33. The signal word “caution” on a pesticide label indicates:
- * A. the lowest level of toxicity
 - B. the highest level of toxicity
 - C. extreme danger to vertebrates
 - D. a highly restrictive pesticide
34. To help prevent plants from growing too close to a building at maturity, most shrubs in the foundation planting should be planted:
- A. about 6 to 12 feet from the foundation.
 - B. between 1 to 2 feet from the foundation.
 - * C. no closer than 3 feet from the foundation.
 - D. no closer than 6 feet from the foundation.
35. An organism capable of causing a disease is called a(n):
- A. enzyme.
 - B. systemic.
 - * C. pathogen.
 - D. carcinogen.
36. Which of these grasses cannot generally be established from seed and is most successfully established by plugs, sod, or sprigs?
- * A. Hybrid Bermudagrass
 - B. Kentucky Bluegrass
 - C. Kentucky 31 Fescue
 - D. Annual Ryegrass

37. Which of the following is one strategy that small retail nurseries often use to successfully compete with big box stores and chain garden centers?
- A. selling products at a lower price.
 - * B. providing better service.
 - C. advertising negatively against big box stores and chain garden centers.
 - D. advertising on TV.
38. On which area of a golf course is the care of turfgrass most intense and most important?
- * A. green
 - B. fairway
 - C. rough
 - D. fringe
39. Which tree does NOT provide good fall color?
- A. Red Maple
 - B. Sugar Maple
 - C. Ginkgo
 - * D. Norway Spruce
40. Changing the color of blooms on certain *Hydrangea macrophylla* varieties from pink to blue or from blue to pink is controlled by the availability of _____ in the soil.
- A. nitrogen
 - * B. aluminum
 - C. phosphorus
 - D. iron
41. Which of these is NOT a common type of night lighting for the landscape?
- A. shadow
 - B. silhouette
 - C. up
 - * D. crescent
42. Which of these plants has the finest leaf texture?
- A. Chinese Holly
 - * B. Japanese Holly
 - C. Oregon Grape Mahonia
 - D. Red Maple
43. Extra fuel for easier starting of a small engine is often supplied by pressing the _____.
- * A. primer bulb
 - B. flywheel
 - C. fuel cell
 - D. float valve
44. When is the optimum time to prune Azaleas?
- A. shortly before bud break in the spring.
 - * B. shortly after blooming in the spring.
 - C. in the late fall.
 - D. between January 1 and March 1.

45. A fuel/oil mix ranging from 16:1 to 50:1, depending on the manufacturers' recommendation, is required in:
- * A. two-cycle engines
 - B. three-cycle engines
 - C. four-cycle engines
 - D. diesel engines.
46. Which of these ornamental trees is commonly sold in either white or pink blooming varieties?
- A. Ginkgo
 - B. Japanese Maple
 - C. European Beech
 - * D. Dogwood
47. Which plant disease organism is the most difficult to control with chemicals once the plant is infected?
- A. bacteria
 - B. fungus
 - * C. virus
 - D. mildew
48. IPM is an acronym for which of the following?
- A. interrelated pest management.
 - * B. integrated pest management.
 - C. intensive pest management.
 - D. intensive pest material.
49. During a recession, businesses often have to cut costs to stay in business as sales decline. If sales fall for a production nursery, which cost can be reduced most effectively in the short-run to help preserve the business?
- A. overhead costs
 - * B. variable costs
 - C. fixed assets
 - D. property taxes
50. Which of the following is false statement?
- A. Generally, shrubs in the landscape should be within bed lines.
 - B. Shrubs of the same species that are grouped together should generally be used in odd numbers.
 - * C. Tall growing trees should be planted on the sides of the home with short trees in the back and medium sized trees in the front.
 - D. *Cornus florida* prefers partial shade.