

Nursery Landscape

- 1 Which of these is a safety feature on a chainsaw?
 - a. **chain brake**
 - b. anti-static paint
 - c. chop-ring
 - d. oil pressure valve
- 2 An orange triangle displayed on the back of equipment that is moved short distances along public roads is referred to as a(n) _____ sign.
 - a. emergency vehicle
 - b. tractor
 - c. **slow-moving vehicle**
 - d. wide vehicle
- 3 Which of these statements is true?
 - a. **Landscapers generally purchase their plants from wholesalers.**
 - b. The most accurate retail pricing formula is the cost of production multiplied by four.
 - c. Nutsedge is a good substitute for junipers in hot, dry areas of the landscape.
 - d. Purslane is used as a perennial flowering plant in most of the US.
- 4 What is the ANLA?
 - a. American Nursery Landscape Alliance
 - b. American New Landscape Affiliate
 - c. **American Nursery and Landscape Association**
 - d. Association of Nursery Landscapers of America
- 5 Which of these can be a plant disease vector?
 - a. thrips
 - b. humans
 - c. aphids
 - d. **all of these**
- 6 Most landscape irrigation systems are installed using _____ pipe.
 - a. **PVC**
 - b. iron
 - c. galvanized
 - d. copper
- 7 The majority of a plant's stomata are located on the:
 - a. roots
 - b. **leaves**
 - c. stems
 - d. bark
- 8 A plant in the window, growing toward the sunlight, is an example of:
 - a. **phototropism**
 - b. stimulation
 - c. geotropism
 - d. photosynthesis
- 9 The major function of the root hairs is to:
 - a. protect the root as it pushes through the soil
 - b. grow into larger roots

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- c. **absorb water and minerals**
 - d. anchor the plant
- 10 Which are signal words used on pesticide labels?
 - a. Careful, Caution, Contaminate
 - b. Careful, Alert, Crossbones
 - c. **Caution, Warning, Danger**
 - d. Alert, Extreme, Caution
- 13 Most deciduous shade trees and non-flowering shrubs are best pruned during:
 - a. early fall
 - b. summer and fall
 - c. **late winter and early spring**
 - d. late summer and early fall
- 14 A common cause of tall, spindly growth of container-grown nursery stock is:
 - a. **over crowding**
 - b. under watering
 - c. low nutrition
 - d. a damaged root system
- 15 A low LD50 rating of a pesticide means that the pesticide is:
 - a. unstable when not stored properly
 - b. **highly hazardous to humans**
 - c. not very effective in controlling pests
- 17 Which of these are relatively new landscape features designed to prevent rapid water runoff from landscapes?
 - a. Gravity gardens, ponder pools, and gutter gardens
 - b. **Retention and detention ponds and rain gardens**
 - c. Drain gates and ponders
 - d. Rainscapes and puddlescapes
- 18 When sodding a lawn:
 - a. **the sod strips should be placed tight against the adjoining sod.**
 - b. the pallet of sod should be soaked thoroughly a few hours before the sod is laid.
 - c. the sod strips should be shaken vigorously to loosen roots and remove excess soil
 - d. all of these
- 19 Which is the recommended method of aerating turf?
 - a. vertical forced-air injection
 - b. **core aerators**
 - c. diagonal force-air injection
 - d. diagonal forced-air injection

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- 21 The _____ on hydrangeas can be changed by adjusting the pH of the soil.
- flower size
 - number of blooms
 - flower color**
 - flower shape
- 22 Soil pH refers to the _____ of a soil.
- potential hardness
 - acidity or alkalinity**
 - soluble salts level
 - nitrogen level
- 23 Silvery trails on and around plants are a sign of:
- grubs
 - slugs**
 - aphids
 - mealy bugs
- 24 Which of these insects is the smallest?
- leafhoppers
 - bagworms
 - aphids**
 - borers
- 25 Landscape night lighting provides:
- safety and security
 - accent and welcome
 - extended hours of enjoyment
 - all of these**
- 26 Many insects, such as whiteflies, are attracted to _____, which is the color often used in sticky traps.
- purple
 - black
 - yellow**
 - plaid
- 28 Landscape plantings near the base of a residence are known as _____ plantings.
- screen
 - border
 - foundation**
 - specimen

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- 30 What is callus in horticulture?
- If you do not like our landscape work, you can call-us.
 - Callus is a plant tissue that forms around the base of a cutting during the rooting process.**
 - A callus is a tool used to remove dead or diseased plants from the landscape.
 - Callus is a bulb plant, similar to a calla lily.
- 31 Small, corky pores along the stem that allow for gas exchange between the atmosphere and plant cells are:
- lenticels**
 - nodes
 - bud scales
 - terminal buds
- 32 Which of the following is NOT an example of a hardscape item?
- irrigation systems
 - pools
 - foundation plantings**
 - retaining walls
- 33 If a fertilizer contains 17% potash, 15% nitrogen, and 16% phosphorus, what analysis should be written on the bag?
- 15-16-17**
 - 16-17-15
 - 48 percent
 - 17-15-16
- 34 Evergreen trees planted in the path of the prevailing wind can reduce _____ in the winter.
- wind chill**
 - sun damage
 - erosion
 - wind shear
- 35 A new hydrangea has a note on the tag that read, "Reproduction of this plant is prohibited without license." That means it is probably:
- an inbred cultivar
 - a hybrid
 - patented**
 - an open-pollinated variety
- 37 Which of these is a landscape drawing tool used to draw long, strait, vertical, and horizontal lines?
- T-Square**
 - Protractor

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- c. Template
 - d. Sling Blade
- 38 Which term is NOT a horticultural term meaning a place where plants are grown?
- a. Arboretum
 - b. Botanical garden
 - c. **Colloquium**
 - d. Conservatory
- 39 In plant nomenclature, the word "rubra" appearing in a scientific name means:
- a. **red**
 - b. runner or vine
 - c. root
 - d. ruby
- 40 Why is it recommended to place crushed stone behind retaining walls before back filling?
- a. to prevent animals from burrowing behind the wall
 - b. **to assist in water drainage**
 - c. to assist in air movement
 - d. to prevent wood rot
- 41 Before digging, homeowners and landscapers should call a designated number, usually an 800 number, and get advice to:
- a. prevent damage to underground TV cables
 - b. prevent damage to electrical lines and people
 - c. prevent damage to telephone lines
 - d. **all of these**
- 42 Asexual propagation is the only reliable propagation method for most plants that are:
- a. **hybrids**
 - b. fertile
 - c. open-pollinated
 - d. deciduous
- 43 A pH range that includes the desired pH for most landscape plants is:
- a. 1.5 to 3.5
 - b. 2.0 to 4.0
 - c. **5.5 to 7.0**
 - d. 9.5 to 13.5
- 44 Which of the following is a function of mulch?
- a. **conserves moisture**
 - b. provides a source of nitrogen
 - c. reduces insect damage to the plant

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- d. reduces rodent damage to the plant
- 45 Which of the following is NOT considered landscape drawing equipment?
- a. **Caliper**
 - b. Pencil
 - c. Template
 - d. T-square
- 46 Which grass is most often used on golf greens?
- a. Fescue
 - b. Bluegrass
 - c. **Bentgrass**
 - d. Zoysia
- 47 Which of the following is NOT a cool-season turf grass?
- a. **Bermuda grass**
 - b. Tall fescues
 - c. Kentucky bluegrass
 - d. Perennial ryegrass
- 48 An herbicide used to control existing weeds is called:
- a. **post-emergence**
 - b. pre-emergence
 - c. re-emergence
 - d. pro-emergence
- 49 A topsoil with a balanced mixture of sand, silt, and clay is known as a(n):
- a. mix-base
 - b. adobe mix
 - c. **loam**
 - d. clay-base
- 50 Walk-behind tillers and mowers usually have four-cycle engines that rate ___ horsepower.
- a. 1 to 2
 - b. **3 to 6**
 - c. 12 to 20
 - d. 20 to 25
- 51 If an area is too steep to mow then _____ should be considered for planting in that area.
- a. bluegrass
 - b. annual bluegrass
 - c. **groundcovers**
 - d. fescue

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- 52 The spiny seed balls of the _____ tree are a common problem in the landscape, and planting a non-fruiting variety from a nursery is about the only solution.
- sweetgum**
 - maple
 - ash
 - yellow poplar
- 54 When using a walk-behind tiller, the normal tilling depth for breaking up a new area for planting would be in the range of ____ inches.
- 1 to 2
 - 6 to 12**
 - 16 to 20
 - 20 to 25
- 56 The best new rose varieties introduced each year are indicated by the letters:
- AARS**
 - NRS
 - RSAS
 - BRS
- 57 How many spark plugs do most walk-behind lawn mowers have?
- 1**
 - 2
 - 3
 - 4
- 58 The natural purpose of rose hips is to:
- produce seeds**
 - store water for the plant next year
 - produce blooms during the next season
 - produce vegetative growth the next year
- 59 Which of the following is true about nitrates?
- Nitrates are low in nitrogen.
 - Nitrates are used to raise the soil pH.
 - Nitrates are used in fertilizers such as sodium nitrate.**
 - Nitrates are cheaper than day rates.
- 60 Which of the following mulches most often becomes moldy when it is wet and applied too deep?
- fresh grass clippings**
 - stone
 - shredded bark

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- d. gravel
- 61 Xeriscaping is the use of landscape techniques that:
- a. **conserves water**
 - b. focuses on regional landscaping
 - c. focuses on the use of shrubbery
 - d. stresses the advantages of weed control
- 62 Which landscape tool can be used to cut tree limbs from 1 inch to 1.5 inches in diameter?
- a. **lopping shears**
 - b. hedge shears
 - c. hand pruners
 - d. grass shears
- 63 Which of the following is NOT a term used to describe the arrangement of leaves on a stem?
- a. alternate
 - b. opposite
 - c. **cross-slot**
 - d. whorled
- 64 Azaleas prefer a pH of about:
- a. **5**
 - b. 6
 - c. 6.5
 - d. 7
- 65 Electric and gasoline powered landscape blowers generally have a rating of between ___ mph.
- a. **100 and 300**
 - b. 50 and 70
 - c. 25 and 50
 - d. 10 and 20
- 66 A soil sample should be taken to a depth of about:
- a. 1 to 2 inches
 - b. 2 to 3 inches
 - c. **6 to 8 inches**
 - d. 14 to 24 inches
- 67 Which of these soil mix ingredients is derived from volcanic rock, contains no mineral nutrients, does not easily deteriorate, and promote drainage in the soil mix?
- a. **perlite**
 - b. vermiculites
 - c. polystyrene
 - d. sphagnum peat moss

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- 68 *Bacillus thuringiensis* is most effective against which pest?
- aphids
 - beetles
 - caterpillars**
 - thrips
- 69 In horticultural terms, what is bolting?
- The premature or unwanted production of flowers and seeds**
 - The premature or unwanted production of leaves and roots
 - The dropping of leaves
 - The removal of nodules from plant stems
- 70 Shoots on roses that arise below the bud union should be:
- pruned off**
 - layered
 - budded
 - grafted
- 71 Landscape fabrics for mulching do all of the following except:
- keep out air-borne diseases**
 - allow for exchange of air
 - allow water to pass through
 - keep down weeds
- 72 The larvae of _____ are highly beneficial in the control of aphids.
- lady beetles**
 - grass hoppers
 - butterflies
 - moths
- 73 Which of the following is a common disease of roses?
- powdery mildew**
 - petiole die-back
 - bitter twig
 - rustoleum
- 74 This structure in plants, if allowed to develop, produces a chemical that signals to the plant to stop production.
- seed pods**
 - flower
 - sepals
 - vegetative budsgalls
- 75 Which is NOT a recommended practice in pest control?

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- a. **use pesticides with the highest toxicity to end the problem quickly**
 - b. read the label and know the pesticide
 - c. do not contaminate other resources
 - d. use pesticides only when needed
- 76 What gives green leaves their color?
- a. carbon dioxide
 - b. oxygen
 - c. **chlorophyll**
 - d. sugars
- 77 Changing the form of the land during landscaping is done by a process called:
- a. sloping
 - b. topography
 - c. **grading**
 - d. bush hogging
- 78 Which of the following indicates that a rotary mower blade is dull?
- a. **the cut grass has ragged, shredded leaf tips**
 - b. the grass is cut high on one side of the mower and low on the opposite side
 - c. the grass has insufficient water absorption
 - d. the grass has decreased turgor
- 79 The process of water movement out of plant leaves through the stomata and into the atmosphere is known as:
- a. expiration
 - b. **transpiration**
 - c. ventilation
 - d. photosynthesis
- 81 Which of the following is a common recommendation as one step in reducing moss growth in a lawn?
- a. **increase sunlight to the area**
 - b. irrigate more frequently
 - c. increase soil acidity
 - d. restrict air movement
- 82 Which disease is known to cause partial or complete circular bands of grass that are darker green than the remainder of the turf, often with mushrooms growing in the dark green areas?
- a. **fairy ring**
 - b. brown patch
 - c. copper spot
 - d. dollar spot

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- 83 The public area of a landscape is generally considered to be the:
- front yard and front door area**
 - back yard and other play areas
 - the patio and garden area
 - the swimming and barbeque area
- 84 Which term describes a non-native plant that has adapted to the new environment and has become established as if native?
- nationalized plants
 - forage plants
 - foreign plants
 - naturalized plants**
- 85 A plant that is non-woody, such as Shasta Daisy, is termed:
- herbaceous**
 - humus
 - deciduous
 - contingent
- 86 A method of lawn establishment that uses core or small pieces of turf planted a few inches apart is known as:
- plugging**
 - puddling
 - soddingstrip
 - tending
- 87 A pH reading of below 7.0 is known as:
- basic
 - acidic**
 - alkaline
 - neutral
- 88 The maximum depth that the ground will freeze in winter is known as the:
- frost line**
 - cold line
 - frost max
 - winter line
- 89 What is the term used to describe the accumulation of excess grass stems and leaf blades in turf just above the soil surface?
- topdressing
 - thatch**
 - tread

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- d. chaff
- 90 How many pounds of nitrogen are contained in a 100 pound bag of 5-10-15?
- a. **5**
 - b. 10
 - c. 15
 - d. 30
- 91 Which of the following is NOT an example of asexual plant propagation?
- a. **seeds**
 - b. division
 - c. grafting
 - d. cuttings
- 92 When terminal buds on plants are pruned, the _____ buds are induced to grow.
- a. **lateral**
 - b. diagonal
 - c. primary terminal
 - d. flower
- 93 Junipers are classified as:
- a. **needleleaf evergreens**
 - b. broadleaf evergreens
 - c. perennial broadleaves
 - d. deciduous
- 94 The main source of landscape plants for most landscapers is:
- a. retail nurseries
 - b. retail garden centers
 - c. **wholesale nurseries**
 - d. warehouse plant clubs
- 95 Which of the following would have the greatest effect on the percent of cuttings rooted successfully?
- a. **bottom heat**
 - b. lime water
 - c. air circulation with fans
 - d. water pH about 7.0
- 96 If a customer wants an organic fertilizer, which of the following would be the best choice?
- a. ammonium nitrate
 - b. sodium nitrate
 - c. **cow manure**
 - d. sulfuric acid

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97 Many landscape equipment engines require a little extra fuel in the carburetor to start. Most models use a(n) _____ to supply the extra fuel for starting.

- a. **primer bulb or choke**
- b. exhaust valve or flywheel
- c. fuel cell or fuel slide
- d. cylinder or fuel ring

98 Knowing where underground utility lines are buried before starting a landscape digging project helps prevent injury as well as penalties and repair charges. The national telephone number for the "Call Before You Dig" program is:

- a. 616
- b. **811**
- c. 901
- d. 911

99 Two of the most pressing current issues for the landscape maintenance industry include:

- a. **emissions and noise pollution**
- b. the exotic garden spider and Japanese ladybugs
- c. turf decline and herbicide resistance
- d. power blower and string trimmer safety

100 A hardwood stem cutting usually needs _____ to root.

- a. **at least one node above the soil and one below the soil**
- b. all nodes below soil level
- c. all nodes above the soil
- d. one node and leaf above the soil and at least three nodes below the soil

101 Lopping shears can be used to cut off limbs up to about ___ inches in diameter.

- a. 0.5
- b. 0.75
- c. **1.5**
- d. 3

102 The water table should be _____ of the soil surface for most plants growing in the landscape.

- a. **well below 24 inches**
- b. between 18 and 24 inches
- c. within 12 inches
- d. within 24 inches

103 Polyvinyl chloride pipe is put together in irrigation systems using:

- a. **glue**
- b. filler
- c. solder

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- d. wire clamps
- 104 The practice of growing and using plants for decorative purposes is known as:
- a. **ornamental horticulture**
 - b. landscape botany
 - c. aesthetic forestry
 - d. decorative floriculture
- 105 Which of the following is not true about balled and burlapped plants?
- a. **Balled and burlapped plants have an intact root ball of native soil..**
 - b. Plants are dug bare-root and wrapped in burlap.
 - c. Plants are dug bare-root, wrapped in a peat-lite mixture, and covered in burlap.
 - d. Balling and burlapping is most commonly used on container-grown shrubs.
- 107 Which type of mower would generally make the cleanest cut and would allow the turf to be cut lowest?
- a. **reel mower**
 - b. flail mower
 - c. rotary mower
 - d. vertical mower
- 108 Which nutrient is most easily lost from the soil?
- a. phosphorus
 - b. **nitrogen**
 - c. iron
 - d. calcium
- 109 Plant containers in the nursery trade are generally measured by the:
- a. circumference
 - b. height
 - c. **gallon**
 - d. liter
- 110 Which of the following states are all among the top 10 nursery plant producing states?
- a. Montana, Idaho, Virginia
 - b. **California, Florida, Texas**
 - c. Alaska, Georgia, New Hampshire
 - d. Hawaii, Utah, New Mexico
- 111 Which of these is NOT a horticulture term?
- a. **whey**
 - b. pinching
 - c. corolla
 - d. grafting

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- 112 Spark plugs are best removed from a mower engine with:
- a. an open-end wrench
 - b. a spark plug socket**
 - c. pistol-grip plug pliers
 - d. a spark plug gape

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- 113 Which type of plant propagation accounts for the greatest genetic variation?
- a. sexual**
 - b. asexual
 - c. micro-propagation
 - d. macro-propagation
- 114 This nutrient causes rapid growth in most plants.
- a. potassium
 - b. nitrogen**
 - c. zinc
 - d. calcium
- 115 Some organizations, universities, and individuals maintain old plant varieties that are poor producers compared to modern varieties. What is the best reason these varieties should be maintained?
- a. sentimentality
 - b. authenticity
 - c. genetic diversity**
 - d. medicinal sources
- 116 Which of the following is generally true of safe pesticide disposal?
- a. Pesticides should be disposed of down drains or poured onto the ground in secluded areas.
 - b. Empty metal, plastic, or glass pesticide containers should be rinsed out three times.**
 - c. Un-used pesticides should be applied to open land and plowed evenly into the soil.
 - d. Pesticide containers should be put into large plastic bags and burned.
- 117 Which of the following is the correct ranking of chemical signal words from least toxic to most toxic?
- a. Caution, Warning, Danger**
 - b. Warning, Poison, Caution
 - c. Poison, Caution, Corrosive
 - d. Warning, Caution, Poison
- 118 What term is used to describe the crossing of two un-alike plants, resulting in offspring that are better than either of the parents?
- a. crossbreeding
 - b. heterosis**
 - c. genetic gain
 - d. symbiosis
- 120 What is the primary activity in a micropropagation facility?
- a. microradiation
 - b. hybridization

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- c. **tissue culture**
 - d. sexual propagation
- 121 What are the two most common disease agents causing root rot?
- a. Bacteroides melaninogenicus and Fusobacterium necrophorum
 - b. coccidian and downy mildew
 - c. **pythium and rhizoctonia**
 - d. contagious ecthyma and thrombosis
- 123 Which of the following is a macronutrient?
- a. **calcium**
 - b. zinc
 - c. copper
 - d. iron
- 125 Which of these describes the best way to prepare earplugs for insertion?
- a. **roll the earplug in your hands**
 - b. fold the earplug in half horizontally
 - c. stretch and twist the earplug
 - d. stretch the earplug to twice its length
- 126 A major factor in determining the size and number of sprinkler heads that can be installed in an irrigation line/circuit is:
- a. the amount of irrigation piping used
 - b. the water needs of the plants
 - c. **the water pressure available for irrigation**
 - d. the number of plants to be watered
- 127 "Dead-heading" is an important operation on many annual plants because it makes them more attractive by removing dead materials and encourages:
- a. **continued blooming**
 - b. taller growth
 - c. compact growth
 - d. dormancy
- 128 A one-story ranch-style home probably should be framed with relatively short trees (mature height) to provide for proper _____ of the landscape.
- a. balance
 - b. **scale**
 - c. unity
 - d. clarity
- 129 Noise pollution has become a big issue for landscape professionals. The sound from landscape equipment and other noise is measured in:

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- a. **decibels**
 - b. amps
 - c. sound units
 - d. wavelengths
- 130 A procedure to expose more plant tissue on the base of cuttings, and hopefully increase rooting, is called:
- a. scarification
 - b. splitting
 - c. **wounding**
 - d. girdling
- 131 If a container crop is continuously over-watered:
- a. roots will start dying from the top of the pot
 - b. **roots will begin to die from the bottom of the pot**
 - c. stems rot along the soil line
 - d. roots will twine around the outside edges of the soil ball
- 132 Most plant diseases are caused by:
- a. **bacteria, fungi, and viruses**
 - b. mold and mildew
 - c. viruses and nematodes
 - d. molds, nematodes, and mildew
- 133 Zero-turn commercial mowers have become popular because of their:
- a. long, smooth, wide turning ability
 - b. reduced noise on acceleration during turns
 - c. **tight turning radius**
 - d. zero percent interest rate
- 134 Plants intended for resale to the consumer are purchased by businesses such as garden centers and landscape companies from _____.
- a. **wholesale nurseries**
 - b. retail nurseries
 - c. outlet nurseries
 - d. community nurseries
- 135 Which two protective items must be worn when operating a gas powered string trimmer?
- a. **hearing protection and eye protection**
 - b. eye protection and chaps
 - c. hard hat and steel-toed boots
 - d. chaps and respirator
- 136 Turf grasses can be propagated using _____ and _____ when present.

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- a. lenticels, tendrils
 - b. sheaths, internodes
 - c. stolons, rhizomes**
 - d. tendrils, internodes
- 137 If a plant is listed as hardy in zones 9-10, what does that mean?
- a. The plant is cold hardy in most of the US.
 - b. The plant does not do well in areas with minimum temperatures below 20-25 degrees F.**
 - c. The plant does not do well in areas with temperatures about 90 degrees F.
 - d. The plant is invasive and cannot be shipped to postal zones ending in 09 or 10.
- 138 The home landscape is generally divided into three areas: the private, service, and _____ areas.
- a. foundation
 - b. formal
 - c. turf
 - d. public**
- 139 Which of these soils will generally dry the fastest?
- a. loam
 - b. clay loam
 - c. sandy loam**
 - d. silt loam
- 140 An inorganic growing media ingredient made by exposing mica to high temperatures, where it "pops" to form a lightweight media ingredient several times its original size with good water holding capacity is:
- a. vermiculite**
 - b. perlite
 - c. peat
 - d. sphagnum
- 141 The disease cedar-apple rust uses cedars and junipers as a(n) _____ host.
- a. culinary
 - b. alternate**
 - c. dedicated
 - d. definitive
- 142 A fertilizer with an analysis of 5-10-15 contains ____ percent of phosphorus.
- a. 5
 - b. 10**
 - c. 15
 - d. 30

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143 Many plants are propagated asexually and are clones of the parent plant. This is a common practice in horticulture because:

- a. **many plants do not "breed true" from seed.**
- b. genetic variety is easier to accomplish asexually.
- c. most landscape plants cannot be reproduced from seeds.
- d. asexually produced plants are usually genetically superior.

144 What factor(s) are important for landscapers to consider when selecting power equipment?

- a. emission
- b. fuel efficiency
- c. noise
- d. **all of these**

145 Which of the following is true about flower parts?

- a. **the pollen is male**
- b. the stigma is male
- c. the filament is female
- d. all of these

146 To saw a four-inch limb off a tree, be sure to make the _____ cut first to prevent stripping off the bark.

- a. flush
- b. over
- c. top
- d. **under**

148 A dichotomous key in horticulture is:

- a. **used to identify unknown plants** **a**
- b. computerized master key for landscape equipment
- c. used to analyze the profitability of specific crops
- d. used to determine the growth-area ratio

149 A disorder of plants called "wind-burn" is caused by:

- a. hydration of plant tissues
- b. abrasion by particles carried by the wind
- c. **desiccation of plant tissues**
- d. wind friction to plant stems

150 On which group of plants is the operation "dead-heading" usually performed?

- a. groundcovers
- b. broadleaf evergreens
- c. **annuals**
- d. deciduous azaleas

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151 A multi-strategy tactic to economically maintain/control pests below levels of significant economic and environmental damage is called:

- a. Integrated Plant Management
- b. Integrated Plant Material
- c. Integrated Pest Management**
- d. Integrated Pest Material

152 Which of the following is a horticulture occupation?

- a. spray technician
- b. propagator
- c. landscape designer
- d. all of these**

153 A plant that is propagated by sexual reproduction is:

- a. generally not a genetic duplicate of the parent plant**
- b. a clone a genetic twin of the parent plant
- c. genetically superior to asexually produced plants

154 Which of these is a professional organization serving the landscape industry?

- a. PLANET**
- b. NLCA
- c. PLCA
- d. APHIS

155 Some high-end turf mowers, especially commercial models, are termed _____ mowers because of their tight turning radius.

- a. one-turn
- b. zero-turn**
- c. tight-radius
- d. corner-radius

156 A residential concrete walk from the driveway to the front door should generally be at least:

- a. 36 inches wide and 4 inches thick**
- b. 20 inches wide and 8 inches thick
- c. 6 feet wide and 6 inches thick
- d. 20 inches wide and 2 inches thick

157 Underground stems of turf grasses are known as:

- a. rhizomes**
- b. stolons
- c. lenticels
- d. tendrils

158 Which of these mediums is the smallest in particle size?

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- a. silt
 - b. pebbles
 - c. sand
 - d. **clay**
- 159 What season is the LEAST desirable time to prune shrubs?
- a. early spring
 - b. early summer
 - c. **late fall**
 - d. mid-winter
- 160 Soil compaction and loss of permeability are most likely on soils that contain which of the following?
- a. **a high percentage of clay**
 - b. a large number of stones
 - c. a high percentage of sand
 - d. large amounts of humus
- 161 Which of the following is the primary function of endosperm in the sexual reproduction of flowering plants?
- a. producing the gametes that unite to form the embryo in the seed
 - b. forming the seed coat
 - c. **surrounding and nourishing the embryo in the seed**
 - d. forming the protective shell on the outside of some seed
- 162 What is the purpose of surfactants used in horticulture?
- a. **to help the spreading and wetting ability of spray material**
 - b. to provide nutrients to plants
 - c. to control plant diseases
 - d. to assist a plant in absorbing nutrients
- 163 A 16-4-8 fertilizer contains ___ percent of trace elements.
- a. **It cannot be determined from the analysis given**
 - b. 16
 - c. 4
 - d. 8
- 164 Which flower part is responsible for producing pollen grains?
- a. filament
 - b. **anther**
 - c. stigma
 - d. embryonic sac
- 165 How many plants can be grown on an acre if each plant requires 3 square feet?

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- a. **14,520**
 - b. 43,560
 - c. 120,708
 - d. 200,650
- 166 The yellowing of plant vegetation due to a reduced amount of chlorophyll is called:
- a. **chlorosis**
 - b. cellulitis
 - c. chlorophyllitis
 - d. cytokinesis
- 167 There are approximately ___ elements needed to provide all necessary plant nutrients.
- a. 8
 - b. **17**
 - c. 28
 - d. 46
- 168 Glyphosate (Roundup) should be used carefully when spot-spraying weeds in the landscape because:
- a. it will not kill the weeds unless drift is prevented and spray is highly concentrated.
 - b. spot spraying allows a higher chance of skin contact than most applications.
 - c. **it will kill the grass and other vegetation along with the weeds.**
 - d. Roundup should not be used as a spray.
- 169 A home landscape that has the same number, size, and shape of materials on the left side of the house as the right side of the house is said to have _____ balance.
- a. even
 - b. **symmetrical**
 - c. asymmetrical
 - d. divisible
- 170 Which type of mower is used to mow golf greens?
- a. rotary mower
 - b. vertical mower
 - c. **reel mower**
 - d. flail mower
- 172 Many turf irrigation systems have a _____ to keep sprinklers turned off when it is raining.
- a. **rain detector**
 - b. time clock
 - c. back flood prevention valve
 - d. rain gauge
- 173 A tree or shrub that is used alone for accent or as a focal point is called a:

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- a. specialist plant
- b. specimen plant**
- c. solo plant
- d. singular plant

175 Working soils when they are excessively wet, especially with a tractor, rotary tiller, etc., can destroy:

- a. soil structure**
- b. organic matter
- c. inorganic matter
- d. soil texture

176 The type of landscaping that uses fundamental principles to conserve water, such as installing low water consuming plants, is called:

- a. xeriscaping**
- b. hydroscaping
- c. deserscaping
- d. anhydroscaping

178 If you propagate 100 plants from tip cuttings of a dioecious plant, what percent of the plants produced will be male and what percent will be female?

- a. Approximately 50% will be female and 50% will be male.
- b. 100% will be female.
- c. Either 100% will be male or 100% will be female.**
- d. 100% will be male.

179 Plants that have gracefully drooping limbs are often described in horticultural terms as:

- a. floppy
- b. undulating
- c. weeping**
- d. sagging

180 How many pounds of lime should be applied to a 3000 square foot lawn?

- a. Not enough data is provided to answer.**
- b. 9 pounds
- c. 3 pounds
- d. 1.5 pounds

181 In landscapes where the soil has become compacted, air can be added by the use of a(n):

- a. air spade
- b. thatcher
- c. aerator**
- d. water spade

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- 182 When sun-loving plants are grown in too much shade, they tend to:
- be short and compact
 - flower more abundantly
 - be tall and leggy**
 - need more water and fertilizer
- 183 Which of these are NOT elements essential to plant growth and development?
- Fe, Cu, Mn
 - C, H, O
 - W, Ta, Au**
 - Ca, Mg, S
- 184 Which of these is not a part of plant cells?
- paraphagists**
 - chloroplasts
 - lignin
 - mitochondria
- 185 How are cold frames normally used in landscape plant production nurseries?
- to provide protection from disease
 - to provide winter protection**
 - to provide moisture control
 - all of these
- 186 A water feature and patio are most appropriate in the _____ area of a home landscape.
- service
 - public
 - private**
 - foundation
- 187 Which of these is the best definition of an invasive plant?
- a plant that spreads out horizontally, and produces seeds prolifically
 - a plant with the ability to thrive and spread aggressively outside of its natural range**
 - a plant that is difficult to keep in containers because of its aggressive growing habits
 - a plant with roots that extend 5 feet or more into the soil
- 188 Which plant tissue carries water and nutrients from the plant roots to the stems and leaves?
- xylem**
 - phloem
 - cambium
 - rhizome
- 189 Which of the following is a turf grass disorder associated with buried wood/stumps, etc?

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- a. **fairy ring**
- b. brown patch
- c. rust
- d. leaf spot

190 The planting hole for a balled and burlapped tree should be:

- a. the same size as the rootball
- b. backfilled with organic matter only
- c. **at least 12 inches wider than the rootball**
- d. filled with water before the tree is planted

191 Foundation plants of a home landscape that are arranged to move the viewer's eye to the front door of the home is an application of this principle of design.

- a. balance
- b. **focalization**
- c. unity
- d. simplicity

192 Small, white, elongated, cocoon-like structures occasionally found growing out of the bodies of caterpillars are most likely:

- a. **the larvae of parasitic wasps parasitizing the caterpillar**
- b. the caterpillar's young attached to its back
- c. the eggs the caterpillar is about to lay on the plants
- d. a sign the caterpillar has ingested a non-lethal pesticide

193 Which of the following is used to alleviate pressure on stone and masonry retaining walls?

- a. a dead-man brace
- b. **weep holes**
- c. catch basins
- d. vermiculine

194 In 2005, the Associated Landscape Contractors of America (ALCA) and the Professional Lawn Care Association of America (PLCAA) joined forces to become the Professional Landcare Network or:

- a. **PLANET**
- b. PLN
- c. PLN Work
- d. ProLand

195 Plants, such as daylilies, which produce foliage and flowers during the growing season, die back to the ground during the winter, and resprout next spring are:

- a. flowering annuals
- b. **herbaceous perennials**
- c. woody perennials
- d. herbaceous annuals

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196 If you examine the roots of a nursery plant that has been growing in a container for several months and find that the roots in the top half of the pot are healthy but the roots in the bottom half are dead, a likely cause is:

- a. leaching
- b. the pot is too tall
- c. over-watering**
- d. insects have burrowed into the rootball through the drain holes

197 Zacchaeus was explaining the virtues of the sycamore tree to a customer at his nursery. Besides being hard to climb, which of these is true about sycamore trees?

- a. have beautiful white trunks and limbs on older trees**
- b. produce showy blooms in the spring
- c. are very colorful and showy in the fall
- d. produce a pleasant aroma all season

198 Leaching refers to the:

- a. washing-out or passage of nutrients through the soil**
- b. plant's ability to transpire
- c. washing-out or passage of nutrients through the soil
- d. photosynthetic activity of the plant

199 What landscape soil type is generally best for plant growth?

- a. sand
- b. loam**
- c. silt
- d. clay

200 The modification/weakening of a seed coat so that the seed can germinate is called:

- a. cold-stratification
- b. warm-stratification
- c. scarification**
- d. double stratification

201 Water loss through plant leaves is called:

- a. respiration
- b. transpiration**
- c. translocation
- d. photosynthesis

202 The surface shape and features of the landscape are referred to as the site:

- a. topography**
- b. buffer zone
- c. hardscape

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- d. environ
- 203 Which of these should be recommended for planting landscaping plants near a septic system?
- a. plant only trees over the septic field- no shrubs
 - b. plant trees and shrubs away from the septic field**
 - c. plant large shrubs over the septic field has a substitute for trees
 - d. only mulch should be used over a septic tank
- 204 Which of these is the term used in horticulture to describe spray materials being blown from the target area to non-target plants, etc?
- a. drift**
 - b. secondary spray
 - c. windage
 - d. over-spray
- 205 Which is true about using Roundup (glyphosate)?
- a. Although not its main purpose, glyphosate supplies some macronutrients.
 - b. Mix 1 teaspoon per quart and water plants until water runs from the bottom of the container.
 - c. Visible results are usually seen within 2-7 days.**
 - d. Mix 1 tablespoon per gallon and saturate the soil.
- 206 Which of these occupations is NOT associated with the study of horticulture?
- a. herpetologist**
 - b. botanist
 - c. entomologist
 - d. pathologist
- 207 Which of these horticulture professions is most likely to require a four-year degree and a license from the state government or other certifying organization?
- a. landscape architect**
 - b. landscape crew chief
 - c. landscape plant propagator
 - d. garden center manager
- 209 A canker in landscape terminology is defined as:
- a. a disease found in the roots of a hardwood tree
 - b. an electrical device used to crank hard to start engines
 - c. a localized diseased area on a plant**
 - d. an invasive disease that will take over the entire plant
- 210 One of the main objectives of installing landscape retention and detention ponds is to:
- a. slow rain water run-off**
 - b. provide water for beneficial insects
 - c. hold pesticide run-off to a minimum

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- d. maintain a body of water for irrigation
- 211 Which of the following is correct about APHIS?
- a. APHIS is a department of the EPA
 - b. APHIS is a common insect pest of ornamental plants
 - c. **it stands for Animal and Plant Health Inspection Service**
 - d. it stands for American Protection from Herbaceous Invasive Shrubs
- 212 The word "alba" in a plant name usually means that the blooms will be:
- a. **white**
 - b. red
 - c. pink
 - d. blue
- 213 There are two basic types of weeds: _____ and _____.
- a. **grassy, broadleaf**
 - b. mono and poly-deciduous
 - c. deciduous and poly-deciduous
 - d. deciduous and herbaceous
- 214 The usual time to use oil sprays in the landscape is:
- a. when the plant is in full bloom
 - b. at dawn or dusk
 - c. **just before bud break in the spring**
 - d. any time except during the dormant period
- 215 Many insect traps use chemical sex attractants called _____ to lure insects into the trap.
- a. **pheromones**
 - b. anti-transpirants
 - c. pathogens
 - d. angelicas
- 216 On what part of a golf course is grass cut shortest?
- a. **green**
 - b. rough
 - c. fringe
 - d. tee
- 217 Repetition of plants or groups of plants in the landscape helps to achieve which principle of design?
- a. **unity**
 - b. focalization
 - c. variety
 - d. balance

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218 A small, one-story home framed by very large oaks in the back and on the sides creates a problem with this landscape principle.

- a. simplicity
- b. unity
- c. scale**
- d. rhythm

219 The imaginary line directly beneath the outer edge of the branches of a tree is called the:

- a. understory line
- b. fall line
- c. drip line**
- d. branch line

220 The most widely used method of asexual propagation in the nursery industry is:

- a. stem cuttings**
- b. root cuttings
- c. layering
- d. seeding

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221 Three of the six landscape design principles are: balance, proportion, and simplicity. What are the other three?

- a. **rhythm, unity, focalization**
- b. unity, texture, pattern
- c. line, focalization, disarray
- d. spacing, color, line

222 If a container crop is kept in the container too long or otherwise out-grows the container, resulting in matted or tangled roots, the plant is said to be:

- a. tangle rooted or matted rooted
- b. ring matted
- c. **pot-bound or root-bound**
- d. pot tight

223 Which of these is a term used to describe a part of a flower?

- a. avalon
- b. camry
- c. **corolla**
- d. tundra

224 Dead and decomposed stems and leaves in turfgrass are often referred to as:

- a. **thatch**
- b. flush
- c. the A-1 horizon
- d. stover

225 A common disease of germinating seedlings called Damping-off is caused by a:

- a. virus
- b. bacteria
- c. **fungus**
- d. genetic disorder

226 Which of these nutrients/elements are needed by plants in the greatest amounts?

- a. phosphorus, sodium, calcium
- b. nitrogen, cobalt, and molybdenum
- c. **carbon, hydrogen, oxygen**
- d. iron, manganese, copper

227 Normally, a sheared hedge should be:

- a. globe shaped with the widest point in the middle
- b. wider at the top than at the bottom
- c. oval shaped
- d. **wider at the bottom than at the top**

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- 228 If a plant is "disease-resistant," the plant:
- is not as likely to get a disease as non-resistant plants**
 - is patented and does not succumb to disease
 - is being grown out of its native habitat and away from native plant diseases
 - will not get a disease
- 229 Hybrid tea roses are:
- propagated from a hybrid seed
 - easily grown from seed because roses have the ability to "come true" from seed
 - usually budded or grafted**
 - commercially propagated by micro propagation to prevent disease
- 232 Traditional garden centers, in many cases, have been able to compete with chain department stores by providing:
- better service**
 - lower prices
 - cleaner stores
 - better refund policies
- 233 On which section of the golf course is the grass usually cut the shortest?
- fairway
 - green**
 - fringe
 - rough
- 234 Why is it undesirable to have a weedy overgrown area next to your lawn?
- It is not undesirable because the insects are attracted to the overgrown plants instead of your landscape
 - The weeds go to seed and spread to your lawn and adjacent areas**
 - The roots of the tall weeds interfere with your plants' root systems
 - When weeds are overgrown, they give off an unpleasant odor
- 235 Though not recommended, if 2 cycle engine fuel is actually used in a 4 cycle engine:
- the engine will be much louder than normal
 - there is no problem, the engine will run just fine
 - the engine will likely smoke a lot, but it will run**
 - the engine will not start, or will be hard to start
- 236 What is the process that gradually exposes young transplants to stress, making crops adapt to somewhat cooler temperatures?
- Hardening**
 - Vernalization
 - Stratification

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d. Volatilization

237 When Lindsey pulled up some of the cuttings she was trying to root, she noticed that they did not have roots, but they had a gnarled, whitish growth on the base. This growth is called

- a. preroots
- b. callus**
- c. scarring
- d. lenticels

238 If you determine that the pH of your soil is 5.2, how much lime will it take to bring the pH up to the proper level?

- a. 50 pounds per 1000 square feet
- b. 15 pounds per 1000 square feet
- c. 5 pounds per 1000 square feet
- d. There is no way to tell without an adequate soil test**

239 “Scalping” is a term used in:

- a. turfgrass mowing**
- b. pruning
- c. propagation
- d. landscape drawing

240 Which soil will drain best, if all other conditions are the same?

- a. clayey
- b. sandy**
- c. sandy clay
- d. loamy

242 What is the difference between landscape and hardscape?

- a. Hardscape is the installation of cold hardy shrubs into the landscape
- b. Landscape is a design of the area, and hardscape is the planting of the crops
- c. Landscape is the installation of plants into the hardscape, which is the entire area
- d. Hardscape involves installation of physical elements such as fences and patios in the landscape**

243 Which one of the following hardiness zones is warmer than Zone 5?

- a. Zone 4
- b. Zone 6**
- c. Zone 6-Y
- d. Zone A

244 Large berms are often used to:

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- a. **add landform interest and divert noise**
 - b. shade sun-sensitive plants
 - c. stock landscape ponds
 - d. trim golf greens
- 245 One characteristic of Roundup (Glyphosate) that customers sometimes object to is:
- a. it's long lasting effect
 - b. that it temporarily stains the soil surface orange
 - c. **that it takes several days to kill weeds**
 - d. that it is extremely toxic to pets
- 247 Larger nursery pots are measured by the:
- a. **gallon**
 - b. ounce.
 - c. inch.
 - d. height
- 248 Water _____ to help reduce disease in nursery crops.
- a. late in the afternoon
 - b. at night
 - c. **early in the day**
 - d. with overhead sprinklers
- 249 Which of the following is a beneficial insect?
- a. Aphid
 - b. Fungus gnat
 - c. **Lady beetle**
 - d. Thrip
- 250 Which of the numbers listed below is a normal fertilizer analysis you might find on a fertilizer bag?
- a. **12-12-12**
 - b. 10-10
 - c. 8-12-12-12
 - d. 4-0-0-4
- 251 Of the following choices, which would be the best soil mix for potted nursery crop production?
- a. 1 loam: 1 sand
 - b. 1 sand: 1 silt: 1 vermiculite
 - c. **1 peat: 1 sand: 1 perlite**
 - d. 1 vermiculite: 1 sand: 1 perlite
- 252 A plant which dies to the ground at the end of each growing season but comes back from the same rootstock year after year is most accurately described as a(n):

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- a. **herbaceous**
- b. perennial
- c. annual
- d. biennialperennial

253 Which method of reproduction provides the most opportunity for variability, adaptability, and change within a plant species?

- a. natural serpentine layering
- b. **sexual reproduction**
- c. asexual reproduction
- d. chip budding

254 The amount of water which the soil can hold against the pull of gravity is called:

- a. available water
- b. **field capacity**
- c. osmotic water
- d. soil moisture tension

255 Which plant pathogen or pest can generally be controlled only through the use of good cultural practices—preventing initial infection?

- a. fungus
- b. bacteria
- c. nematode
- d. **virus**

256 PPM stands for:

- a. **parts per million.**
- b. performance pest management
- c. pounds per meter
- d. pints per mole

257 The soluble salt content of soil in plant containers can usually be reduced by:

- a. **leaching**
- b. adding lime
- c. scarification
- d. stratification

258 One reason modern horticultural fabrics used in landscaping are said to be better than black polyethylene film is they:

- a. completely control weeds
- b. make a better base for rock mulch
- c. **allow exchange of gases between soil and air**

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- d. prevent moisture from penetrating too deeply
- 259 Who is responsible for establishing the binomial system for naming plants?
- a. Aristotle
 - b. Bernuli
 - c. **Linnaeus**
 - d. Weinberg
- 260 The part of a newly grafted plant that will form the branch system is the:
- a. **scion.**
 - b. shoot stock
 - c. graft stock
 - d. branch stock
- 261 Which plant type below has the most limited range of planting time, generally late fall through late winter?
- a. containerized trees and shrubs
 - b. potted seedlings
 - c. **bare root trees**
 - d. containerized ground covers
- 262 The best type of sand to use in soil mixtures for container grown plants is _____ sand
- a. white, fine textured
 - b. **coarse textured**
 - c. fine textured
 - d. beach
- 264 Scientific names generally consist of two words, the first being the genus and the second being the:
- a. family
 - b. order
 - c. cultivar
 - d. **species**
- 265 Changing the form of the land during landscaping, is done by a process called
- a. sloping
 - b. topography
 - c. **grading**
 - d. bush hogging
- 266 Which term is not a principle of design?
- a. **realism**

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- b. balance
 - c. proportion
 - d. simplicity
- 268 What is the most desirable topsoil for general use in the landscape?
- a. loamy**
 - b. platey
 - c. clayey
 - d. sandy
- 269 In _____, old branches that are large and unproductive are removed.
- a. renewal pruning**
 - b. topiary pruning
 - c. heading back
 - d. thinning
- 270 Which of the following statements about pots is true?
- a. Shorter pots generally have a smaller saturated soil area
 - b. Tall pots drain better than short pots**
 - c. Gravity forces more water out of shorter pots than from tall pots
 - d. Shorter, wider pots are best for almost all crops
- 271 Which of the following is generally true about shrubs that bloom in the early spring?
- a. They bloom on new wood
 - b. The earlier they bloom, the more profuse the bloom
 - c. They bloom on old wood**
 - d. They bloom on spurs generated in late winter
- 273 A tumor in plants caused by bacteria is called a:
- a. canker
 - b. gall**
 - c. rector
 - d. vegetative tumor
- 274 Fire blight is caused by what type of organism?
- a. Bacteria**
 - b. Virus
 - c. Fungus
 - d. Insect
- 275 Which is a Signal Word on a pesticide label?
- a. Extreme
 - b. Careful
 - c. Caution**

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d. Slight

276 In the name *Acer rubrum* 'October Glory', 'October Glory' is a :

- a. species
- b. genus
- c. **cultivar**
- d. variety

277 What is the function of the auxiliary bud on the stem?

- a. **to produce a new leaf or stem**
- b. to help heal wounds of the plant
- c. to aid in seed dispersal
- d. to provide food storage

279 Compacted and poorly drained soils contain little _____, a gas that tree roots need to survive and grow.

- a. Hydrogen
- b. Carbon Dioxide
- c. Zenom
- d. **Oxygen**

281 If a leaf cell is plump with water (not wilted) it is said to be:

- a. **turgid**
- b. maxed
- c. strutted
- d. extended

282 The term Whip@ would most properly be used with which of the following?

- a. **young, unbranched seedling trees**
- b. rooted Ivy cuttings
- c. the regrowth of *Lagerstroemia* after it has been cut to the ground
- d. *Juniperus horizontalis*

283 Which of the following pairs of plants are most closely related?

286 Which of the following does the least amount of damage to landscape plants?

- a. **Ants**
- b. Scale
- c. Aphids
- d. White flies

287 If the first frost date is October 1 and the last frost date is May 15, which would be the least favorable time to prune Japanese Holly?

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- a. **1-Sep**
 - b. 1-Feb
 - c. 1-Jul
 - d. 1-Jun
- 288 The factor used as an indication of grade and general vigor of Hybrid Tea Rose plants sold at retail is the number of good healthy:
- a. leaves below the petioles
 - b. terminal buds
 - c. **canes**
 - d. lateral roots
- 289 Which of the following is a source of nitrogen?
- a. Ammonium Nitrate, NH_4NO_3
 - b. Nitrate of soda, NaNO_3
 - c. Ammonium Sulfate, $(\text{NH}_4)_2\text{SO}_4$
 - d. **all of the answers listed**
- 291 Which of the following insects would be most desirable to have in the landscape?
- a. **praying mantis**
 - b. ants
 - c. grubs
 - d. white flies
- 292 When partially decomposed sawdust is added to landscape soils, the plants often turn yellow. What is responsible for this condition?
- a. "The sawdust provided a habitat for insects and other animals which upset the physical make-up of the plant"
 - b. **"The breakdown of nitrogen in the sawdust"**
 - c. The excess moisture and nutrients from the sawdust overwhelmed the plants
 - d. The sawdust adheres to the root system of the plants, causing the plants to turn yellow
- 293 Which of the following is one indication of a fertile soil?
- a. **earth worms**
 - b. small brown pebbles
 - c. a grey or yellow subsoil
 - d. grubs
- 294 Balled and burlapped plants should be carried by the:
- a. stems
 - b. side branches
 - c. top twigs
 - d. **rootballs**

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- 296 Which of the following tools cuts most like a pair of scissors?
- reel mower**
 - rotary mower
 - bow saw
 - string trimmer
- 297 The art and science of designing and maintaining interior landscapes is known in the trade as:
- Interiorscaping**
 - Interior design
 - Xeriscaping
 - Interior plant science
- 299 A person or company that is hired to do a specific portion of a landscape job is called a:
- subinstallator
 - client installer
 - subcontractor**
 - value-added sub-retailer
- 300 Scientists who identify and classify plants are known as:
- pomologists
 - taxonomists**
 - taxidermists
 - horticulturists
- 301 AAN in the landscape/nursery trade stands for:
- All American Nursery
 - American Association of Nurserymen**
 - Abelia Alatus Nantiflora
 - American Agriculture Network
- 302 Which of the following is not true?
- The heat given off from water sprinkled over plants may prevent frost from forming if the temperature is only slightly below freezing
 - Frost is most likely to form when there is low, heavy cloud cover and a slight cool breeze**
 - Frost is more likely to form in low-lying areas/pockets, when temperatures are at the freezing point
 - Frost may form if the sky is clear, the air is calm and the night temperature is only slightly below freezing
- 303 Plant diseases caused by rain splashed microorganisms from the ground can be reduced by:
- applying mulch around and underneath plants**
 - removing all mulch outside the drip line
 - using only clean topsoil as back fill

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- d. removing all mulch from around and underneath the plant

304 An area that has slightly different climate conditions than the surrounding land, such as the north side of a house which provides shelter from excess sun and wind, is called a:

- a. **micro-climate**
- b. macro-climate
- c. climate-modified locale terrain
- d. specific locale

305 In the botanical name *Hedera helix* 'night choker', the portion in single quotes is the:

- a. **variety or cultivar**
- b. genus
- c. species
- d. family and species

306 Pines, spruces, junipers and yews are:

- a. legumes
- b. cone-bearing angiosperms
- c. **gymnosperms**
- d. angiosperms

307 Which of the following is a type of biological pest control for larvae of moths and butterflies?

- a. **Bacillus thuringiensis**
- b. Hydroxide spray
- c. Fungus gnats
- d. Lime water

308 Which plant below has new growth that resembles candles which is the source of the term "candle stage"?

- a. **Pines**
- b. Maples
- c. Oaks
- d. Hollies

309 Topsoil containing nearly equal percentages of sand, silt and clay is called:

- a. **loam**
- b. an organic soil
- c. sandy silt-clay
- d. a muck soil

310 Which of the materials listed is least toxic?

- a. Gasoline with an LD50 of 150
- b. **Sevin with an LD50 of 750**
- c. Caffeine with an LD50 of 200

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- d. Aspirin with an LD50 of 700

311 A method of establishing turf in which a mixture of seed, water, fertilizer and a soil stabilizer is sprayed onto the soil is called:

- a. hydroponics
- b. hydroseeding**
- c. ammonium nitration
- d. aquaseeding

312 Which of the following is NOT an organic material?

- a. compost
- b. manure
- c. bone meal
- d. all of these are organic materials**

313 If grass blades and stem clippings decompose rapidly between mowings, then_____ will probably not be a problem in turf.

- a. thatch**
- b. water penetration
- c. disease
- d. insects

314 A_____ pesticide is absorbed into the plant and kills insects as they feed on plant parts

- a. systemic**
- b. repellent
- c. transpired
- d. drench

315 Most seeds remain viable longer if:

- a. kept cool and dry**
- b. kept warm and humid
- c. kept cool and humid
- d. stored after they have been scarified

316 The best time to prune azaleas is:

- a. just before they bloom
- b. just after they bloom**
- c. in the late fall
- d. when they are dormant

317 Alan has 1.8 acres on which to grow potted shrubs. How many can he grow on this plot if each shrub requires 2.5 square feet, and 8800 square feet will be needed for walks and drives?

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- a. 31,363
 - b. **27,843**
 - c. 17,424
 - d. 13,904
- 318 Lime should be added to soil:
- a. according to package instructions and only in the winter
 - b. at 2x the rate of fertilizer
 - c. **based on soil test results**
 - d. every year
- 319 Which method of propagation can produce virus-free plants, even if the stock is infected?
- a. **tissue culture**
 - b. seeding
 - c. air layering
 - d. budding
- 320 Which is NOT a toxicity signal word used on pesticide labels?
- a. Caution
 - b. Warning
 - c. **Beware**
 - d. Danger
- 321 What can be done to discourage moss in turf?
- a. **add lime as needed and reduce shade**
 - b. increase fertilizer and water
 - c. increase water and withhold lime
 - d. increase shade and fertilizer
- 322 A landscaper plants a Bloodgood Japanese Maple surrounded by low growing evergreen shrubs, with a good view from the deck. The Maple is considered a
- a. **focal point**
 - b. foundation plant.
 - c. filler plant
 - d. corner plant.
- 323 Which of the following is a group of terms related to landscape design principles?
- a. **focalization, proportion, simplicity**
 - b. stratify, random, curvature
 - c. thresh, rounding, complexity
 - d. hogarth, metrical, curvature
- 324 B&B in the nursery/landscape trade means:
- a. bagged in burlap

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- b. burlapped in a bag
 - c. **balled and burlapped**
 - d. bare-root and bagged
- 326 Overhead watering of a nursery crop in the late evening may cause:
- a. **disease**
 - b. insect infestations
 - c. excessively wet soils
 - d. water stress during the day
- 328 The terminal buds of plants may inhibit the growth of lateral buds. This is called:
- a. shoot elongation
 - b. terminal bud syndrome
 - c. **apical dominance**
 - d. growth dominance syndrome
- 329 Professional-grade string trimmers are usually powered by:
- a. diesel fuel
 - b. **a 2-cycle engine**
 - c. a 4-cycle engine
 - d. electricity
- 330 Which of the following is true about lady bug beetles? They:
- a. **eat aphids**
 - b. are bright green and blend-in with the foliage
 - c. sometimes sting gardeners
 - d. often feed on vegetable plants
- 332 Which of the following has live birth of its young?
- a. moths
 - b. whitefly
 - c. spider mite
 - d. **aphid**
- 333 Most plants like the soil pH:
- a. **slightly acidic**
 - b. strongly acidic
 - c. strongly alkaline
 - d. slightly alkaline
- 334 One function of stomates is to:
- a. prevent disease

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- b. produce pollen
- c. **give off water**
- d. photosynthesize

335 Cuttings in the rooting bench should be:

- a. kept dry during the day and moist at night
- b. **kept constantly moist**
- c. scarified before watering
- d. fertilized regularly

336 A neighbor filled-in a low area in her yard with fill soil. When she finished, the fill was 10 inches deep around several pine and oak trees. She then asks your opinion on her action. What can you say about this situation?

- a. I hope you used a sandy topsoil
- b. Ten inches is the maximum recommended fill around trees
- c. **The trees will probably die**
- d. Eight inches is the maximum fill around trees

337 If you want to know if a plant will survive the winters in your area, consult:

- a. a perennial propagation guide
- b. the USDA shelter-belt guide
- c. the USDA catalog of publications
- d. **a hardiness zone map**

201-300

338 One of the best ways to speed up the rooting process of cuttings is to:

- a. keep the soil cool and the foliage warm
- b. **provide bottom heat**
- c. always take cuttings after mid-day
- d. harden them off by laying them out to dry a few days before sticking

339 Which of the following is microscopic?

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- a. **nematodes**
- b. aphids
- c. spider mites
- d. thrips

340 When should soil NOT be tilled?

- a. during spring warm-up
- b. when it is dry
- c. during late fall
- d. **when it is wet**

341 All other things being equal, which diameter pipe or combination of pipes will carry the most water?

- a. **One 2 inch pipe**
- b. Three 1 inch pipes
- c. Four 3/4 inch pipes
- d. Five 1/2 inch pipes

342 A 50 pound bag of 5-10-15 contains _____ pounds of nitrogen.

- a. **2.5**
- b. 5
- c. 10
- d. 15

343 Which chemical listed below could be used to control aphids?

- a. Roundup
- b. Benlate
- c. B-Nine
- d. **Malathion**

344 Of the grasses listed below, which is most commonly used on golf greens?

- a. **bentgrass**
- b. tigerwoodgrass
- c. bluegrass
- d. fescue

345 Which of the following is one of the recommended practices for preparing a lawn mower for winter storage?

- a. hole Remove the spark plug and plug the hole with plumber's putty
- b. Pour a teaspoon of sugar and gasoline mix into the carburetor
- c. **Pour a teaspoon of oil through the spark plug**
- d. Fill the gasoline tank

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- 346 Which of the following turf areas is mowed to the lowest height?
- golf green**
 - home lawn
 - golf fairway
 - commercial lawn
- 347 Many insect traps attract insects with:
- dried flowers
 - a sex attractant**
 - fresh flowers
 - a strong insecticide
- 348 Which insect eats out trails between the leaf surfaces?
- thrips
 - spider mites
 - leafminers**
 - aphids
- 349 What factor accounts for the variability among many plants grown from seed?
- apomixis
 - osmosis
 - sex**
 - parthenogenesis
- 351 Who pays the sales tax on landscape plants sold to the public?
- the consumer who purchased them from the retailer**
 - the retailer who sold them to the consumer
 - the wholesale grower who produced them
 - all of these people had to pay sales tax
- 352 Generally, a lawn needs about _____ inch(es) of water a week.
- 1**
 - 2
 - 3
 - 4
- 353 The minimum width for a residential walkway is ____ feet.
- 3.5**
 - 6.5
 - 7
 - 7.5

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354 Rooting hormones come in:

- a. paste and gel form
- b. gel form only
- c. powder and liquid form**
- d. powder form only

355 When planting B&B plants:

- a. the tie string should be cut from the trunk of the plant.**
- b. the burlap should be completely removed from the ball.
- c. the burlap should be allowed to dry completely before planting.
- d. the burlap should be pulled up and tied securely to the trunk for protection.

356 When planting a tree it should be planted:

- a. at 1 inch below the original soil level
- b. directly even with the original soil level**
- c. at 2 inches below the original soil level
- d. at 1 inch above the original soil level

357 Clay soils require:

- a. a longer time for absorption of irrigation water than sandy soils**
- b. a shorter time for absorption of irrigation water than sandy soils
- c. more or less time for absorption than sandy soils, depending on the pH of the clay
- d. about the same time for absorption of irrigation water as sandy soils

358 Acorns generally require _____ to germinate best.

- a. scarification
- b. water treatment
- c. cold stratification**
- d. acid scarification

360 Which of the following statements is NOT true?

- a. A perched water table can severely limit turf health
- b. Plants do not use O₂; they only produce it**
- c. Many plants can be grown from root cuttings
- d. Bright sunny days commonly register between 6,000-12,000 footcandles of light

361 Brad had been day dreaming during his first day in horticulture class. After asking to go to the bathroom, he could not find the restroom for men.-- only two doors, one marked Pistillate and the other marked Staminate. He was really confused. Now he wishes he had paid more attention. Which of the following is correct?

- a. Staminate refers to male part of the flower and probably means it is the men's room**
- b. Pistillate refers to the male part of the flower and probably means it is the men's room
- c. These terms do not mean male or female

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- d. Staminate means female while pistillate could mean either sex
- 362 Which of the following serves as a food reservoir for the developing embryo?
- endosperm**
 - radical
 - testa
 - plumule
- 363 What can be said about applying an herbicide to a lawn in granular form rather than a liquid spray
- The liquid form is much more expensive
 - Most broadleaf weeds have developed resistance to liquid herbicide sprays
 - There is little or no drift with the granular form**
 - The amount of active ingredient needed is greatly reduced with the granular form
- 364 The LD50 for chemical A is 1,000 and for chemical B it is 500. This means:
- chemical A is less toxic to man than is chemical B**
 - chemical A is less toxic to plants than is chemical B
 - chemical A is more toxic to mice than is chemical B
 - chemical A is more toxic to man than is chemical B
- 365 PVC pipe for irrigation is joined by connectors/couplings that are _____ to the pipe.
- clamped
 - welded
 - soldered
 - glued**
- 366 Which of the following would be the best response if a client calls you in October and wants to know what to do about a 20-foot white pine that has turned completely brown?
- Cut it down. It is definitely dead**
 - Wait till spring and see if it sprouts out again
 - Do nothing. The white pine is just going dormant
 - Do nothing. Pine trees shed naturally in the fall
- 367 Which of the following is a group of nursery/landscape terms?
- PTO, solenoid valve, stratify**
 - OSB, die-down, winnowing
 - DOS, twine grafting, thresher
 - hogarth, gating, truck clip
- 368 Larger nursery pots are measured by the:
- gallon, and sizes are strictly regulated.
 - gallon, and the exact size varies by manufacturer.**
 - height, and sizes are strictly regulated.

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- d. inch, and sizes are strictly regulated.
- 369 The _____ should be the focal point of the public area of a residential landscape.
- a. **front door**
 - b. corner plantings
 - c. planting directly behind the walkway
 - d. walkway and surrounding plants
- 370 What can be done to reduce disease in the nursery?
- a. use only overhead sprinklers for irrigation
 - b. raise the humidity, especially at night
 - c. **decrease water on plant leaves**
 - d. water late in the afternoon
- 372 Flowering shrubs such as azaleas should definitely NOT be fertilized with a heavy nitrogen application:
- a. **just prior to blooming**
 - b. just after blooming.
 - c. in the summer
 - d. just after pruning
- 373 Homeowners should keep two separate sprayers; one to be used only for:
- a. fungicides
 - b. insecticides
 - c. **herbicides**
 - d. liquid fertilizers.
- 374 Which of the following is true about aphids? They:
- a. eat mealybugs
 - b. **are larger than thrips.**
 - c. attack animals, such as family pets, if food is scarce
 - d. often eat holes in clothing
- 375 Which of the following is true about pruning trees?
- a. Always leave a stub at least 1 inch long for proper healing.
 - b. Cut out limbs to shape the tree first, then cut out weak and dead and dying limbs.
 - c. **Cut limbs just above the collar at the trunk, if the entire limb is to be removed**
 - d. Cut limbs at the trunk so that a slightly concave cut is made into the tree trunk
- 376 Which of the following is a beneficial insect?
- a. **praying mantis**
 - b. aphid
 - c. whitefly
 - d. spider mite

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- 379 Tree roots that are responsible for most nutrient uptake are found:
- outside the dripline
 - in the subsoil
 - between 18" and 28" of the soil profile
 - d. within the upper 8" of topsoil**
- 380 Hardiness zones are based on:
- a. winter hardiness**
 - summer survivability
 - sun intensity
 - leaf shape
- 381 Which of the following is a monocot?
- Hollies
 - Oaks
 - c. Grasses**
 - Azaleas
- 382 Which of the following does NOT cause diseases in plants?
- fungi
 - viruses
 - c. chloroplast**
 - bacteria
- 383 Which of these government organizations would want to talk to you if you shipped nursery plants across the state line without a license?
- a. USDA**
 - IRS
 - FBI
 - OSHA
- 384 When Alan finished sharpening his rotary mower blade he noticed that his mower vibrated and shook so bad that he could hardly control it. What was wrong?
- The blade had been overheated, affecting its temper
 - The blade was made of inferior metal.
 - The blade had been overheated, affecting its temperament
 - d. The blade was out of balance**
- 385 Which of the numbers listed below is a normal fertilizer analysis you might find on a fertilizer bag?
- a. 5-10-15**
 - 10-10
 - 8-12-12-12

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- d. 4-0-0-4
- 386 Which of the chemicals listed below would be best to use to control weeds in a fence row?
- B-Nine
 - Malathion
 - Roundup*
 - Benlate
- 387 Which of these is a primary plant nutrient?
- N**
 - Fe
 - Mo
 - Ca
- 388 After cuttings are put into the rooting bed, the entire bed is often covered with plastic to:
- increase humidity around the cuttings**
 - increase nutrient content of the rooting medium
 - reduce temperature of the rooting medium.
 - increase air temperature around the cuttings
- 389 A turfgrass should be mowed so that no more than _____ of the total grass height is cut off at a single mowing.
- 2
 - 1/10
 - 1/3**
 - 3/4
- 390 Which of the following is affected most by soil texture?
- Cost
 - Soil temperature
 - Color
 - Soil drainage**
- 391 When propagating woody cuttings _____ is sometimes applied to the base of the cuttings in order to facilitate rooting
- CAB
 - SDU
 - IBA**
 - CAM
- 392 Which type small engine requires that oil be mixed with the fuel?
- 2 cycle**
 - 4 cycle
 - pull start

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- d. electric start
- 393 A pollen tube
- a. **grows from a pollen grain after it lands on the stigma**
 - b. is used to store pollen for crossbreeding plants
 - c. is used in applying pollen by hand
 - d. is part of the ovary
- 394 A pre-emergence herbicide is applied:
- a. to broadleaf weeds only
 - b. to weeds over 3" tall
 - c. after the weeds have germinated and emerged from the soil
 - d. **before the weed seeds germinate**
- 399 Lateral branches may be encouraged to grow faster by:
- a. thinning out to a major branch.
 - b. **heading-back the terminal bud.**
 - c. spraying with a light dose of herbicide
 - d. applying rooting hormone
- 400 Which of the following will help control Japanese beetles feeding on roses?
- a. Funginex
 - b. 2-4D
 - c. **Malathion**
 - d. Round Up
- 402 What propagation method is capable of producing virus-free plants from infected stock?
- a. grafting
 - b. cuttings
 - c. **tissue culture**
 - d. air layering
- 403 Topsoil texture refers to:
- a. the arrangement of the soil particles
 - b. **the size of the soil particles**
 - c. the amount of humus in the soil
 - d. the ratio of clay to organic matter
- 406 Suppose you removed the spark plug from a small engine after unsuccessfully trying to get it started. If the spark plug is wet:
- a. the spark plug is the wrong size.
 - b. the spark plug is not the problem
 - c. **the engine is flooded.**
 - d. there must be water in the gasoline tank

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- 407 A landscape irrigation specialist would use a pressure gauge to:
- measure air pressure in the water lines
 - measure the available water pressure at the source.**
 - measure the influence of wind pressure on sprinkler output
 - measure the available water pressure at each sprinkler head
- 408 The minimum width for a residential driveway is ___ feet.
- 14
 - 10**
 - 7
 - 6
- 409 Soil around the foundation of a house is often more alkaline than surrounding soil due to:
- leaching from the masonry mortar on the home and masonry debris from construction**
 - leaching from the home's paint
 - decaying wood scraps that were buried around the foundation during construction.
 - rainwater runoff from the roof
- 411 In horticultural terms, which of the following best defines "hardening off"?
- scarify
 - accentuate
 - acclimate**
 - rejuvenate
- 412 Light energy, carbon dioxide and water are essential in the process of:
- chlorophyll induction
 - respiration
 - ethylene production.
 - photosynthesis.**
- 413 Which of the following is true about ladybug beetles?
- They eat aphids**
 - They often sting humans when provoked.
 - They can infest homes during the winter and eat holes in clothing
 - all of these
- 414 A logical question in response to a request from a customer for a pyracantha is, Do you want:
- an evergreen or deciduous variety?
 - the perennial or biennial type?
 - a red or orange-berried variety?**
 - one that blooms in the spring or fall?

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- 415 Generally, most tree roots are found:
- two feet beyond the dripline
 - within a four foot radius of the trunk
 - within a two foot radius of the trunk
 - within the dripline**
- 417 As more and more landfills are refusing to take landscape debris, landscapers are beginning to:
- scarify the organic materials
 - compost it on their property**
 - bury it on their own property
 - burn most of it
- 418 What chemical would you recommend to a customer who wanted to control weeds and grass growing between the bricks of a terrace?
- lawn chemical 2, 4-D
 - Malathion
 - a pre-emergence
 - Roundup**
- 419 Johnny gathered seeds from a crabapple in the fall of the year, dried them, and stored them in a sealed jar in his desk until he planted them in the spring. He got poor germination. What was the most likely problem?
- The seeds did not receive their required light treatment in the desk.
 - The jar did not allow the seeds to breathe properly and they died.
 - The seeds did not get their required cooling period.**
 - The seeds were no good -- they should have been collected in the spring.
- 420 Which is NOT a recommendation for creating and managing a compost pile?
- it is best to compost leaves in one pile and grass clippings in a separate pile**
 - shred leaves before adding them to the pile if possible
 - turn the material frequently
 - keep it moist
- 421 The commonly used lawngrasses in the U.S. can be divided into:
- perennials or annuals
 - spring or summer grasses
 - grasses and broadleaved types
 - warm season or cool season types**
- 422 Which of these government organizations does NOT regulate the nursery/landscape industry?
- FEMA**
 - USDA
 - EPA

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- d. OSHA
- 424 Which of the chemicals listed below would be best to use to control aphids?
- a. **Malathion**
 - b. Benlate
 - c. Daconil
 - d. B-Nine
- 426 Which of these is NOT a primary or secondary plant nutrient?
- a. **Mo**
 - b. Ca
 - c. N
 - d. K
- 427 Which factor below has the greatest influence on the rooting of woody cuttings?
- a. air temperature around the cuttings
 - b. air circulation around the cuttings
 - c. **temperature of the rooting medium**
 - d. nutrient content of the rooting medium
- 428 Generally, mulch layers around landscape plants should not be over ___ inches deep after settling.
- a. 1
 - b. **3**
 - c. 7
 - d. 10
- 429 If a turfgrass is mowed shorter than the recommended height, it causes:
- a. no change in the rooting depth
 - b. the rooting depth to increase
 - c. general root thinning
 - d. **the rooting depth to decrease**
- 430 Which of the following is a desirable makeup of potting soil?
- a. **50% solid matter, 25% water, 25% air**
 - b. 80% solid matter, 10% water, 10% air
 - c. 90% solid matter, 10% water
 - d. 90% solid matter, 10% air
- 431 Mowing the lawn in a different direction each time helps reduce the chance of:
- a. spreading disease and insects
 - b. **soil compaction and undesirable grain set**
 - c. excessive wear on one part of the mower blade
 - d. causing excess wear on one area of the mower

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432 Recommended service intervals for jobs such as changing the oil in motorized landscape equipment is usually measured in _____ of operation.

- a. **hours**
- b. miles
- c. months
- d. days

433 When propagating woody cuttings, a growth-promoting substance is sometimes applied to the base of the cuttings in order to:

- a. **speed the development of roots on the cutting**
- b. speed the healing process
- c. conserve moisture in the cuttings
- d. harden off the cuttings

434 Ilex, Junipers, and Common Boxwood are usually propagated from:

- a. apomixis
- b. leaf-bud cuttings
- c. **stem tip cuttings**
- d. tissue culture

435 When a plant is "flagging", it means that it is:

- a. severely wilted
- b. showing wind damage
- c. **slightly wilted**
- d. showing signs of nutrient deficiency

436 Small engines for landscape equipment come in:

- a. **2 cycle and 4 cycle**
- b. 2 cycle and 3 cycle
- c. 4 cycle and 6 cycle
- d. 4 cycle and 5 cycle

437 Pollination occurs when:

- a. a pollen grain touches the ovary
- b. **a pollen grain touches the stigma**
- c. pollen is released from the flower
- d. a sperm and egg unite

438 A postemergence herbicide is applied:

- a. to broadleaf weeds only
- b. **after the weeds have germinated and emerged from the soil**
- c. just as the weed seeds are germinating
- d. before the weed seeds germinate

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- 439 The loss of water from plants through the leaves in the form of water vapor is called
- a. transpiration**
 - b. translocation
 - c. respiration
 - d. photosynthesis
- 443 A system of pest control which incorporates biological, mechanical, cultural, chemical and genetic management techniques is:
- a. Biotechnology
 - b. Biotechnical Pest Management
 - c. Systematic Pesticide Reduction
 - d. Integrated Pest Management**
- 444 Large trees used to frame a one story, ranch-style home can make the home seem ____ than it really is.
- a. smaller**
 - b. closer to the viewer
 - c. wider
 - d. larger
- 445 Red, Sugar and Norway Maples are generally pruned to have
- a. one leader**
 - b. two leaders
 - c. no distinguishable leader
 - d. co-dominate leaders
- 446 A condition in which the leaves are yellowing between the veins but the veins remain dark green is:
- a. symptomatic of a virus infection
 - b. botrytis
 - c. iron chlorosis**
 - d. nitrogen deficiency
- 447 Which of the following temperature ranges is used to define Climatic Zone 5?
- a. 40 to 50 degrees
 - b. -10 to 100 degrees
 - c. -20 to -10 degrees**
 - d. -20 to 95 degrees
- 449 To keep the humidity high for rooting woody stem tip cuttings, ____ is usually used
- a. a mist system**
 - b. drip irrigation
 - c. overhead irrigation system

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- d. an underground irrigation system
- 450 The neutral point on the pH scale is:
- a. 14.0
 - b. 7.0**
 - c. 6.0
 - d. 5.0
- 451 A soil that is loose and has good structure and texture is described as:
- a. friable**
 - b. dense
 - c. flexible
 - d. flaccid
- 452 Botanical names are written in:
- a. Spanish
 - b. English
 - c. Latin**
 - d. German
- 453 Plant tissue analysis is most often used to diagnose:
- a. insect pests
 - b. nematode infestations
 - c. nutrient deficiency or excess**
 - d. CO₂ deficiency
- 455 If trees are spaced 5 feet by 9 feet, _____ can be planted in a one acre field.
- a. 1365
 - b. 605
 - c. 1435
 - d. 968**
- 456 Which of the following statements is true about applying dry fertilizer to a lawn?
- a. Dry fertilizer should only be applied late in the day
 - b. Apply dry fertilizer in the early morning when the grass is wet from the dew "
 - c. It is a good practice to water-in dry fertilizer applied to a lawn**
 - d. Apply dry fertilizer just after a rain"
- 457 Brown patch, Dollar spot, and Gray snow mold are all diseases of:
- a. turfgrasses**
 - b. azaleas
 - c. evergreens
 - d. trees

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458 Damping-off is caused by:

- a. bacteria
- b. fungi**
- c. virus
- d. nematodes

460 Food produced in the leaves is moved to other parts of the plant through the .

- a. phloem
- b. xylem
- c. arteries
- d. veins

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- 461 To preserve the germination ability of most seeds, store them in a:
- cool environment after scarification
 - warm, dry environment
 - warm, moist environment after stratification
 - cool, dry environment**
- 462 Which of the following is important in producing a uniform size and quality container-grown nursery crop?
- Use the same soil mix for the entire crop
 - Tamp the soil to the same degree of firmness in all pots
 - Leave a uniform water space at the top of each pot
 - all of the answers listed**
- 463 Two basic types of pruning are heading-back and thinning-out. Which of the following is true about these pruning methods?
- Thinning cuts are made close to a main branch or ground and few auxiliary buds are left**
 - Thinning cuts leave behind a good portion of the stem and many auxiliary buds
 - Heading cuts remove a portion of the stem and only terminal buds are left
 - Heading cuts usually remove entire branches and leave no buds
- 464 Plants used in the landscape can be described as either herbaceous or _____ ornamentals.
- woody**
 - creeping
 - deciduous
 - evergreen
- 465 What part of a lawn mower prevents dust from entering the carburetor?
- exhaust chute
 - air cleaner**
 - hydraulic system
 - crankcase
- 466 The best pH range for most plants is
- 4.5 - 5.0
 - 6.0 - 6.5**
 - 7.0 - 8.0
 - 7.0 - 7.5
- 467 An important step in properly composting landscape refuse is to:
- make only small piles to keep the material cool
 - treat each layer with pesticide to control insects and weeds
 - thoroughly moisten each layer of material**
 - exclude as much air as possible from the compost pile

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468 The new golf course superintendent hit a golf ball from about 30 yards away onto the green to test its condition. The ball bounced 20 feet into the air, fell, and rolled into the hole. What conclusion should the superintendent have arrived at?

- a. "Wow, that green is perfect."
- b. "That green needs to be mowed higher."
- c. **"That green needs a lot of work."**
- d. "The ball should bounce a little higher from this distance."

470 As a general rule, lawngresses should be mowed often enough so that at any one mowing, no more than ___ of the plant height is removed.

- a. **1/3**
- b. 2/3
- c. 1/16
- d. 1/8

471 Softwood cuttings of shrubs are taken when

- a. the new growth is about 3 inches long
- b. the sap is rising in the spring
- c. last years growth begins to swell with soft spring buds
- d. **the growth is stiff enough to snap when bent**

472 Hardening-off is a term used in the nursery/landscape industry to mean:

- a. coating plants with a protective plastic-type spray prior to transplanting
- b. acclimating landscape plants to coldframe conditions
- c. allowing herbaceous plants to become woody
- d. **acclimating tender plants to harsher, outdoor conditions**

473 Moss growing in a lawn is usually a sign of:

- a. **low pH**
- b. high pH
- c. too much sunlight
- d. root-bound grass

474 If a house is painted in several colors you may be worried about the colors of the house and the plant flower color clashing. One flower color choice that would be safest to use is:

- a. pink
- b. **white**
- c. blue
- d. red

475 The best definition of a surfactant is a:

- a. type of soap used to wash off pesticide residue by increasing surface tension between the leaf and residue

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- b. **material added to the spray solution to reduce surface tension between the liquid and leaf surface**
 - c. type of pesticide formulation with an oily consistency for protecting high pressure spray nozzles from wear
 - d. material to protect leaf surfaces from pesticides by creating a waxy seal over the leaf
- 476 The term _____ is used in horticulture to define plant injury sometimes caused by pesticides
- a. emulsification
 - b. **phytotoxicity**
 - c. expectoration
 - d. eutrophication
- 477 Mr. Aged told the class that the temperature for rooting shrubs should be no lower than 70 degrees F. He was talking about the:
- a. temperature of the mist water
 - b. air temperature at bench level
 - c. **temperature of the rooting media**
 - d. air temperature above the bench
- 478 Which of the following chemicals would be an appropriate suggestion for a customer who wants to kill the weeds and grass along a fence row?
- a. Orthene
 - b. Malathion
 - c. **Roundup**
 - d. Diazinon
- 479 The agriculture teacher asked Alan to make a sentence defining the term "Auxin." Which of the following is a correct response?
- a. "I want to go to college at the University of Texas in Auxin."
 - b. **"Auxin is a plant hormone involved in dormancy, abscission, rooting, etc., in plants."**
 - c. "If a chemical pesticide is needed, Auxin is one of the safest on the market."
 - d. "Auxin is an artificial plant hormone used to force the plant to flower."
- 480 A landscaper designed the client's backyard so that when viewed from the living room window, the eye was drawn along by plantings to a magnificent Japanese maple at the back of the property. This is a good example of using the principle of:
- a. proportion
 - b. simplicity
 - c. **focalization**
 - d. balance

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- 482 A plant pathologist studies plant
- insects
 - physiology
 - morphology
 - diseases**
- 483 Given the following choices, which would be the best soil mix for potted azalea production?
- 1 peat : 1 perlite**
 - 2 sand : 1 vermiculite
 - 1 sand : 1 silt : 2 clay
 - 1 vermiculite : 1 sand : 1 perlite
- 484 Which of the following is a hybrid?
- Ilex x meserveae**
 - Lonicera japonica 'Halliana'
 - Cedrus atlantica 'Glauca'
 - Picea abies
- 485 A rule of thumb to follow when irrigating lawns during periods of drought is to:
- apply about one inch of water per day from 10 am to 3 pm.
 - water the grass two times a day with light sprinklings
 - apply about one inch of water per week in one application**
 - water the grass every other day in the late afternoon with two inches of water
- 486 A privacy fence or hedge should be at least ___ feet high if the purpose is to screen the view of neighbors at ground level or others walking near the property at the same elevation
- 4
 - 5
 - 6**
 - 8
- 487 Which of the following hardiness zones is warmer than Zone 7?
- Zone 5
 - Zone 6-A
 - Zone A-6
 - Zone 8**
- 489 The most common synthetic root-promoting chemicals used in rooting hormones are:
- IBA and NAA**
 - ISO and SOB
 - CCA and ACD
 - IBA and AAN

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490 If a container-grown nursery crop has been over watered for a long period of time, you might expect to find the roots in the following condition

- a. The roots dead or absent at the top of the pot but healthier in the bottom of the container
- b. The roots may be extra thick and bright white in color
- c. The roots dead or absent at the bottom of the container but healthier in the top portion of the pot**
- d. The roots growing through the drain holes in the bottom of the pot

492 The worst time to plow soil for a new lawn is:

- a. during the late fall
- b. when the soil is moist
- c. when the soil is very wet**
- d. during the late summer

493 Which of the jobs below is one that an arborculturist is most likely to perform

- a. maintain trees**
- b. install landscape timbers
- c. maintain a rose bed
- d. construct a walk

494 Nursery liners are usually sold to

- a. landscape maintenance companies
- b. other nurserymen**
- c. landscape installation companies
- d. home owners

495 In general, it is best to aerate cool season grasses in the _____, and warm season grasses in _____.

- a. fall or spring; late spring or summer**
- b. spring or summer; fall or spring
- c. winter or summer; fall or early spring
- d. summer or fall; fall or winter

496 Which of the following is false?

- a. A daylily is an herbaceous perennial
- b. A dandelion is a cool season annual weed**
- c. 10-10-10 is a complete fertilizer
- d. A bald cypress is a deciduous conifer

497 An abnormal growth of plant tissue, usually caused by disease or insects, is called a(n):

- a. gamete
- b. internode
- c. canker

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d. gall

498 A mass of tissue that forms around a wound on a plant such as the base of a cutting is called:

- a. **callus tissue**
- b. bud tissue
- c. phloem fill
- d. cambium overgrowth

499 Which of the following is true regarding the treatment of trees on a construction site?

- a. The larger the tree, the more abuse it can take
- b. Adding up to six inches of soil around trees will not harm the trees
- c. Trees have deep roots, and removing up to six inches of soil from the surface will not hurt them
- d. **Trees are very sensitive to adding or removing soil around them**

501 Poorly drained soils grow poor crops because:

- a. **the roots receive insufficient air**
- b. the organic matter content is too high
- c. the roots take up too much water
- d. the soil warms too quickly in the spring

502 Phloem and xylem can be found in:

- a. micronutrient fertilizers
- b. organic pesticides
- c. **stems**
- d. complete fertilizers

503 When making a compost pile, a one-fourth inch layer of soil is added to the top of each ten inch layer of organic matter. The main function of the soil is to:

- a. press down the organic matter so that decomposition can start
- b. **insure that the pile is inoculated with decomposing microbes**
- c. release nutrients into the pile
- d. help hold in the heat of decomposition

505 The calibration of spray equipment is important because it:

- a. improves application accuracy
- b. maximizes investment in crop protection chemicals
- c. helps protect the environment
- d. **all of the answers listed**

506 Front walks leading to the door of the home should be at least ____ feet wide

- a. 5.5
- b. **3.5**

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- c. 2.5
 - d. 2
- 507 Chemicals should be stored in:
- a. a cool room such as a basement
 - b. a refrigerated storage cabinet
 - c. a free-standing, locked building**
 - d. the lath house
- 508 Chemicals sprayed in _____ tend to drift more
- a. a fine mist
 - b. very large drops
 - c. large droplets
 - d. a coarse stream
- 510 Skin, eyes, and lungs should be protected when
- a. applying chemicals
 - b. cleaning and adjusting the sprayer
 - c. mixing chemicals
 - d. all of the answers listed**
- 511 When working with pesticides, the minimum amount of protective clothing that should be worn is:
- a. a long-sleeved shirt
 - b. socks and sturdy shoes
 - c. a pair of long-legged trousers
 - d. all of the answers listed**
- 513 A restricted use crop protection chemical is:
- a. a chemical requiring the highest level of care in its use and handling**
 - b. an arbitrary classification
 - c. one that requires no special care in mixing, use, storing, and disposing
 - d. one that can be purchased and applied by anyone
- 514 Plants that are very tolerant of dry conditions are called:
- a. epiphytes
 - b. dryophytes
 - c. xerophytes**
 - d. monoecious
- 515 When a pollen grain adheres to the stigma, _____ has taken place
- a. hybridization
 - b. fertilization
 - c. scarification

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d. pollination

- 516 What is the official signal word that denotes the lowest toxicity rating?
- Caution**
 - Danger
 - Warning
 - Tolerance
- 517 An herbicide that moves through the plant from the site of uptake is a:
- translocated (systemic) herbicide**
 - contact herbicide
 - pre-emergence herbicide
 - water-soluble herbicide
- 518 Methods of establishing turfgrass in a lawn include:
- grading, sprigging and broadcasting
 - grading, broadcasting and hydroseeding
 - plugging, sodding and sprigging**
 - division, sprigging, and scarification
- 519 A soil is at the correct moisture content for potting if:
- when it is squeezed in the palm of the hand it will not make a ball
 - when squeezed in the palm of the hand, it makes a loosely held ball**
 - water can be easily squeezed from the soil
 - approximately two tablespoons of water can be squeezed from one handful of soil
- 520 The most ideal way to provide heat for rooting cuttings is with a system that warms the:
- rooting media**
 - misting water
 - air around the leaves of the cuttings
 - air above the mist benches
- 521 Only _____ lumber should be used for building outdoor structures for plants
- rough
 - malathion dipped
 - pressure treated**
 - creosote treated
- 522 Sooty mold is most likely to occur on plants infested with:
- lady beetles
 - mites
 - aphids**
 - rust

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523 The horticulture teacher wanted to have one of every landscape plant available for her plant identification course so she had the class plant a great variety of plants in the school landscape. The result was a landscape design that ignored the principle of

- a. **simplicity**
- b. balance
- c. focalization
- d. proportion

524 The trend in nursery crop production is toward more ____ plants and less field grown plants.

- a. greenhouse grown
- b. **container grown**
- c. bareroot
- d. balled and burlapped

525 One reason Latin is used in the binomial system for naming plants is because:

- a. it makes nursery workers sound more professional
- b. botanical names are never changed
- c. **there may be several common names for the same plant**
- d. it is the oldest language

527 What is a disadvantage of sexual plant propagation?

- a. **plants may lack uniformity**
- b. it is more expensive
- c. automated mist systems are required
- d. greater space is required than for asexual methods

528 Seeds may be scarified by:

- a. placing them in refrigerated storage
- b. treating them with hormones
- c. **treating them with acid**
- d. holding them in a cool, dry environment

530 Indolebutyric acid (IBA) is used in nursery operations to:

- a. speed seed germination
- b. induce flowering
- c. **promote rooting**
- d. retard plant growth

531 "The art of forming the growth of plants into the shape of animals is called:"

- a. **Topiary**
- b. Zenchu
- c. Espalier
- d. Bonsai

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- 532 Plants showing symptoms of nitrogen deficiency have
- abnormally long internodes
 - tiny brown spots between the leaf veins
 - yellowing leaves**
 - purple veins in the leaves
- 533 A plant that dies down to the ground at the end of each growing season but reemerges each spring from the rootstock is called a(n)...
- perennial
 - biennialannual
 - herbaceous**
 - rhizome
- 534 In most plants, a hormone called auxin is produced by the terminal bud. It moves downward into the shoot and inhibits the growth and development of lateral buds. This is called...
- apical dominance**
 - the apex auxin complex
 - terminal bud inhibition
 - lateral dominance
- 535 Leaf miner eggs are laid...
- on top of leaves
 - on flower buds
 - inside the leaves**
 - on the main stem
- 536 One irrigation setting for the entire nursery is usually not suitable. Which of the following is NOT a reason to vary the amount and timing of irrigation?
- Plants of different sizes have different water needs
 - Different types of potting soils have varying water holding capacities
 - In cool, humid weather, plants use more water than at other times**
 - Plants differ in water needs by species
- 537 A major advantage of the use of slow release fertilizer in container grown nursery stock is that it...
- can easily be leached from the soil if too much is applied
 - supplies nutrients over a long period of time with one application**
 - can be injected through the irrigation system
 - can be applied without expensive equipment
- 539 Callus is a term usually referring to...
- the first tissue to develop on a cutting just before it roots**
 - the tissue on the collar of a limb

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- c. a disease of plant leaves and limbs
 - d. deformed growth on plant limbs
- 540 Which fuel is used in chainsaws, string trimmers and other 2-cycle engines?
- a. gasoline
 - b. gasoline and oil mix**
 - c. fuel oil
 - d. diesel fuel
- 541 An indication that a plant may be nitrogen deficient is...
- a. the purplish tint of leaves
 - b. brown leaf margins
 - c. yellowing of the lower leaves**
 - d. the curling of new growth
- 542 It is best to apply lime...
- a. through the irrigation system to assure even coverage
 - b. during the spring after the grass had been established
 - c. when tilling the seed bed before planting**
 - d. Just before a rain after the grass is established
- 543 Which of the following is true?
- a. Some plants have male and female flower parts in the same flower
 - b. Some plants have male parts in one flower and female parts in another flower
 - c. Some plants have male flowers on one plant and female flowers on another plant
 - d. all of the answers listed**
- 544 The best temperature for germination of most seeds is...
- a. 75 - 85o F
 - b. 65 - 75o F**
 - c. 60 - 65o F
 - d. 50 - 55o F
- 545 Of the following choices, which is generally the best soil mix formula for potted nursery crops
- a. 2 bark: 1 vermiculite**
 - b. 1 bark: 1 sand: 1 clay
 - c. 1 vermiculite: 1 sand: 1 perlite
 - d. 2 sand: 1 silt: 1 clay
- 546 Lawn sprinkler systems are installed so that they provide even coverage. This is accomplished by...
- a. using one size sprinkler head throughout the landscape
 - b. spacing sprinklers based on needs specified in the soil test
 - c. spacing the heads so that each sprinkler sprays to the next sprinkler**

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- d. using one size pipe throughout the landscape
- 547 Plant diseases are caused by...
- a. fungi, insects, bacteria, and viruses
 - b. fungi, bacteria, mushrooms, algae, and viruses
 - c. algae, bacteria, and viruses
 - d. fungi, bacteria, and viruses**
- 548 Sheets of _____ polyethylene are often placed over container grown nursery stock during winter to _____.
- a. white; prevent cold damage**
 - b. clear; increase the supply of carbon dioxide
 - c. white; reduce insect pests and diseases
 - d. crystal clear; maintain air circulation
- 549 Which of the following landscape maintenance recommendations is correct?
- a. make final pruning cuts for the season two weeks before the first frost
 - b. root prune all plants in the landscape in the late fall
 - c. prune trees so that lateral branches develop with wide crotches**
 - d. make a final application of fertilizer for the season two weeks before the first frost
- 550 Landscape-size shrubs in containers are most often sold by the...
- a. inch
 - b. cubic foot
 - c. caliper
 - d. gallon**
- 551 A propagator in a nursery business is responsible for...
- a. increasing new accounts by spreading propaganda
 - b. making sure that the area used for pulling orders of container grown landscape-size plants is well stocked
 - c. starting new plants from seeds, cuttings, grafting, or other means and planning the propagation schedule**
 - d. carrying out an extensive plant breeding, development and evaluation program and applying for plant patents
- 552 Which of the following is NOT true about a core aerator?
- a. helps reduce soil compaction
 - b. it assists in getting organic matter and topdressings into the root zone
 - c. it cuts into the turf about 1/2" deep and pulls out thatch**
 - d. it is useful in an overseeding operation
- 553 To develop a bushy shrub in the landscape, it is important to periodically...
- a. spray the plant with growth retardant

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- b. remove the terminal buds of the growing branches**
 - c. root prune the plant
 - d. spray the plant with growth hormone
- 554 Which of the following is NOT a true statement about pruning?
- a. light annual pruning is better than severe pruning every two years
 - b. pruning stimulates regrowth
 - c. the trend in field grown shade tree production is to prune only after digging for resale**
 - d. pruning is an invigorating process for the plant
- 556 How many 50 pound bags of 10-5-5 should be applied to a 40 X 200 foot Fescue lawn if the recommendation is to apply 3 pounds of N per 1000 square feet?
- a. 2
 - b. 5**
 - c. 7
 - d. 9
- 557 Which of the following will have the LEAST effect on the health of turf if it is broadcast over the top of established grass and is not incorporated into the soil?
- a. lime**
 - b. 5-10-15 fertilizer
 - c. ammonium nitrate
 - d. 5-10-15 fertilizer, slow release formula
- 558 The loss of water in the form of vapor from the plant is referred to as...
- a. oxidation
 - b. respiration
 - c. condensation
 - d. transpiration**
- 560 Once they are beneath the bark surface, _____are difficult to control
- a. thrips
 - b. borers**
 - c. mealybugs
 - d. aphids
- 562 Fireblight most often attacks plants...
- a. in landscapes over four years old
 - b. during periods of rapid, succulent growth**
 - c. in recently installed landscapes
 - d. during winter
- 563 When using heat to sterilize/pasteurize soil, the soil should be heated to...
- a. 180o F for 30 minutes**

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- b. 200o F for 1 hour
 - c. 280o F for 1 hour
 - d. 100o F for 1 hour
- 564 Which of the following is NOT a recommended practice when using a gasoline lawn mower?
- a. mow across the slope with a push mower
 - b. mow up and down the slope with a riding mower
 - c. **fill the gasoline tank before removing it from the storage building**
 - d. mow only when the grass is dry
- 567 The best time to spray Roundup (glyphosphate) is...
- a.
 - b. just before a rain
 - c. **when the weeds are in active growth** just before weed seeds germinate
 - d. when weed growth is mature
- 568 USDA Plant Hardiness Zone Five includes most of...
- a. **Illinois, Indiana, Missouri**
 - b. North Carolina, Florida, Louisiana
 - c. California, Florida, Maine
 - d. Maine, North Dakota, Minnesota
- 569 A plant that dies down to the ground at the end of each growing season but reemerges each spring from the rootstock is called a(n)...
- a. annual
 - b. rhizome
 - c. **herbaceous perennial**
 - d. biennial
- 570 In the plant name *Cornus florida*...
- a. **the genus is Cornus and the species is florida**
 - b. the family is Cornus and genus is rubrum
 - c. the genus is florida and the species is Cornus
 - d. the species is Cornus and the variety is rubrum
- 571 Which of the following stands for the national association representing nurserymen?
- a. NNA
 - b. **AAN**
 - c. AN
 - d. USDA
- 572 Plants are likely to show the following symptoms if they lack nitrogen
- a. New leaves dry up
 - b. Tiny brown spots between the leaf veins

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- c. **Leaves are yellowish compared to normal leaves**
- d. Purple veining in the leaves

575 When is the best time to prune roses?

- a. in mid-winter
- b. **in the late winter when the bush is still dormant but getting ready to bud**
- c. in the fall just before they go dormant
- d. in late summer or early fall

576 An example of a herbaceous perennial is...

- a. boxwood
- b. shore juniper
- c. **daylily**
- d. eucalyptus