

**2018 National FFA Forestry
Career Development Event
Knowledge Exam**

Directions: Select the best answer and bubble it in on the score sheet provided. You may write on test booklet, if needed.

1. An example of a job performed by a forester with a Bachelor of Science (undergraduate) degree is _____. (KI, p.38) CS.05.01.02.a
 - a. Research Scientist
 - b. Urban Forester
 - c. Forestry Technician
 - d. Fire Fighter

2. The smallest portion of timberlands in the United States belongs to _____. (KI, p.31) NRS.02.04.02.b
 - a. Private Landowners
 - b. Public Lands
 - c. Forest Industry
 - d. Wilderness Areas

3. Several layers of vegetation found in a forest is called the _____. (FS, p.6) NRS.01.05.01.b
 - a. Strata
 - b. Canopy
 - c. Herb layer
 - d. Shrubs

4. An example of a nonrenewable resource is _____. (FS, p.11) PST.01.01.01.a
 - a. Forest
 - b. Wildlife
 - c. Coal
 - d. Crops

5. _____ are considered to be better sources for fuelwood. (FS,p.15) PST.01.01.01.a
 - a. Softwoods
 - b. Hardwoods
 - c. Low-density woods
 - d. Medium density woods

6. _____ is the movement and removal of soil caused by human and animal activities, or catastrophic natural events. (KI, p. 5) CS.04.01.01.b
 - a. Erosion
 - b. Natural Erosion
 - c. Accelerated Erosion
 - d. Soil Degradation

7. _____ is an obligate parasite, and while trees usually do not die from the infestation, their growth is restricted. (KI, p.129) NRS 04.02.01.a
 - a. Slime Flux
 - b. Rust
 - c. Nematode
 - d. Heart Rot

8. Which is not a degree of relative crown density? (FF, p. 123) NRS.01.05.01.b
 - a. Thin
 - b. Closed
 - c. Open
 - d. Partial

9. What is the rotating ring on a compass, graduated from zero to 360 degrees, and labeled with cardinal directions and quadrants called? (KI, p. 7) NRS.03.02.01.a
 - a. Dial
 - b. Bezel
 - c. Hozzle
 - d. Ring

10. Which tree species produce achene fruit? (KI, p.75) NRS.01.02.01.b
- a. Ash
 - b. Sycamore
 - c. Black Cherry
 - d. Black Walnut
11. The _____ is sometimes known as the boreal forest. (FS,p.28) NRS.01.05.03.c
- a. Northern Hardwoods Forest
 - b. Pacific Coast Forest
 - c. Bottomland Hardwood Forest
 - d. Northern Coniferous Forest
12. A _____ is formed through meiosis consists of one chromatid from each original chromosome pair. (FS, p.119) PS.02.02.01.b
- a. Haploid cell
 - b. Diploid cell
 - c. Tetrad cell
 - d. Mother cell
13. A forest that has been regenerated from the roots, stumps, or branches of other trees is known as a _____. (FS,p.122) NRS.01.01.01c
- a. High forest
 - b. Low forest
 - c. Bottom forest
 - d. Canopy forest
14. Which of the following DOES NOT influence the color of soil? (FS,p.136) CS.04.01.01.b
- a. Amount of organic matter
 - b. Drainage of the soil
 - c. Minerals in the soil
 - d. Amount of silt
15. Illuviation, the buildup of translocated soil components, is located in the _____. (FS,p.139) CS.04.01.01.b
- a. A soil horizon
 - b. B soil horizon
 - c. C soil horizon
 - d. E soil horizon
16. Pulpwood being processed for paper is debarked then chipped into pieces about _____ in size. (KI, p. 34) CS.02.02.02c
- a. 1
 - b. 2
 - c. 3
 - d. 4
17. The price of timber sold may be established in all except? (FF, p. 200) NRS.02.04.02.b
- a. Diameter
 - b. Tree Scale
 - c. Load Scale
 - d. Lump Sum
18. To use the _____, a forester pushes or drives the cutting edge through the bark until it reaches wood, then pushes the guard against the tree or log for a measurement. (KI, p.93) ESS.01.02.02.a
- a. Bark Gauge
 - b. Increment Borer
 - c. Tree Caliper
 - d. Soil Auger

19. Which of the following is not considered a natural firebreak? (FF, p. 320) NRS.04.04.01.b
- a. Streams
 - b. Logging Roads
 - c. Wind breaks
 - d. Highways
20. A complete soil profile includes these horizons in what order? (FS,p.139) CS.04.01.01.b
- a. A,B,C,E,O,R
 - b. B,A,C,O,E,R
 - c. O,A,E,B,C,R
 - d. R,O,A,C,E,B
21. _____ are responsible for heart rot. (FS,p.159) NRS.04.02.01.a
- a. Bacteria
 - b. Fungi
 - c. Viruses
 - d. Microplasmas
22. _____ include damage caused to trees by conditions such as drought, heat, cold and other conditions, they are not contagious, but they may affect large number of trees in an area. (FS,p.166) NRS.04.02.01.a
- a. Abiotic diseases
 - b. Biotic diseases
 - c. Fungus
 - d. Parasites
23. _____ is a method of controlling harmful insects and is proving to be a more practical approach to insect control.(FS,p.181) NRS.04.03.01.a
- a. Mechanical control
 - b. Chemical control
 - c. Genetic engineering
 - d. Integrated pest management
24. What causes the largest impact to species that have been listed on the threatened and endangered list?(FS,p.202) NRS.03.01.07.a
- a. Regulated hunting
 - b. Illegal killing
 - c. Landscape alteration
 - d. Competition from introduced species
25. _____ maps are color-enhanced photographic images that show land features. (KI, p.141) NRS.03.02.01.a
- a. Orthophoto
 - b. Physical
 - c. Relief
 - d. Road
26. Which species of wood does not have the most notable effects of spalting? (KI, p. 48) NRS.02.04.01.a
- a. Red Maple
 - b. Black Birch
 - c. American Beech
 - d. Yellow Poplar
27. Which species has the highest heating value per standard green cord? (FF, p. 371) PST.01.01.01a
- a. Hickory
 - b. White Oak
 - c. Red Maple
 - d. Eastern Cottonwood
28. The major commercial use for mushrooms is _____. (KI, p. 51) NRS.02.04.01.a
- a. Toxin control
 - b. Dyes for textiles
 - c. Medical Research
 - d. Food

29. Magnetic North is continually shifting, so a compass must be adjusted using _____ / _____ declination. (KI, p. 146) NRS.03.02.01.a
- a. North / South
 - b. East / West
 - c. South / West
 - d. North / West
30. The _____ is made up of trees, shrubs, and vines growing beneath the canopy. (KI, p. 60) NRS.01.05.03.c
- a. Emergent Layer
 - b. Canopy Layer
 - c. Understory Layer
 - d. Forest Floor
31. Some kinds of plants maintain their dominance over other plants by releasing chemicals into the area close around them that provide small doses of poison to invading plants. This is called _____. (FS,p.221) NRS.01.05.03.c
- a. Allelopathic effect
 - b. Adaptive behavior
 - c. Carbonization process
 - d. Dendrication
32. The first priority in any fire suppression effort is _____. (FS,p.294) NRS.04.04.01.b
- a. Fire crew safety
 - b. Evaluating the value of resources threatened
 - c. Evaluating the availability of firefighting resources
 - d. Deciding whether to suppress the fire or letting it burn
33. Which of the following terms best describes the mode of action of a firefighter who is setting backfires during a wildfire? (FS,p.297) NRS.04.04.01.b
- a. Direct attack
 - b. Incendiarism
 - c. Indirect attack
 - d. Prescribed burn
34. Resin ducts are openings in the wood through which resin moves within a live tree. They are present in _____.(FS,p.331) PS.02.02.03.a
- a. Softwoods
 - b. Hardwoods
 - c. Heartwood
 - d. Sapwood
35. The density of wood depends on the ratio of _____ to the volume of wood. (FS,p.331) PS.02.02.03.a
- a. Weight of wood
 - b. Cell wall material
 - c. Texture of wood
 - d. Plant vascular tissue
36. _____ is site preparation that effectively clears a site of unwanted vegetation and woody debris with minimal soil disturbance. (KI, p.107) NRS.03.01.01.c
- a. Chemical
 - b. Mechanical
 - c. Prescribed Burning
 - d. Clearcutting
37. _____ is a lengthwise separation of the wood, which usually extends across the rings of annual growth, commonly resulting from stresses set up in wood during seasoning. (FF, p. 460) PS.02.02.03.a
- a. Cant
 - b. Catface
 - c. Check
 - d. Conk

38. Trees directly influence the yield of a watershed by extracting water from the soil by _____. (KI, p. 63) PS.01.01.03.b
- a. Osmosis
 - b. Diffusion
 - c. Capillary Action
 - d. Transpiration
39. _____ thinning is useful in plantations because of their planting layout of rows and space within the row. (KI, p.109) NRS.03.01.01.c
- a. Geometric
 - b. Commercial
 - c. Pre-commercial
 - d. Crown
40. If a sample plot is $\frac{1}{4}$ acre in size, what is the plot radius? (KI, p. 147) ESS.05.01.01.c
- a. 37.25 feet
 - b. 52.7 feet
 - c. 58.9 feet
 - d. 66 feet
41. Windbreaks should be long in relation to their height; a _____ ratio is recommended. (KI, p. 63) NRS.04.01.02.c
- a. 2:1
 - b. 5:1
 - c. 10:1
 - d. 12:1
42. The _____ migrated to the United States from France, and now infests white and red oak trees in the Northeast. (KI, p.121) NRS.04.03.01.a
- a. Tent Caterpillar
 - b. Gypsy Moth
 - c. Douglas Fir Tussock Moth
 - d. Spruce Budworm
43. Which of the following snakes is not a pit viper? (KI, p. 163) NRS.01.02.03.b
- a. Rattlesnake
 - b. Cottonmouth
 - c. Copperhead
 - d. Coral Snakes
44. Which of the following is not a characteristic of an angiosperm? (KI, p. 70) NRS.01.02.01.b
- a. Broadleaves
 - b. Dry or Fleshy Fruit
 - c. Dendritic
 - d. Resin Ducts
45. According to OSHA, ear muffs or plugs are required for workers exposed to _____ decibels per hour or higher. (KI, p. 166) CS.03.04.01.a
- a. 75
 - b. 85
 - c. 95
 - d. 105
46. Which species and bark type is incorrect? (KI, p. 74) NRS.01.02.01.b
- a. American Beech – Smooth
 - b. Eastern White Pine – Scaly
 - c. Hickory – Blocky
 - d. Black Oak – Furrowed
47. How many seedlings are needed to plant 10 acres at 6' x 8'? (FF, p.175) NRS.04.01.02.c
- a. 480
 - b. 9075
 - c. 10000
 - d. 210

48. _____ is a chemical that kills fungi or prevents them from causing diseases, usually on plants of economic importance. (FF, p. 465) NRS.04.02.01.a
- a. Pesticide
 - b. Fungicide
 - c. Insecticide
 - d. Rodenticide
49. Axial parenchyma cells originate from the _____ forming a network of living cells around the tree. They transport sugars (food) to the parenchyma cells within the growth ring, and they store starch. PS.02.02.01.c
- a. Heartwood
 - b. Cambium
 - c. Sapwood
 - d. Seriate
50. _____ are unthickened portions of cell walls through which sap passes from ray cells to fibers, or vice versa. (FF, p. 229) PS.02.02.01.c
- a. Bordered Pits
 - b. Medullary Rays
 - c. Vertical Resin Duct
 - d. Simple Pits

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Irwin, K. M. and American Association for Vocational Instructional Materials. 2004. Science of Forestry Management. AAVIM. (KI)
Burton, L. D. 2000. Introduction to Forestry Science. Delmar. (FS)
Rolfe, G. L., Edgington, J., Holland, I., & Fortenberry, G. 2003. Forests and Forestry. Interstate Publishing. (FF)

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



2019 Forestry Career Development Event

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KNOWLEDGE EXAM

1. How many square feet are in 2.5 acres?
 - A. 25,000
 - B. 43,560
 - C. 87,120
 - D. 108,900

2. When felling a tree, a _____ removes a wedge of wood from the side where the logger wants the tree to fall.
 - A. Back cut
 - B. Over cut
 - C. Undercut
 - D. Front cut

3. Name the regeneration system where mature timber is removed, usually the oldest or largest trees, either as single scattered trees or in small groups at relatively short intervals, commonly 5 to 20 years.
 - A. Selection
 - B. Clearcut
 - C. Seed Tree
 - D. Shelterwood

4. If Mr. Fletcher plans to plant 50 acres of Longleaf Pine seedlings on 8 feet x 10 feet intervals. How many seedlings per acre will Mr. Fletcher plant?
 - A. 96
 - B. 432
 - C. 454
 - D. 545

5. What part of a timber sale contract depends upon the property boundaries?
 - A. Preamble
 - B. Description of sale area
 - C. Conditions of payment
 - D. Designation of which trees to cut

6. Which of the following is not a surface-rooted species?
 - A. Birch
 - B. Lodgepole Pine
 - C. Hickory
 - D. Hemlock

7. The process of consuming carbohydrates and oxygen to obtain energy for the biological processes of life support, growth, and reproduction is called _____.
 - A. Photosynthesis
 - B. Respiration
 - C. Transpiration
 - D. Oxidation

8. If the male and female flower parts occur in separate flowers on the same tree, the species is said to be _____.
 - A. Dioecious
 - B. Monoecious
 - C. Carpellate
 - D. Angiosperms

9. If you are traveling an azimuth of 265, you are headed in a _____ direction.
 - A. Northwest
 - B. Northeast
 - C. Southeast
 - D. Southwest

10. Which of the following is a common leaf form?
- A. Dentate
 - B. Incised
 - C. Truncate
 - D. Lanceolate
11. What is the form class of a tree 16 inches in dbh and 12 inches in diameter inside bark at the top of the first 16-foot log?
- A. 75
 - B. .075
 - C. 1.33
 - D. 133
12. _____ is a method in which the performance of a genotype is tested over a geographic range.
- A. Genetic engineering
 - B. Progeny testing
 - C. Provenance testing
 - D. Clone testing
13. _____ are the fastest spreading of all types of fires.
- A. Crown fires
 - B. Ground fires
 - C. Surface fires
 - D. None of the above
14. Length of darkness influences plant growth. This is known as _____.
- A. Geotropism
 - B. Thermotropism
 - C. Photoperiodism
 - D. Light Intensity
15. Which of the following is not a type of veneer?
- A. Sawed
 - B. Scraped
 - C. Sliced
 - D. Rotary Cut

16. Several layers of vegetation found in a forest is called the _____.
A. Strata
B. Canopy
C. Herb layer
D. Shrubs
17. _____ rule assumes 1-inch boards and ¼ inch kerf, makes a liberal allowance for slabs, and disregards taper.
A. International Rule
B. Doyle-Scribner Rule
C. Doyle Rule
D. Scribner Rule
18. For which of the following would a fungicide be used?
A. Aphid
B. Slime Flux
C. Heart Rot
D. Nematode
19. When fuel burns, it reacts with oxygen from the surrounding air releasing heat and generating
A. Pyrophoric
B. Pyrolysis
C. Oxidation
D. Deflagration
20. _____ are considered to be better sources for fuelwood.
A. Softwoods
B. Hardwoods
C. Low-density woods
D. Medium density woods
21. Which of the following is an accurate portrayal of the stages of succession?
A. Perennials, annual weeds, shrubs, young trees
B. Annual weeds, shrubs, perennials, young trees
C. Annual weeds, young trees, shrubs, perennials
D. Annual weeds, perennials, shrubs, young trees

22. _____ is a small leaf like appendage to a leaf, typically borne in pairs at the base of the leaf stalk.
- A. Stipule
 - B. Petiole
 - C. Axillary Bud
 - D. Lenticel
23. When _____ occurs the seed breaks dormancy and begins to sprout.
- A. Fertilization
 - B. Pollination
 - C. Germination
 - D. Asexual Reproduction
24. In the rectangle survey system developed by Thomas Jefferson, _____ run north to south.
- A. Principal Meridians
 - B. Primary Meridians
 - C. Secondary Meridians
 - D. Guide Meridians
25. _____ is a cell structure that gathers excess water and wastes that are discharged through the cell wall.
- A. Mitochondrion
 - B. Golgi Apparatus
 - C. Chloroplast
 - D. Vacuole
26. A sapling is a tree that is more than _____ in height and up to _____ in diameter.
- A. 2', 3"
 - B. 3', 6"
 - C. 3', 4"
 - D. 1', 2"

27. How many board feet are present in a 2 inch thick, 12 inch wide, and 144 inch long board?
- A. 24
 - B. 288
 - C. 144
 - D. 32
28. An anther is a plant structure found on/in the _____.
- A. Leaf
 - B. Flower
 - C. Stem
 - D. Root
29. The first plants to grow naturally in a burned or cleared area are called _____.
- A. Softwoods
 - B. Pioneers
 - C. Hardwoods
 - D. Shrubs
30. A dicot has _____ cotyledon(s).
- A. One
 - B. Two
 - C. Three
 - D. None
31. Which of the following is not correct?
- A. Sycamores as aggregate fruit
 - B. Pines have cones
 - C. Maples have samaras
 - D. Oaks as indehiscent
32. John's step factor is 2.86 feet. How many steps does John take to measure a distance of 100 feet?
- A. 40
 - B. 39
 - C. 35
 - D. 34

33. The scientific name for Chestnut Oak is....
- A. Quercus velutina
 - B. Quercus alba
 - C. Quercus rubra
 - D. Qurercus montana
34. _____ is lumber sawn in the horizontal plane, or end surface, of a log.
- A. Plain-sawn wood
 - B. Quarter-sawn wood
 - C. Endgrained-sawn wood
 - D. None of the above
35. A _____ is formed through meiosis consists of one chromatid from each original chromosome pair.
- A. Haploid cell
 - B. Diploid cell
 - C. Tetrad cell
 - D. Mother cell
36. Pulpwood being processed for paper is debarked then chipped into pieces about _____ in size.
- A. 1
 - B. 2
 - C. 3
 - D. 4
37. To use the _____, a forester pushes or drives the cutting edge through the bark until it reaches wood, then pushes the guard against the tree or log for a measurement.
- A. Bark Gauge
 - B. Increment Borer
 - C. Tree Caliper
 - D. Soil Auger

38. A complete soil profile includes these horizons in what order?
- A. A,B,C,E,O,R
 - B. B,A,C,O,E,R
 - C. O,A,E,B,C,R
 - D. R,O,A,C,E,B
39. _____ maps are color-enhanced photographic images that show land features.
- A. Orthophoto
 - B. Physical
 - C. Relief
 - D. Road
40. Some kinds of plants maintain their dominance over other plants by releasing chemicals into the area close around them that provide small doses of poison to invading plants. This is called _____.
- A. Allelopathic effect
 - B. Adaptive behavior
 - C. Carbonization process
 - D. Dendrification
41. The degree of acidity or alkalinity of a soil is expressed in pH values. Which of the following pH values is most acidic?
- A. 8.5
 - B. 7.0
 - C. 5.5
 - D. 4.0
42. _____ is a lengthwise separation of the wood, which usually extends across the rings of annual growth, commonly resulting from stresses set up in wood during seasoning.
- A. Cant
 - B. Catface
 - C. Check
 - D. Conk

43. You tally 9 trees using a 10 factor wedge prism within a plot. What is the basal area in square feet per acre of the trees around that point?
- A. 0.9
 - B. 9
 - C. 90
 - D. 10
44. If $\text{Area} = \text{Pi} \times \text{radius}^2$, then what is the plot radius for 1/5 acre?
- A. 37.25 feet
 - B. 52.6 feet
 - C. 58.9 feet
 - D. 66 feet
45. Which specie and bark type is incorrect?
- A. American Beech – Smooth
 - B. Eastern White Pine – Blocky
 - C. Hickory – Furrowed
 - D. Black Oak – Furrowed
46. Assume that a cord of firewood costs \$150, how much would a stack of wood measuring 4' x 4' x 16' cost?
- A. \$75
 - B. \$150
 - C. \$300
 - D. \$450
47. How many sections are there in a township?
- A. 1
 - B. 36
 - C. 640
 - D. 43,560
48. . _____ is the capacity of a tree to develop and grow in the shade while in competition with other trees.
- A. Tracheids
 - B. Reproduction
 - C. Toughness
 - D. Tolerance

49. _____ a reconstituted board containing a high percentage of wood shaving in the central core with layers of wood flakes on either side of the core and fine sawdust near the surface.
- A. Particleboard
 - B. OSB
 - C. Fiberboard
 - D. Hardboard
50. Axial parenchyma cells originate from the cambium forming a network of _____ cells around the tree. They transport sugars (food) to the parenchyma cells within the growth ring, and they store starch.
- A. Living
 - B. Dead
 - C. Segmented
 - D. Guard



2019 Forestry Career Development Event

KNOWLEDGE EXAM KEY

Question	Answer	Point Value	Standard
1	D	2	NRS.03.02.01.a
2	C	2	CS.03.04.02.c
3	A	2	NRS.01.01.01.c
4	D	2	NRS.01.05.03.c
5	B	2	NRS.01.05.03.c
6	C	2	CS.03.04.03.b
7	B	2	PS.02.03.02.a
8	B	2	PS.02.02.05.b
9	D	2	NRS.03.02.01.a
10	D	2	PS.02.01.01.a
11	A	2	NRS.01.02.06.c
12	C	2	PS.03.01.05.b
13	A	2	NRS.04.04.01.b
14	C	2	PS.01.01.01.b
15	B	2	NRS.02.04.01.a
16	A	2	NRS.01.05.01.b
17	D	2	CS.03.04.02.c
18	C	2	NRS.04.02.01.c
19	C	2	NRS.04.01.01.b
20	B	2	PST.01.01.01.a
21	D	2	NRS.01.05.01.b
22	A	2	PS.02.02.03.a
23	C	2	PS.02.02.06.a
24	A	2	ESS.05.01.01.c
25	D	2	PS.02.02.01.c
26	C	2	NRS.01.02.06.c
27	A	2	NRS.03.01.01.c
28	B	2	CS.03.04.02.c
29	B	2	NRS.01.05.01.b
30	B	2	PS.02.02.04.a
31	A	2	PS.02.02.06.b.
32	C	2	NRS.03.02.01.a
33	D	2	PS.02.01.01.a
34	C	2	CS.03.04.03.b
35	A	2	PS.02.02.01.b
36	A	2	NRS.02.04.01.a
37	A	2	CS.03.04.02.c

38	C	2	NRS.01.02.05.b
39	C	2	NRS.03.02.01.a
40	A	2	NRS.01.05.03.c
41	D	2	NRS.01.02.05.b
42	C	2	PS.02.02.03.a
43	C	2	NRS.01.02.06.c
44	B	2	ESS.05.01.01.c
45	B	2	NRS.01.02.01.b
46	C	2	NRS.03.01.01.c
47	B	2	NRS.03.02.01.a
48	D	2	PS.01.01.01.b
49	A	2	NRS.02.04.01.a
50	A	2	PS.02.02.01.c



2021 National FFA Forestry General Knowledge Exam

- Which soil type holds the least amount of water?
 - clay
 - sand
 - loam
 - sandy loam
- A half-section of land contains ___ acres.
 - 40
 - 80
 - 160
 - 320
- The DBH range of trees in sapling stands is:
 - 0" - 5"
 - 5" - 10"
 - 10" - 15"
 - none of the above
- A block of wood 4 inches thick by 6 inches wide and 12 inches long contains ___ board feet of wood volume.
 - one
 - two
 - three
 - four
- Trees that have the largest crowns and are taller than other trees in the stand are called _____ trees.
 - intermediate
 - co-dominant
 - suppressed
 - dominant
- Which one of the following species has opposite leaf arrangement?
 - oak
 - maple
 - hickory
 - sycamore
- The tree tissue responsible for transporting food made in the leaves to the roots is called:
 - xylem
 - cambium
 - phloem
 - bark
- What two measurements are needed to determine the site index of a stand?
 - age and DBH
 - height and DBH
 - DBH and soil index
 - age and height
 - e.

9. The proper distance one should hold a Biltmore stick from their eye is ___ inches.
- a. 15
 - b. 20
 - c. 25
 - d. 30
10. Name the regeneration system where healthy, large-crowned trees are scattered throughout the harvested area to provide seed for the next forest stand.
- a. clearcut
 - b. shelterwood
 - c. seed tree
 - d. single-tree
11. How many seedlings will be planted on one acre at a spacing of 10'x10'?
- a. 302
 - b. 436
 - c. 889
 - d. 1,742
12. A hypsometer measures:
- a. soil moisture
 - b. tree volume
 - c. tree diameter
 - d. tree height
13. The study of forest diseases is called:
- a. dendrology
 - b. forest pathology
 - c. forest entomology
 - d. forest hydrology
14. Log grade is NOT determined by which factor?
- a. length
 - b. diameter
 - c. defects
 - d. age
15. What are the dimensions for a standard cord of wood?
- a. 2 feet high x 4 feet wide x 8 feet long
 - b. 4 feet high x 4 feet wide x 8 feet long
 - c. 4 feet high x 2 feet wide x 8 feet long
 - d. 4 feet high x 4 feet wide x 4 feet long
16. The term that describes the decreasing size in a tree's diameter as one travels up the stem.
- a. taper
 - b. sweep
 - c. wane
 - d. lean
17. The best time to regenerate a forest by hand or machine planting is:
- a. late fall or winter
 - b. late winter or early spring
 - c. spring
 - d. summer

18. A person took a total of 80 paces to travel a 100-foot distance four times. What is the person's pace length?
- | | |
|-------------|-------------|
| a. 5.0 feet | c. 6.0 feet |
| b. 5.5 feet | d. 6.5 feet |
19. DBH refers to a height ___ inches from the ground:
- | | |
|-------|-------|
| a. 42 | c. 54 |
| b. 48 | d. 60 |
20. Pulpwood is the term used for wood primarily cut for what product?
- | | |
|-------------|-------------------|
| a. firewood | c. lumber |
| b. veneer | d. paper products |
21. Creosote, Penta, CCA and copper naphthenate are all chemicals which have been used in:
- | | |
|--------------------|-----------------|
| a. making paper | c. herbicides |
| b. preserving wood | d. insecticides |
22. Drupe, pome, achene, and samara all refer to:
- | | |
|-------------------|----------------|
| a. tree flowering | c. tree leaves |
| b. tree fruit | d. tree orders |
23. Science dealing with the measurement of volume, growth and development of individual trees and stands, and the determination of the various products obtainable from them is:
- | | |
|-----------------|----------------|
| a. silviculture | c. pathology |
| b. ecology | d. mensuration |
24. Mounds of soil used to divert run-off water off woods roads are called:
- | | |
|------------------|----------------------|
| a. road terraces | c. high boys |
| b. water bars | d. diversion ditches |
25. The angular difference between magnetic north and true north is called what?
- | | |
|------------|----------------------|
| a. bearing | c. declination |
| b. azimuth | d. none of the above |
26. What part of a timber sale contract depends upon the property boundaries?
- | | |
|-----------------------------|--------------------------------------|
| a. Preamble | c. Conditions of payment |
| b. Description of sale area | d. Designation of which trees to cut |

27. If you are traveling an azimuth of 135, you are headed in a _____ direction.
- | | |
|--------------|--------------|
| a. Northwest | c. Southeast |
| b. Northeast | d. Southwest |
28. What is the form class of a tree 18 inches in dbh and 15 inches in diameter inside bark at the top of the first 16-foot log?
- | | |
|---------|---------|
| a. 83 | c. 1.20 |
| b. .083 | d. .120 |
29. Which specie and bark type is incorrect?
- | | |
|-------------------------------|------------------------|
| a. American Beech – Smooth | c. Birch - Plated |
| b. Eastern White Pine – Scaly | d. Black Oak –Furrowed |
30. An insect that belongs to the coleoptera order, and feeds on plant and animal matter.
- | | |
|----------------|-------------------------|
| a. Gypsy Moth | c. Southern Pine Beetle |
| b. Pine Sawfly | d. Cicadas |
31. Which of the following is NOT an angiosperm?
- | | |
|---------|------------|
| a. Oaks | c. Firs |
| b. Elms | d. Hickory |
32. _____ - leaflets are laterally attached along each side of the rachis. Example: Hickory.
- | | |
|-----------------------|-------------------------|
| a. Palmately Compound | c. Bipinnately Compound |
| b. Pinnately Compound | d. Simple |
33. The standard scale for a 7.5 minute topo map is _____.
- | | |
|--------------|----------------------|
| a. 1:24,000 | c. 1:63,360 |
| b. 1:250,000 | d. none of the above |
34. The sum of the plot area sampled should represent _____ percent of the total area of tracts under 300 acres.
- | | |
|-------|-------|
| a. 50 | c. 30 |
| b. 40 | d. 20 |
35. The sale of timber creates capital gains income.
- | |
|----------|
| a. True |
| b. False |

36. _____ and _____ are the main constituents of wood.
- | | |
|-----------------------------|------------------------------|
| a. carbohydrates / starches | c. cellulose / carbohydrates |
| b. starches / cellulose | d. lignin / cellulose |
37. The type of fruit produced by a tree is determined by the nature of the _____.
- | | |
|---------|----------------|
| a. leaf | c. ovary |
| b. bark | d. root system |
38. What is the correct order?
- Class, Genus, Species, Order
 - Order, Species, Genus, Class
 - Family, Genus, Species, Kingdom
 - Order, Family, Genus, Species
39. Which of the following is NOT a biological factor affecting a tree's environment?
- | | |
|-------------------|----------------------|
| a. Pyric Activity | c. Small animal life |
| b. Fungi | d. Microorganisms |
40. Broadleaf trees generally represent which of the following strata in a forest?
- | | |
|---------------|----------------|
| a. canopy | c. understory |
| b. herb layer | d. shrub layer |
41. The population of plants that occupies an environment when the succession of plant species is complete and the plant population has stabilized is known as a:
- | | |
|--------------------|---------------------|
| a. terminal forest | c. climax community |
| b. pioneer species | d. boreal forest |
42. A permeable structure found in plant cells that restrict the kind of materials that can enter a cell is the:
- | | |
|------------------|--------------|
| a. nucleoplasm | c. cell wall |
| b. cell membrane | d. vacuole |
43. A high-energy molecule that is formed during the first light reaction of photosynthesis is:
- | | |
|----------|----------------|
| a. NADPH | c. cellulose |
| b. ATP | d. chlorophyll |

44. Which of the following natural cycles is NOT an elemental cycle?
- a. carbon cycle
 - b. nitrogen cycle
 - c. water cycle
 - d. oxygen cycle
45. A fruiting body is:
- a. a structure that produces spores that develop into fungi
 - b. a fleshy structure that surrounds the seeds of a plant
 - c. a thin strand of fungal tissue that enters tree roots, infecting them with disease organisms
 - d. a structure on a tree leaf in which sap become fermented to produce honeydew
46. Some kinds of plant release chemicals into the area close around them that provide small doses of poison to young plants that invade their territory. This defensive plant response is known as:
- a. germicide
 - b. herbicide
 - c. allelopathic effect
 - d. chemical warfare
47. A timber harvest operation in which entire trees are processed in the forest to produce biomass is called:
- a. debarking
 - b. bucking
 - c. chaining
 - d. chipping
48. A firestorm is caused by:
- a. ash that has drifted down from the atmosphere above the fire
 - b. a thunderstorm
 - c. erratic winds that move the fire into the forest canopy where there is plenty of fuel
 - d. lightning strikes
49. A pulping process in which wood fibers are separated by dissolving the lignin that cements them together is called:
- a. hydra pulping
 - b. chemical pulping
 - c. mechanical pulping
 - d. disk refining
50. A tensiometer is an instrument that is used to:
- a. calculate the strength of a tree
 - b. measure the purity of irrigation water by testing the surface tension of water
 - c. estimate the flexibility of tree limbs
 - d. measure the water content of soil



CAREER DEVELOPMENT EVENT

Created: Jul-24

Knowledge Exam Key

Question	Answer	Point	Standard
1.	B	2	CS.04.01
2.	D	2	ESS.05.01
3.	A	2	NRS.01.02
4.	B	2	NRS.01.02
5.	D	2	NRS.01.05
6.	B	2	NRS.01.02
7.	C	2	PS.02.02
8.	D	2	NRS.01.02
9.	C	2	ESS.01.02
10.	C	2	NRS.01.05
11.	B	2	NRS.01.02
12.	D	2	CS.03.04
13.	B	2	NRS.04.03
14.	D	2	NRS.01.02
15.	B	2	NRS.01.02
16.	A	2	NRS.01.02
17.	A	2	NRS.03.01
18.	A	2	ESS.05.01
19.	C	2	NRS.01.02
20.	D	2	NRS.01.05
21.	B	2	NRS.02.04
22.	B	2	NRS.01.02
23.	D	2	ESS.05.01
24.	B	2	NRS.01.01
25.	C	2	ESS.05.01
26.	B	2	NRS.02.04
27.	C	2	ESS.05.01
28.	A	2	NRS.01.02

Question	Answer	Point	Standard
29.	C	2	NRS.01.02
30.	C	2	NRS.01.02
31.	C	2	NRS.01.02
32.	B	2	NRS.01.02
33.	A	2	ESS.05.01
34.	D	2	NRS.01.02
35.	A	2	NRS.02.04
36.	D	2	PS.02.02
37.	C	2	PS.02.02
38.	D	2	PS.02.02
39.	A	2	NRS.01.05
40.	A	2	NRS.01.05
41.	C	2	PS.02.02
42.	B	2	PS.02.02
43.	B	2	CS.06.01
44.	C	2	PS.02.02
45.	A	2	NRS.04.03
46.	C	2	NRS.03.01
47.	D	2	NRS.04.04
48.	A	2	NRS.02.04
49.	B	2	NRS.02.04
50.	D	2	CS.03.04

2022 National FFA Forestry CDE Knowledge Exam B

1. Pick the correct definition of habitat structure?
 - a. Characteristics of the natural environment such as sunlight, temperature, moisture, and wind
 - b. Physical characteristics of the natural environment, such as how many trees there are, how tall they are, and what species they are
 - c. The shrubs, young trees, and plants near the forest floor
 - d. Animal or plant species that live in areas that have just had a large disturbance that removed much of the canopy, such as an extreme weather event like a windstorm or a clear-cut timber harvest

2. What job title is being described?
A(n) _____ Samples water from a stream to make sure that it is safe.
 - a. Volunteer
 - b. Naturalist
 - c. Ecologist
 - d. Logger

3. What word matches this definition?
The amount of sky obscured by the leaves and branches of the top layer of trees in the forest, measured as a percent.
 - a. Clear cut
 - b. Early successional
 - c. Ground cover
 - d. Canopy cover

4. The trunk of a tree is considered which of the following?
 - a. Internode
 - b. Bole
 - c. Crown
 - d. Root

5. Which of the following is false about cambium cells?
 - a. Cambium cells live between wood and bark cells and are visible only with a magnifying glass
 - b. Cambium growth widens tree trunks, limbs, and roots
 - c. Cambium cells divide forming wood cells toward the center of the tree and bark cells toward the outside
 - d. Cambium cells carry food made in the leaves to the twigs, branches, trunk, and roots

6. Which of the following is not an artificial reproductive method?
 - a. Pruning
 - b. Budding and Grafting
 - c. Cuttings
 - d. All of the above are artificial reproductive methods

7. Oxygenic photosynthesis occurs in the _____ located in the plant cell and absorbs blue and red wavelengths of lights.
 - a. Mitochondrion
 - b. Golgi Apparatus
 - c. Nucleus
 - d. Chloroplast

8. Axial parenchyma cells originate from the _____ forming a network of living cells around the tree. They transport sugars (food) to the parenchyma cells within the growth ring, and they store starch.
- Heartwood
 - Cambium
 - Sapwood
 - Seriate
9. A leaf _____ is the space or indentation between the lobes of a leaf blade.
- Sinus
 - Margin
 - Apex
 - Midrib
10. Which species of wood can be used to produce ax handles?
- Sycamore
 - White Birch
 - Bald Cypress
 - Hickory
11. Which of the following statements is not true about monocots?
- Monocot seeds have one cotyledon.
 - Monocot flower parts come in multiples of 4 and 5.
 - Monocot leaves have parallel venation.
 - Monocots have scattered vascular bundles in the stem.
12. Which of the following is an accurate portrayal of the stages of succession?
- Annual weeds, perennials, shrubs, young trees
 - Annual weeds, shrubs, perennials, young trees
 - Annual weeds, young trees, shrubs, perennials
 - Perennials, annual weeds, shrubs, young trees
13. Which is NOT a function of those plants growing next to the stream in a riparian forest buffer?
- Slow surface water runoff from farm fields converting concentrated flow to sheet flow.
 - Reduce velocity of over-the-bank floodwaters.
 - Shade the stream and moderate water temperatures.
 - Storage and breakdown of NPS pollutants.
14. Which rule for scaling logs takes into account the amount of wood in the taper of the log from the small end to the large end?
- Scribner
 - Doyle
 - International
 - None of them
15. _____ is an obligate parasite, and while trees usually do not die from the infestation, their growth is restricted.
- Slime Flux
 - Rust
 - Nematode
 - Heart Rot

16. A _____ is formed through meiosis consisting of one chromatid from each original chromosome pair.
- Haploid cell
 - Diploid cell
 - Tetrad cell
 - Mother cell
17. Which of the following does not influence the color of soil?
- Amount of organic matter
 - Drainage of the soil
 - Minerals in the soil
 - Amount of silt
18. _____ include damage caused to trees by conditions such as drought, heat, cold and other conditions, they are not contagious, but they may affect a large number of trees in an area.
- Abiotic diseases
 - Biotic diseases
 - Fungus
 - Parasites
19. When felling a tree with a chainsaw the backcut _____.
- is placed below the undercut
 - should be placed on the same level as the undercut
 - should be level with the bottom of the open face notch
 - should cut straight through the notch
20. How many square feet are in 5.5 acres?
- 425,000
 - 243,560
 - 187,120
 - 239,580
21. Mr. Fletcher plans to plant 50 acres of Longleaf Pine seedlings on 8 feet x 10 feet intervals. How many seedlings per acre will Mr. Fletcher plant?
- 96
 - 432
 - 454
 - 545
22. If the male and female flower parts occur in separate flowers on the same tree, the species is said to be _____.
- Dioecious
 - Monoecious
 - Carpellate
 - Angiosperms
23. What is the form class of a tree 24 inches in dbh and 18 inches in diameter inside bark at the top of the first 16-foot log?
- 75
 - .075
 - 1.33
 - 133

24. Length of darkness influences plant growth. This is known as _____.
- Geotropism
 - Thermotropism
 - Photoperiodism
 - Light Intensity
25. For which of the following would an insecticide be used?
- Aphid
 - Slime Flux
 - Heart Rot
 - Nematode
26. In the rectangular survey system developed by Thomas Jefferson, _____ run north to south.
- Principal Meridians
 - Primary Meridians
 - Secondary Meridians
 - Guide Meridians
27. How many board feet are present in 20 boards $5/4$ inches thick, 12 inches wide, and 144 inches long?
- 24
 - 300
 - 3600
 - 240
28. _____ is a lengthwise separation of the wood, which usually extends across the rings of annual growth, commonly resulting from stresses set up in wood during seasoning.
- Cant
 - Catface
 - Check
 - Conk
29. You tally 8 trees using a 10 factor wedge prism within a plot. What is the basal area in square feet per acre of the trees around that point?
- 0.8
 - 8
 - 80
 - 10
30. If $\text{Area} = \text{Pi} \times \text{radius}^2$, then what is the plot radius for $1/10$ acre?
- | | |
|---------------|--------------|
| a. 37.25 feet | c. 58.9 feet |
| b. 52.6 feet | d. 66 feet |
31. Which species and bark type is incorrect?
- American Beech – Smooth
 - Eastern White Pine – Scaly
 - Hickory – Warty
 - Black Oak – Furrowed

32. Assume that a cord of firewood costs \$150, how much would a stack of wood measuring 4' x 4' x 14' cost?
- \$75
 - \$150
 - \$263
 - \$450
33. The best planting method for waterlogged soils is
- Pit planting
 - Mound planting
 - Berm planting
 - Dibble planting
34. Opposite of succession is called:
- Secondary succession
 - Tertiary succession
 - Retention
 - Retrogression
35. Which of the following is the correct way to write a legal description of a land Parcel:
- S 16, T4N, R2E, NE 1/4 of SE 1/4
 - R2E, S16, T4N, NW 1/4 of SW 1/4
 - NW 1/4 of SW 1/4, S16, T4N, R2E
 - NE 1/4 of Se 1/4, R2E, T4N, S16
36. A method of natural control of forest insect pests include(s):
- allowing predators of the insect to control them
 - logging the infested tree
 - spraying with insecticide after the trees are felled
 - none of the above
37. The distinctive feature of topographic maps is the _____.
- location of forest land
 - location of landmarks
 - location of roads and waterways
 - shape or contour of the land
38. The use of a counter (back) fire is what type of forest fire control?
- Direct
 - Indirect
 - Prescribed
 - Triangulation
39. The decline in value of a fixed asset due to wear and tear from use is called:
- Declination
 - Depletion
 - Depreciation
 - Diminishing returns
40. On a topographic map which of the following is a dark, heavy line with an elevation figure?
- contour index
 - contour interval
 - contour line
 - horizontal control station

41. An azimuth reading of 196 degrees would convert to a bearing of _____.
- 96 degrees south
 - 196 degrees SW
 - S 16 degrees W
 - 16 degrees SW
42. Merchantable height is that height from the stump to _____.
- a specified minimum top diameter
 - half-way between the first branch and the top of the tree
 - that point which is 2/3 the total height of the tree
 - the very top of the tree
43. Light distribution can affect tree form, resulting in _____.
- greater development of the tree on the side exposed to the most sunlight
 - less growth on the side of the tree exposed to the most sunlight
 - a tall, spindly tree because of exposure to the sun
 - a short, overtopped tree because of exposure to the sun
44. Seed formation depends on the amount of reserve _____ and nitrogenous materials in a tree.
- Fatty acids
 - Carbohydrates
 - Proteins and amino acids
 - Oxygen
45. The term _____ is used to describe the physical expression of an inherited tree trait that can be measured and observed.
- Genotype
 - genetic map
 - physical map
 - phenotype
46. The damage done by the gypsy moth is when it is in the _____ stage.
- Adult
 - Pupae
 - Egg
 - Larva
47. Adult insects have 6 legs, adult mites have ____ legs.
- 2
 - 4
 - 6
 - 8
48. Abnormal growth on trees that is caused by insects or mites is often called _____.
- Galls
 - Conks
 - Whirls
 - Scales

49. How many acres are in an area 25 chains long by 20 chains wide?

- a. .5 acres
- b. 5 acres
- c. 50 acres
- d. 500 acres

50. Trees are planted along city streets to help increase _____.

- a. gas removal and particulate collection
- b. summer air temperatures
- c. temperatures of sidewalks and road surfaces
- d. wind velocity

2022 National FFA Forestry CDE Knowledge Exam B Answer Key

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



NATIONAL FFA FORESTRY CAREER DEVELOPMENT EVENT

Exam

- Which of the following is not correct?
 - Acre equals 43,560 square feet
 - Hectare equals 1,000 square meters**
 - Are equals 100 square meters
 - Hectare equals 2.471 acres
- If the circumference of a tree at DBH is 47 inches, what is the diameter?
 - 147
 - 15**
 - .067
 - 50
- Aerial fuel is located more than _____ feet above the ground in the mid to upper canopy of the forest.
 - Six**
 - Eight
 - Nine
 - Twelve
- A pulping process in which wood fibers are separated by dissolving the lignin that cements them together is called:
 - Hydrapulping
 - Chemical pulping**
 - Mechanical pulping
 - Disk refining

5. Which of the following is a survey line that runs east-west?
- A. Principal Meridian**
 - B. Guide Meridian
 - C. Section
 - D. Baseline
6. Which of the following products does not come from cellulose xanthate?
- A. Rosin**
 - B. Photographic film
 - C. Cellophane
 - D. Rayon
7. The population of plants that occupies an environment when the succession of plant species is complete and the plant population has stabilized is known as a:
- A. Boreal forest
 - B. Pioneer species
 - C. Climax community**
 - D. Terminal forest
8. Which of the following is not one of the basic tissues systems of a plant?
- A. Vascular tissue
 - B. Ground tissue
 - C. Dermal tissue
 - D. Nucleoplasm**
9. Which tool is used to measure boundaries on scale maps to determine land area?
- A. Dot Grid
 - B. Planimeter**
 - C. Survey Instrument
 - D. Stereoscope

10. Dehydration synthesis is a plant process that is responsible for the formation of:
- A. Glucose
 - B. Starch**
 - C. Cellulose
 - D. Chloroplast
11. What are current tree felling wedges made of?
- A. Steel, plastic
 - B. Plastic, aluminum**
 - C. Wood, aluminum
 - D. Steel, wood
12. What method of forest regeneration relies on stump sprouts from harvested trees?
- A. Stock Grafting Method
 - B. Seed Tree Method
 - C. Coppice Method**
 - D. Shelterwood Method
13. Which of the following is an example of a commensalism relationship between organisms?
- A. Mistletoe growing on a tree limb
 - B. Birds cache pine seeds for later use and a seed sprouts as a seedling
 - C. Kudzu growing on a pine tree
 - D. Spanish moss growing in the canopy of a tree**
14. Annually, _____ is the highest consumer of sawn wood.
- A. China**
 - B. United States of America
 - C. German
 - D. Italy

15. Which statement is true?
- A. Softwood has a rough wood texture
 - B. Softwood is porous due to the presence of vessels
 - C. Tracheid content in softwood is 90% to 95%**
 - D. Softwood comes from angiosperm, deciduous trees
16. The strength of wood along the long axis of a tree is called:
- A. Ductile strength
 - B. Density
 - C. Toughness
 - D. Tensile strength**
17. The intent of the _____ was to establish forests on 40 acres of each 160-acre homestead in the Great Plains region.
- A. Homestead Act of 1862
 - B. Timber Culture Act of 1873**
 - C. Twenty-Five Percent Fund Act of 1908
 - D. Forest Reserve Act of 1891
18. A tensiometer is an instrument that is used to:
- A. Measure the water content of soil**
 - B. Calculate the strength of a tree
 - C. Measure the purity of irrigation water by testing the surface tension of water
 - D. Estimate the flexibility of tree limbs
19. The _____ is a cell structure that contains materials capable of capturing energy from the sun as the plant produces sugars and starches.
- A. Protoplasm
 - B. Cytoplasm
 - C. Chloroplast**
 - D. Vacuole

20. Fruit structures for elm, ash, and maple are known as Samara. Samara are _____.

- A. Dehiscent
- B. Indehiscent**
- C. Aggregate
- D. Multiple

21. Which weather condition would be of greatest concern when felling a tree?

- A. Wind**
- B. Temperature
- C. Humidity
- D. None of the above

22. A saw that makes two or more cuts at the same time is called a:

- A. Band Saw
- B. Head Rig
- C. Circular Saw
- D. Gang Saw**

23. Which of the following is NOT a basic assumption applied to partial cruises to ensure the accuracy of the results.

- A. Teams of two cruisers work together, one taking measurements, one recording the data.**
- B. The sample must be representative of the entire forest.
- C. Enough samples should be tallied to reduce the chance that errors will occur.
- D. The plot size should be large enough to tally 15-20 trees per acre.

24. Trees that produce seeds inside an ovary or fruit are called:

- A. Angiosperms**
- B. Gymnosperms
- C. Monoecious
- D. Dioecious

25. Which soil horizon, commonly referred to as topsoil, contains a mixture of humus and mineral soil?
- A. O
 - B. A**
 - C. E
 - D. B
26. Integrated Pest Management (IPM) utilizes which of the following control methods?
- A. Chemical control
 - B. Mechanical control
 - C. Biological control
 - D. All of the above**
27. The first cut on each of the four sides of a log removes an exterior piece of wood called a _____.
- A. Plank
 - B. Cant
 - C. Beam
 - D. Slab**
28. _____ is the scientific care of shrubs and trees in cities and towns.
- A. Silviculture
 - B. Arboriculture**
 - C. Horticulture
 - D. Pomiculture
29. Which of the following is not a component related to Geographic Information Systems (GIS)?
- A. Satellite
 - B. Computer
 - C. GPS Receiver
 - D. All of the above are related to GIS**

30. Which of the following careers would most likely require individuals to have an advanced degree, such as a master or doctorate?
- A. Urban Forester
 - B. Forest Technician
 - C. Land Surveyor
 - D. Research Scientist**
31. As part of the 1933 “New Deal”, the Civilian Conservation Corps (CCC) was created to plant trees, install erosion control structures, and build recreational campgrounds under the administration of what US President?
- A. Herbert Hoover
 - B. Franklin D. Roosevelt**
 - C. Theodore Roosevelt
 - D. Dwight D. Eisenhower
32. Which of the following is not considered an alternative enterprise for forest landowners.
- A. Firewood
 - B. Plywood and OSB**
 - C. Decorative or specialty wood products
 - D. Seed cone production
33. The _____ layer of the forest is made up of the tallest trees that rise above all others.
- A. Emergent**
 - B. Canopy
 - C. Understory
 - D. Forest Floor

34. Filter strips are areas of undisturbed vegetation that are left between a harvest site and a body of water. Which factor likely has the greatest effect on determining the width of the filter strip left in place following a logging operation?
- A. Type of harvest operation performed
 - B. Size of the body of water nearby
 - C. Slope of the land adjacent to the body of water**
 - D. Species of trees present in the filter strip
35. Hickory (*Carya* sp.) trees have _____ compound leaves, where the leaflets are laterally attached along each side of the rachis, or stalk.
- A. Palmately
 - B. Alternately
 - C. Bipinnately
 - D. Pinnately**
36. The western red cedar (*Thuja plicata*) has a _____ leaf shape.
- A. Ovate
 - B. Elliptical
 - C. Lanceolate
 - D. Scale-like**
37. Achene fruit consists of a single, hairy seed that can be easily carried by wind. An example of a tree species with this fruit structure is:
- A. Red Maple (*Acer rubrum*)
 - B. Sycamore (*Platanus* sp.)**
 - C. Pecan (*Carya illinoensis*)
 - D. Black Cherry (*Prunus serotina*)
38. All of the following instruments can be used to measure tree height except:
- A. Biltmore/scale stick
 - B. Clinometer
 - C. Relaskop
 - D. Wheeler Caliper**

39. Which of the following insect species is not considered a defoliator?
- A. Douglas fir tussock moth
 - B. Gypsy moth
 - C. Cicada**
 - D. Spruce budworm
40. What is the correct order?
- A. Class, Genus, Species, Order
 - B. Order, Family, Genus, Species**
 - C. Order, Species, Genus, Class
 - D. Family, Genus, Species, Kingdom
41. If you are traveling an azimuth of 215, you are headed in a _____ direction.
- A. Northwest
 - B. Northeast
 - C. Southeast
 - D. Southwest**
42. The tree tissue responsible for transporting food made in the leaves to the roots is called:
- A. Xylem
 - B. Cambium
 - C. Bark
 - D. Phloem**
43. A block of wood 6 inches thick by 4 inches wide and 12 inches long contains ___ board feet of wood volume.
- A. One
 - B. Two**
 - C. Three
 - D. Four

44. Assume that a cord of firewood costs \$150, how much would a stack of wood measuring 4' x 4' x 24' cost?
- A. \$75
 - B. \$150
 - C. \$300
 - D. \$450**
45. The degree of acidity or alkalinity of a soil is expressed in pH values. Which of the following pH values is most alkaline?
- A. 8.5**
 - B. 7.0
 - C. 5.5
 - D. 4.0
46. What is the form class of a tree 18 inches in DBH and 14.4 inches in diameter inside bark at the top of the first 16-foot log?
- A. 75
 - B. .075
 - C. 80**
 - D. .80
47. How many square feet are in 3.5 acres?
- A. 25,000
 - B. 152,460**
 - C. 187,120
 - D. 108,900
48. The process of consuming carbohydrates and oxygen to obtain energy for the biological processes of life support, growth, and reproduction is called _____.
- A. Photosynthesis
 - B. Respiration**
 - C. Transpiration
 - D. Oxidation

49. _____ rule assumes 1-inch boards and $\frac{1}{4}$ inch kerf, makes a liberal allowance for slabs, and disregards taper.

A. Scribner Rule

B. International Rule

C. Doyle-Scribner Rule

D. Doyle Rule

50. When _____ occurs the seed breaks dormancy and begins to sprout.

A. Fertilization

B. Pollination

C. Germination

D. Asexual Reproduction