

**2016 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. Which tree species can be described as a deciduous broad-leaf with a simple leaf type? (PS.01.01)
 - a. Hickory
 - b. Eastern White Pine
 - c. Sweetgum
 - d. Sitka Spruce
2. Land owners of more than _____ acres of forest may qualify for membership in the American Forest Foundation's Tree Farm System. (NRS.02.06)
 - a. 2
 - b. 5
 - c. 10
 - d. 25
3. Oxygenic photosynthesis occurs in the _____ located in the plant cell and absorbs blue and red wavelengths of lights. (PS.01.03.01.c)
 - a. Mitochondrion
 - b. Golgi Apparatus
 - c. Nucleus
 - d. Chloroplast
4. 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.01.03)
 - a. Heartwood
 - b. Cambium
 - c. Sapwood
 - d. Seriate
5. A leaf _____ is the space or indentation between the lobes of a leaf blade. (PS.01.02.04.a)
 - a. Sinus
 - b. Margin
 - c. Apex
 - d. Midrib
6. Which species of wood can be used to produce axe handles? (NRS.03.01)
 - a. Sycamore
 - b. White Birch
 - c. Bald Cypress
 - d. Hickory
7. _____ is a byproduct of the photosynthesis process in tree leaves? (PS.01.03.01.a)
 - a. Sugar
 - b. Carbon Dioxide
 - c. Water
 - d. Radiant Energy

8. Which of the following is not a surface-rooted tree species? (PS.01.02.02.a)
- a. Black Walnut
 - b. Eastern Hemlock
 - c. Black Birch
 - d. Elm
9. _____ occurs when a branch tip touches the ground and develops roots that produce a new tree. (PS.03.01)
- a. Sexual Reproduction
 - b. Grafting
 - c. Layering
 - d. Suckering
10. The _____ is the tube through which a developing pollen grain grows downward to reach the ovary in a flower. (PS.03.01.01.a)
- a. Style
 - b. Stigma
 - c. Pistil
 - d. Filament
11. Which of the following statements is not true about monocots? (PS.01.01.01.a)
- a. Monocot seeds have one cotyledon.
 - b. Monocot flower parts come in multiples of 4 and 5.
 - c. Monocot leaves have parallel venation.
 - d. Monocots have scattered vascular bundles in the stem.
12. Which fruit structure is one-seeded with the center part being fleshy, but the inner part is stony? (PS.01.02.06.b)
- a. Legume
 - b. Berry
 - c. Pome
 - d. Drupe
13. Identify the correct way to mix two cycle engine oil and gasoline. (PST.01.02.01.b)
- a. Add $\frac{1}{2}$ of desired amount of gas, then oil, mix, and add remaining gasoline.
 - b. Add engine oil, then gasoline, and mix contents.
 - c. Add gasoline, then oil, and mix contents.
 - d. Add $\frac{1}{2}$ of desired oil, then gas, mix, and add remaining oil.
14. A Gypsy Moth is an insect that belongs to the _____ order, and feeds plant leaves. (NRS.04.03.01.a)
- A. Lepidoptera
 - B. Isoptera
 - C. Coleoptera
 - D. Hymenoptera
15. _____ introduce the Gypsy Moth to North American in the late 1860s with aspirations of establishing a silk industry in Massachusetts. (NRS.02.06.07.b)
- a. Charles Darwin
 - b. Leopold Trouvelot
 - c. Carl Linnaeus
 - d. Gifford Pinchot

16. Evergreens retain their leaves, scales or needles throughout the year. As new leaves are produced, the tree gradually sheds the oldest ones and maintains its green appearance. An exception is the _____, which sheds all of its leaves each year. (PS.01.01)
 - A. Pitch Pine
 - B. Baldcypress
 - C. Western Red Cedar
 - D. Western Hemlock
17. Which of the following is not a result of soil acidification, which is caused by atmospheric pollution? (NRS.02.06.08.b)
 - a. Reduces cambial growth
 - b. Reduces leaf area
 - c. Decreases soluble aluminum in soil
 - d. Interferes with calcium uptake
18. One-pound of oven-dried hardwood will generate _____ BTUs. (NRS.03.01)
 - a. 1
 - b. 5250
 - c. 8300
 - d. 330
19. Which grouping of insects are the most destructive of all forest insects? (NRS.04.03.01.a)
 - a. Borers
 - b. Leaf-feeders
 - c. Plant-sucking Insects
 - d. Gall Insects
20. _____ are the fastest spreading of all types of fires. (NRS.04.01.01.b)
 - a. Surface Fires
 - b. Crown Fires
 - c. Ground Fires
 - d. Wildfires
21. Some woods are incised to provide deeper penetration for preservatives, which of the following tree species are not typically incised? (NRS.03.01.02.b)
 - a. Douglas-Fir
 - b. Western Hemlock
 - c. Western Larch
 - d. Lodgepole Pine
22. Which personal protective equipment is not prescribed by the American OSHA Regulation 1910.266 for a chainsaw operator to wear? (CS.07.01.01.b)
 - a. Head Protection
 - b. Hearing Protection
 - c. Leg Protection
 - d. Back Protection
23. A measurement that takes into account the living organisms in a forest and natural forest functions is called.... (NRS.02.06)
 - a. Forensic Value
 - b. Geological Inventory
 - c. Biological Value
 - d. Economic Value

24. Which phase of mitosis is characterized by chromatids being pulled apart by the spindles as the cell elongates? (PS.01.03)
- a. Prophase
 - b. Metaphase
 - c. Anaphase
 - d. Telophase
25. A new gamete formed through meiosis consisting of one chromatid from each original chromosome pair is a _____. (PS.01.03)
- a. Diploid
 - b. Monoploid
 - c. Haploid
 - d. None of the above
26. Which of the following is the smallest of the mineral particles? (NRS.01.02)
- a. Clay
 - b. Sand
 - c. Silt
 - d. Humus
27. A complete soil profile includes the following horizons.... (NRS.01.01)
- a. A, E, B, C, P, H
 - b. O, A, E, B, C, R
 - c. B, E, C, N, P, K
 - d. T, O, F, P, M, V
28. Alfisols are high in calcium, magnesium, sodium, and potassium. Which tree species is not typically grown in the Alfisols soil order? (NRS.01.01)
- a. Ponderosa Pine
 - b. Western Hemlock
 - c. Hickories
 - d. Oaks
29. The order of soils known as _____ are products of cold, damp climates and coarse silica parent material. These are acidic soils that tend to be light in color. (NRS.01.02)
- a. Alfisols
 - b. Spodosols
 - c. Ultisols
 - d. Histosols
30. In a food chain, plants are usually considered _____. (NRS.01.01)
- a. Primary Consumers
 - b. Secondary Consumers
 - c. Producers
 - d. Omnivores
31. Which of the following is not an Abiotic Disease in trees? (NRS.04.02)
- a. Drought Conditions
 - b. Acid Precipitation
 - c. Fungi
 - d. Poisonous Effects

32. The Pole stage of growth in trees can be characterized by a diameter range of
(NRS.01.02, NRS.02.03)
- a. Up to 3 inches
 - b. Diameter of 4 inches
 - c. Diameter 4 to 10 inches
 - d. Diameter 10 to 24 inches
33. In the rectangle survey system developed by Thomas Jefferson, _____ run east-west. (NRS.02.02)
- a. Principal Meridians
 - b. Secondary Meridians
 - c. Guide Meridians
 - d. Baselines
34. How many square feet are represented by 1 acre? (NRS.02.02)
- a. 5000
 - b. 36000
 - c. 43560
 - d. 44100
35. Which of the following standard lumber sizes are correct? (NRS.03.01)
- a. $2 \times 3 = 1 \frac{1}{2} \times 2 \frac{1}{4}$
 - b. $2 \times 10 = 1 \frac{1}{2} \times 9 \frac{1}{4}$
 - c. $2 \times 12 = 1 \frac{1}{2} \times 11 \frac{1}{2}$
 - d. $1 \times 8 = 1 \times 7 \frac{1}{4}$
36. _____ boards are press-bonded between heated steel plates, resulting in a density range for this product of .5 to 1.3 grams/cubic centimeter. (NRS.03.01.02.b)
- a. Fiberboard
 - b. Particleboard
 - c. Hardboard
 - d. Plywood
37. _____ is a form of asexual reproduction of a forest in which all of the trees are cut and new forest growth is generated from the stumps of the harvested trees.
(PS.03.01)
- a. Coppice Method
 - b. Grafting
 - c. Layering
 - d. Tissue Culture
38. Which pesticide is used to control rodents? (NRS.04.03.01.c)
- a. Herbicide
 - b. Miticide
 - c. Rodenticide
 - d. Insecticide
39. _____ is a silviculture practice that is used to improve the forest by removing some of the trees to provide enough space for the remaining trees to grow. (NRS.02.04)
- a. Salvage Cutting
 - b. Shelterwood Cutting
 - c. Clear Cutting
 - d. Intermediate Cutting

40. _____ is a dependable log scaling method that is used to estimate the amount of solid wood in a log by using a formula that takes into account the log length and measurements from both ends of the log. (NRS.03.01.02.b)
- a. Scribner's Rule
 - b. Doyle's Rule
 - c. Smalian's Formula
 - d. International Log Rule
41. A young tree that is generated from seed in a container filled with soil is a: (PS.03.01)
- a. Containerized Seedling
 - b. Sapling
 - c. Cutting
 - d. Twig
42. A saw that makes two or more cuts at the same time is called a: (CS.08.01)
- a. Band Saw
 - b. Head Rig
 - c. Circular Saw
 - d. Gang Saw
43. The strength of wood along the long axis of a tree is called: (PS.01.02)
- a. Ductile Strength
 - b. Tensile Strength
 - c. Toughness
 - d. Density
44. _____ is a type of reproduction in certain types of insects in which mature females produce female offspring without mating with a male. (NRS.02.06.07.b)
- a. Division
 - b. Parthenogenesis
 - c. Sexual
 - d. Metamorphosis
45. The pericycle is the outer layer of the vascular cylinder of a _____; lateral growth develops from this tissue. (PS.01.02.02.a)
- a. Root
 - b. Heartwood
 - c. Cambium
 - d. Petiole
46. Which of the following would not be a direct attack method to suppress a wildfire? (NRS.04.01.01.b)
- a. Applying water from an aircraft
 - b. Applying fire retardants from trucks
 - c. Establishing firebreaks
 - d. Smothering flames with fire flaps

47. How many degrees are represented in the North East quadrant of a compass?

(NRS.02.02)

- a. 45
- b. 90
- c. 180
- d. 360

48. How many board feet are present in a 2 inch thick, 12 inch wide, 14 foot long board?

(NRS.03.01.02.b)

- a. 28
- b. 14
- c. 336
- d. 2

49. A canker is a plant infection that: (NRS.04.02)

- a. Causes red or brown discoloration
- b. Affects only conifer trees
- c. Kills patches of tissue on the trunk or branches
- d. Prevents insects from boring into trees

50. The petiole is a plant structure found in a: (PS.01.02.04.a)

- a. Flower
- b. Leaf
- c. Stem
- d. Root

**2016 National FFA Forestry
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- | | |
|-------|-------|
| 1. C | 36. C |
| 2. B | 37. A |
| 3. D | 38. C |
| 4. B | 39. D |
| 5. A | 40. C |
| 6. D | 41. A |
| 7. A | 42. D |
| 8. A | 43. B |
| 9. C | 44. B |
| 10. A | 45. A |
| 11. B | 46. C |
| 12. D | 47. B |
| 13. A | 48. A |
| 14. A | 49. C |
| 15. B | 50. B |
| 16. B | |
| 17. C | |
| 18. C | |
| 19. A | |
| 20. B | |
| 21. D | |
| 22. D | |
| 23. C | |
| 24. C | |
| 25. C | |
| 26. A | |
| 27. B | |
| 28. B | |
| 29. B | |
| 30. C | |
| 31. C | |
| 32. C | |
| 33. D | |
| 34. C | |
| 35. B | |