

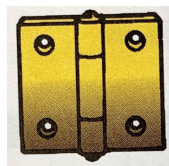
North Carolina FFA Association 2019 State Agricultural Mechanics Written Exam

Directions: *Place your name, chapter and contestant number on the scantron form that you receive from the test administrators. Read each of the following multiple-choice items and possible answers carefully. Mark the letter of the correct answer on your scantron form. PLEASE DO NOT WRITE ON THIS TEST.*

1. For how long can exposure to loud sounds without ear protection affect your hearing?
 - A. one hour
 - B. 24 to 48 hours
 - C. the rest of your life
 - D. It will not affect your hearing.
2. How should gas cylinders be protected from being accidentally knocked over?
 - A. stood in a corner
 - B. leaned back in a portable cart
 - C. by wrapping the hoses around them and the post
 - D. with a chain around them connected to a wall or cart
3. What is the primary job of a regulator?
 - A. to control the rate of flow
 - B. to serve as a safety device
 - C. to serve as a flashback arrestor
 - D. to reduce a high pressure to a lower pressure
4. What out-of-position welding position is the most common?
 - A. flat
 - B. vertical
 - C. overhead
 - D. horizontal
5. The _____ welding process is very flexible and the most commonly used welding process on farms and ranches.
 - A. OFW
 - B. RSW
 - C. GTAW
 - D. SMAW
6. Oxygen hoses and related equipment are color coded
 - A. red
 - B. ivory
 - C. green
 - D. orange

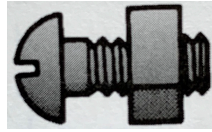
7. The fuel with the best qualities for welding and cutting is
- A. MAPP
 - B. propane
 - C. acetylene
 - D. natural gas
8. When piercing metal, the clearance is increased after preheating to
- A. introduce more air into the process
 - B. reduce the hazard from molten metal
 - C. increase the force of the oxygen stream
 - D. provide time for heat to move through the metal
9. The most popular brazing alloy is
- A. silver
 - B. tin-lead
 - C. aluminum
 - D. copper-zinc
10. The most popular soldering alloy is
- A. silver
 - B. tin-lead
 - C. aluminum
 - D. copper-zinc
11. The output of a welder is relatively:
- A. low voltage and low amperage
 - B. low voltage and high amperage
 - C. high voltage and low amperage
 - D. high voltage and high amperage
12. The welding process that uses an automatic wire feed is
- A. stick
 - B. GTAW
 - C. GMAW
 - D. oxyacetylene

13. Identify the type of hinge pictured here
- A. butt
 - B. hasp
 - C. strap
 - D. cabinet



14. Identify the fastener pictured here

- A. plow bolt
- B. carriage bolt
- C. machine bolt
- D. round-head stove bolt



15. Identify the tool pictured here

- A. cold chisel
- B. drift punch
- C. wood chisel
- D. center punch



16. Identify the nail pictured here

- A. cut
- B. box
- C. finishing
- D. plasterboard

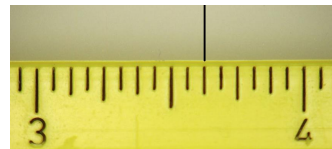


17. Of the following, the smallest unit of metric measurement is

- A. meter
- B. kilometer
- C. millimeter
- D. centimeter

18. Identify the measurement noted by the line on the inch rule.

- A. $3 \frac{5}{8}$ "
- B. $3 \frac{7}{8}$ "
- C. $3 \frac{9}{16}$ "
- D. $3 \frac{11}{16}$ "



19. Lumber is graded according to its

- A. cost and length
- B. color and species
- C. strength and durability
- D. appearance and soundness

20. The groove cut across the end of a board to receive another board is called a

- A. dado
- B. miter
- C. rabbet
- D. ratchet

21. The strongest nailing method is:
- A. clinching
 - B. flat nailing
 - C. toe nailing
 - D. end nailing
22. The glue most commonly used with wood is _____.
- A. urea
 - B. epoxy
 - C. aliphatic resin
 - D. contact cement
23. Choices of teeth per inch for hacksaw blades are
- A. 14, 24, and 36
 - B. 14, 18, 24, and 32
 - C. 14, 20, 26, and 32
 - D. 14, 20, 26, and 36
24. The first tool to use in drilling a hole in metal is the
- A. file
 - B. drill
 - C. ream
 - D. center punch
25. If you cannot get to both sides of sheet metal, the rivet to use is the
- A. pop rivet
 - B. split rivet
 - C. solid steel rivet
 - D. copper rivet and burr
26. A variable-speed tool is one that will run
- A. in hot locations
 - B. at different speeds
 - C. backward as well as forward
 - D. a long time without damage
27. Routers are used for
- A. making holes
 - B. setting screws
 - C. crosscutting boards
 - D. creating grooves and decorative edges

28. When using a bandsaw, the operator should avoid
- A. sawing curved lines
 - B. backing out of cuts
 - C. cutting metal
 - D. crosscutting
29. The most popular use of the radial arm saw is
- A. drilling
 - B. ripping
 - C. cutoff work
 - D. curve cutting
30. The blade on a bandsaw can be checked for squareness with the table by using a
- A. caliper
 - B. try square
 - C. sliding T bevel
 - D. framing square
31. A grinding wheel may fly apart when running if the wheel does not have
- A. a clean surface
 - B. a coarse texture
 - C. a coolant device
 - D. an adequate speed rating for the motor
32. The compression ratio for most small engines is
- A. 6:1
 - B. 7:2
 - C. 16:1
 - D. 50:1
33. When the engine is on the compression stroke
- A. the intake valve is open
 - B. both valves are closed
 - C. only the exhaust valve is closed
 - D. the exhaust valve and the intake valve are open
34. The thick plate that covers the cylinder on a small engine is called a
- A. cap
 - B. seal
 - C. head
 - D. valve

35. Oil should be changed when the engine is
- A. warm
 - B. cool
 - C. cold
 - D. hot
36. The most difficult system to repair in a small engine is the
- A. fuel system
 - B. ignition system
 - C. lubrication system
 - D. compression system
37. The compression ratio for a typical diesel engine is
- A. 6:1
 - B. 8:1
 - C. 16:1
 - D. 18:1
38. In diesel engines, water combined with fuel can cause enough corrosion to ruin the
- A. radiator
 - B. water pump
 - C. injector pump
 - D. filtering system
39. A device used to protect electrical circuits that be reset is a
- A. fuse
 - B. circuit breaker
 - C. three-way switch
 - D. ground-fault interrupter
40. Electricity is distributed to branch circuits by
- A. a service drop
 - B. an electric meter
 - C. an entrance head
 - D. a service entrance panel
41. A properly wired circuit will be
- A. open
 - B. shorted
 - C. grounded
 - D. a common terminal

42. In three-way switch circuits, electricity passes from one switch to the other through
- A. neutral wires
 - B. traveler wires
 - C. common terminals
 - D. grounding screws and wires
43. The easiest water or sewer system to install uses pipe made of
- A. steel
 - B. plastic
 - C. copper
 - D. cast iron
44. The irrigation system that adds water by flooding furrows is
- A. trickle
 - B. surface
 - C. sprinkler
 - D. subirrigation
45. Emitters are used to
- A. water the tops of plants
 - B. flood the furrows with water
 - C. release water slowly into the soil
 - D. release water rapidly into the soil
46. Courses of block are laid in a straight line by using a
- A. line
 - B. plumb bob
 - C. center punch
 - D. sighting tool
47. Forms for concrete slabs are usually made of
- A. 2" X 4"
 - B. 2" X 8"
 - C. 2" X 10"
 - D. 2" X 12"
48. A standard-sized block when laid will cover an area
- A. 4" high by 12" long
 - B. 4" high by 16" long
 - C. 8" high by 12" long
 - D. 8" high by 16" long

49. The volume of a gas is inversely proportional to its

- A. area
- B. weight
- C. pressure
- D. temperature

50. Force acting on an area is

- A. pressure
- B. horsepower
- C. compression
- D. measured in kilograms