

## 2006 State Agricultural Mechanics Written Examination

**Directions:** Place your name, chapter, and contestant number on the accompanying scantron form that you will receive from the test administrators. Read each of the following multiple-choice items and the possible answers carefully. Mark the letter of the correct answer on your answer sheet (scantron form) as instructed by the test administrators. **PLEASE MAKE NO MARKS ON THIS TEST.**

1. Which safety color is used to identify levers, knobs, and other controls for adjusting shop equipment?
  - a. Blue
  - b. Green
  - c. Yellow
  - d. White
  
2. When one cuts a “v” in the surface of wood to receive a flathead wood screw, the procedure is known as:
  - a. Anchoring.
  - b. Annealing.
  - c. Countersinking.
  - d. Planing.
  
3. Which is a measure of the rate of flow of electricity in a conductor?
  - a. Ampere
  - b. Polarity
  - c. Volt
  - d. Watt
  
4. Which soil is **MOST** likely to have problems from fertilizers and pesticides leaching into the ground water?
  - a. Clayey surface and clayey subsurface
  - b. Loamy surface and loamy subsurface
  - c. Pure silt in the surface and subsurface
  - d. Sandy surface and sandy subsurface
  
5. Which uses an electrode with a very high melting point and a filler rod for the welding operation?
  - a. AC
  - b. DC
  - c. MIG
  - d. TIG

6. By hanging fire extinguishers on walls within easy reach where fire is likely to occur, one insures:
- Extinguishers will not be tampered with when not in use.
  - Fires will always be extinguished.
  - Shop workers will know how to operate the extinguisher.
  - The extinguisher will be available if it is needed.
7. Which pulley can be adjusted to allow one to change the speed of the machine while it is running?
- Multiple-V
  - Single
  - Step
  - Variable speed
8. If a commode flush valve fails to seat properly, the **MOST** likely result is the commode:
- Cuts off automatically.
  - Does not cut off.
  - Flush tank overflows.
  - Toilet bowl overflows.
9. Which land capability class is **MOST** likely to need tile drainage?
- I
  - IIIe
  - IIIs
  - IIIw
10. A weld placed in a joint created by a 90 degree angle is a/an:
- Butt weld.
  - Fillet weld.
  - Spot weld.
  - Tack weld.
11. Compared to the lens used for arc welding, the oxyacetylene lens is **USUALLY**:
- Darker in color.
  - Easier to see through.
  - Heavier in weight.
  - More expensive.

12. When a piece of wood is being ripped 3" or less on the table saw, the operator should insure safe operation by:
- Increasing the speed that the wood is pushed through the saw.
  - Removing the splitter.
  - Using the miter gage.
  - Using a push stick.
13. When power uses fluids to transfer force, it is called:
- Air pressure.
  - Hydraulics.
  - Hydroponics.
  - Steam.
14. Which is the **BEST** grade of plywood?
- AA
  - AB
  - AC
  - AD
15. A strip of perennial vegetation next to a stream or river is **MOST** important in:
- Buffering the water from surface water contamination.
  - Giving livestock a good source of forage.
  - Keeping wildlife away from the water.
  - Providing raptors a habitat for nesting.
16. A popular, easy to use electrode for beginners that is recommended for thinner metal because of its shallow penetration is the:
- E6011.
  - E6013.
  - E7015.
  - E7028.
17. Which is **MOST** likely to be injured while working in a shop?
- Ankles
  - Feet
  - Hands
  - Head
18. Which power source uses light energy?
- Air pressure
  - Hydraulics
  - Solar
  - Steam

19. Vertical boards placed on 16" centers are:
- Girders.
  - Joist.
  - Rafters.
  - Studs.
20. Which tillage system places the crop seed directly into the residue of the remaining crop without disturbing the soil by plowing?
- Chiseling
  - Conventional
  - Disking
  - No till
21. Mushrooming describes a condition that occurs when a:
- Board twists out of shape from drying out.
  - Chisel head is spread or flattened out of shape.
  - Hacksaw blade becomes dull and bent.
  - Drill chuck will not remain tight against the drill.
22. An SMV emblem is a safety emblem required on all:
- Electric arc welders to remind people to use welding helmets.
  - Service entrance panels when electrical repairs are being conducted.
  - Table saws that have 12" blade capacity.
  - Vehicles that travel a maximum of 25 miles per hour.
23. In the four-cycle engine, during which stroke is the fuel and air mixture pulled into the cylinder?
- Compression
  - Exhaust
  - Intake
  - Power
24. When lumber is pressure treated, it is treated to:
- Eliminate the need for sanding and finishing.
  - Prevent insect damage and decay.
  - Resist warping and twisting.
  - Test its ability to withstand a heavy load.
25. How many gallons of water equal an acre inch of irrigation water?
- 5,000
  - 13,000
  - 27,000
  - 51,000

26. Which metal is **NOT** easily bent or shaped?
- Brass
  - Cast iron
  - Mild steel
  - Tin
27. When using a planer, what is the **MAXIMUM** amount of wood that can be safely dressed from a board on any one pass?
- 1/8"
  - 1/4"
  - 1/2"
  - 3/4"
28. When changing hydraulic fluid, it is important to add the right fluid according to manufacturers' recommendations and:
- Add water to clean out the pump.
  - Discard old fluid in a flower garden.
  - Keep dirt from getting into the hydraulics.
  - Test the hydraulics with no fluid in the lines.
29. If one wants to obtain a gritty, non-slip surface on a concrete walk, the **BEST** procedure is to finish the concrete with a:
- Broom.
  - Metal float.
  - Power trowel.
  - Steel trowel.
30. The irrigation system that uses the **LEAST** amount of water to apply directly to containers is:
- Drip.
  - Flooding.
  - Furrow.
  - Sprinkler.
31. Which is the **BEST** tool for use when cutting mild steel rods and rusted bolts?
- Cold chisel
  - Coping saw
  - Scratch awl
  - T bevel

32. The components necessary for any fire to burn are fuel, heat, and:
- Ice.
  - Liquids.
  - Oxygen.
  - Water.
33. Which small engine system needs the **MOST** maintenance?
- Cooling
  - Compression
  - Fuel
  - Ignition
34. What is the **MAJOR** advantage of trusses?
- Can span areas over 100' for roofs without post
  - Eliminate the need for plywood sheathing
  - Provide more support for exterior walls
  - Replaces the need for girders in large floor systems
35. What system is used to handle human waste in rural areas and outside of towns and cities?
- Chlorination
  - Lagoon
  - Septic tank
  - Treatment plant
36. Which system uses a pump, water, and a burner to clean metal equipment and engines?
- Power washer
  - Sandblaster
  - Steam cleaner
  - Wire brush
37. Class C fires must be put out with carbon dioxide gas or dry chemicals extinguishers because they involve:
- Burning water.
  - Large amounts of paper.
  - Pressure treated lumber.
  - The presence of electricity.
38. Positive or hot wires are connected together in electrical boxes by:
- Elastic bands.
  - Metal clamps.
  - Plastic ties.
  - Wire nuts.

39. The operation of electric motors is based on the principle of:
- Elasticity.
  - Gravity.
  - Magnetism.
  - Pressure.
40. Which pipe material is lightweight and **BEST** for sewage lines where large diameters are required?
- ABS
  - Cast iron
  - Chlorinated polyvinyl chloride
  - PEX
41. When cutting mild steel with an oxyacetylene torch, the inner cone should be maintained:
- In contact with the metal being cut.
  - 1/8 inch from the metal being cut.
  - 1/2 inch from the metal being cut.
  - 3/4 inch from the metal being cut.
42. What term describes the loss in value that equipment experiences as it gets older?
- Assets
  - Depreciation
  - Inventory
  - Net worth
43. How often should air filters on small gasoline engines be cleaned under normal conditions?
- After every 5 hours of operation
  - After every 25 hours of operation
  - Once every 100 hours of operation
  - Only when the motor fails to run
44. Why is wire mesh used in a concrete floor?
- Create a magnetic field
  - Keep out rats
  - Level the floor
  - Reinforce the floor
45. What is the **MOST** important step when setting up a farm level?
- Clean the lens
  - Estimate the height of the rod
  - Level the instrument
  - Set tripod legs 2 feet apart

46. Which tool is used to cut threads in metal?

- a. Countersink
- b. Flaring tool
- c. Tap
- d. T bevel

47. A list and description of all the materials to be used in constructing a project is a:

- a. Bill of materials.
- b. Contract.
- c. Lien.
- d. Pictorial drawing.

48. How can one cheaply ensure that concrete will not stick to the wooden forms?

- a. Coat the forms with used motor oil
- b. Shovel soil on the outside of the forms
- c. Spray the forms with water
- d. Use pressure treated lumber

49. Which is a flat, tapered nail that when case hardened may be used for nailing masonry materials?

- a. Box
- b. Common
- c. Cut
- d. Finish

50. Which screw design provides for a sure fit between the driver and the screw to minimize slippage?

- a. Flat
- b. Oval
- c. Round
- d. Torx