

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

Agricultural Mechanics, 4th Edition, page 37

2. When one cuts a “v” in the surface of wood to receive flathead wood screw, the procedure is known as:

- a. Anchoring.
- b. Annealing.
- c. **Countersinking.**
- d. Planing.

Agricultural Mechanics, 4th Edition, page 121

3. Which is a measure of the rate of flow of electricity in a conductor?

- a. **Ampere**
- b. Polarity
- c. Volt
- d. Watt

Agricultural Mechanics, 4th Edition, page 318

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**

Handbook for Land Judging in North Carolina, 5th Edition

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**

Agricultural Mechanics, 4th Edition, page 351

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.**

Agricultural Mechanics, 4th Edition, page 47

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**

Agricultural Mechanics, 4th Edition, page 466

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.

Agricultural Mechanics, 4th Edition, page 496

9. Which land capability class is **MOST** likely to need tile drainage?

- I
- IIIe
- IIIs
- IIIw**

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10. A weld placed in a joint created by a 90 degree angle is a/an:

- Butt weld.
- Fillet weld.**
- Spot weld.
- Tack weld.

Agricultural Mechanics, 4th Edition, page 713

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.

Agricultural Mechanics, 4th Edition, page 283

12. When a piece of wood is being ripped 3" or less on the table saw, the operator should insure safe operation by:

- a. Increasing the speed that the wood is pushed through the saw.
- b. Removing the splitter.
- c. Using the miter gage.
- d. **Using a push stick.**

Agricultural Mechanics, 4th Edition, page 192

13. When power uses fluids to transfer force, it is called:

- a. Air pressure.
- b. **Hydraulics.**
- c. Hydroponics.
- d. Steam.

Agricultural Mechanics, 4th Edition, page 516

14. Which is the **BEST** grade of plywood?

- a. **AA**
- b. AB
- c. AC
- d. AD

Agricultural Mechanics, 4th Edition, page 558

15. A strip of perennial vegetation next to a stream or river is **MOST** important in:

- a. **Buffering the water from surface water contamination.**
- b. Giving livestock a good source of forage.
- c. Keeping wildlife away from the water.
- d. Providing raptors a habitat for nesting.

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16. A popular, easy to use electrode for beginners that is recommended for thinner metal because of its shallow penetration is the:

- a. E6011.
- b. **E6013.**
- c. E7015.
- d. E7028.

Agricultural Mechanics, 4th Edition, page 324

17. Which is **MOST** likely to be injured while working in a shop?

- a. Ankles
- b. Feet
- c. **Hands**
- d. Head

Agricultural Mechanics, 4th Edition, page 38

18. Which power source uses light energy?

- a. Air pressure
- b. Hydraulics
- c. **Solar**
- d. Steam

Agricultural Mechanics, 4th Edition, page 453

19. Vertical boards placed on 16" centers are:

- a. Girders.
- b. Joist.
- c. Rafters.
- d. **Studs.**

Agricultural Mechanics, 4th Edition, page 568

20. Which tillage system places the crop seed directly into the residue of the remaining crop without disturbing the soil by plowing?

- a. Chiseling
- b. Conventional
- c. Disking
- d. **No till**

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21. Mushrooming describes a condition that occurs when a:

- a. Board twists out of shape from drying out.
- b. **Chisel head is spread or flattened out of shape.**
- c. Hacksaw blade becomes dull and bent.
- d. Drill chuck will not remain tight against the drill.

Agricultural Mechanics, 4th Edition, page 145

22. An SMV emblem is a safety emblem required on all:

- a. Electric arc welders to remind people to use welding helmets.
- b. Service entrance panels when electrical repairs are being conducted.
- c. Table saws that have 12" blade capacity.
- d. **Vehicles that travel a maximum of 25 miles per hour.**

Agricultural Mechanics, 4th Edition, page 49

23. In the four-cycle engine, during which stroke is the fuel and air mixture pulled into the cylinder?

- a. Compression
- b. Exhaust
- c. **Intake**
- d. Power

Agricultural Mechanics, 4th Edition, page 387

24. When lumber is pressure treated, it is treated to:

- a. Eliminate the need for sanding and finishing.
- b. **Prevent insect damage and decay.**
- c. Resist warping and twisting.
- d. Test its ability to withstand a heavy load.

Agricultural Mechanics, 4th Edition, page 560

25. How many gallons of water equal an acre inch of irrigation water?

- a. 5,000
- b. 13,000
- c. **27,000**
- d. 51,000

Agricultural Mechanics, 4th Edition, page 503

26. Which metal is **NOT** easily bent or shaped?

- a. Brass
- b. **Cast iron**
- c. Mild steel
- d. Tin

Agricultural Mechanics, 4th Edition, page 138

27. When using a planer, what is the **MAXIMUM** amount of wood that can be safely dressed from a board on any one pass?

- a. **1/8"**
- b. 1/4"
- c. 1/2"
- d. 3/4"

Agricultural Mechanics, 4th Edition, page 200

28. When changing hydraulic fluid, it is important to add the right fluid according to manufacturers' recommendations and:

- a. Add water to clean out the pump.
- b. Discard old fluid in a flower garden.
- c. **Keep dirt from getting into the hydraulics.**
- d. Test the hydraulics with no fluid in the lines.

Agricultural Mechanics, 4th Edition, page 526

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:

- a. **Broom.**
- b. Metal float.
- c. Power trowel.
- d. Steel trowel.

Agricultural Mechanics, 4th Edition, page 526

30. The irrigation system that uses the **LEAST** amount of water to apply directly to containers is:

- a. **Drip.**
- b. Flooding.
- c. Furrow.
- d. Sprinkler.

Agricultural Mechanics, 4th Edition, page 504

31. Which is the **BEST** tool for use when cutting mild steel rods and rusted bolts?

- a. **Cold chisel**
- b. Coping saw
- c. Scratch awl
- d. T bevel

Agricultural Mechanics, 4th Edition, page 145

32. The components necessary for any fire to burn are fuel, heat, and:

- a. Ice.
- b. Liquids.
- c. **Oxygen.**
- d. Water.

Agricultural Mechanics, 4th Edition, page 46

33. Which small engine system needs the **MOST** maintenance?

- a. Cooling
- b. Compression
- c. **Fuel**
- d. Ignition

Agricultural Mechanics, 4th Edition, page 398

34. What is the **MAJOR** advantage of trusses?

- a. **Can span areas over 100' for roofs without post**
- b. Eliminate the need for plywood sheathing
- c. Provide more support for exterior walls
- d. Replaces the need for girders in large floor systems

Agricultural Mechanics, 4th Edition, page 555

35. What system is used to handle human waste in rural areas and outside of towns and cities?

- a. Chlorination
- b. Lagoon
- c. **Septic tank**
- d. Treatment plant

Agricultural Mechanics, 4th Edition, page 497

36. Which system uses a pump, water, and a burner to clean metal equipment and engines?

- a. Power washer
- b. Sandblaster
- c. **Steam cleaner**
- d. Wire brush

Agricultural Mechanics, 4th Edition, page 363

37. Class C fires must be put out with carbon dioxide gas or dry chemicals extinguishers because they involve:

- a. Burning water.
- b. Large amounts of paper.
- c. Pressure treated lumber.
- d. **The presence of electricity.**

Agricultural Mechanics, 4th Edition, page 47

38. Positive or hot wires are connected together in electrical boxes by:

- a. Elastic bands.
- b. Metal clamps.
- c. Plastic ties.
- d. **Wire nuts.**

Agricultural Mechanics, 4th Edition, page 437

39. The operation of electric motors is based on the principle of:

- a. Elasticity.
- b. Gravity.
- c. **Magnetism.**
- d. Pressure.

Agricultural Mechanics, 4th Edition, page 423

40. Which pipe material is lightweight and **BEST** for sewage lines where large diameters are required?

- a. **ABS**
- b. Cast iron
- c. Chlorinated polyvinyl chloride
- d. PEX

Agricultural Mechanics, 4th Edition, page 490

41. When cutting mild steel with an oxyacetylene torch, the inner cone should be maintained:

- a. In contact with the metal being cut.
- b. **1/8 inch from the metal being cut.**
- c. 1/2 inch from the metal being cut.
- d. 3/4 inch from the metal being cut.

Agricultural Mechanics, 4th Edition, page 292

42. What term describes the loss in value that equipment experiences as it gets older?

- a. Assets
- b. **Depreciation**
- c. Inventory
- d. Net worth

SAE Record Book

43. How often should air filters on small gasoline engines be cleaned under normal conditions?

- a. After every 5 hours of operation
- b. **After every 25 hours of operation**
- c. Once every 100 hours of operation
- d. Only when the motor fails to run

Agricultural Mechanics, 4th Edition, page 398

44. Why is wire mesh used in a concrete floor?

- a. Create a magnetic field
- b. Keep out rats
- c. Level the floor
- d. **Reinforce the floor**

Agricultural Mechanics, 4th Edition, page 540

45. What is the **MOST** important step when setting up a farm level?

- a. Clean the lens
- b. Estimate the height of the rod
- c. **Level the instrument**
- d. 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

Agricultural Mechanics, 4th Edition, page 155

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.

Agricultural Mechanics, 4th Edition, page 234

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

Agricultural Mechanics, 4th Edition, page 538

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

Agricultural Mechanics, 4th Edition, page 75

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**

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