

Test 1

1. Which of the following would be the lowest priced hacksaw blade?
 - A. Skip tooth
 - B. Raker
 - C. Alternating
 - D. Wavy
2. To smooth or polish a piece of metal to a very fine finish which grit grindstone would be best?
 - A. 400 grit
 - B. 200 grit
 - C. 100 grit
 - D. 60 grit
3. A lever that has the resistance in the middle between the force and the fulcrum is a:
 - a. Class 1
 - b. Class 2
 - c. Class 3
 - d. Class 4
4. When using a drill press:
 - A. Hold work with a pliers
 - B. Always have work to your right
 - C. Use gloves when holding work
 - D. Always clamp or hold work down with a vice or C-clamp
5. Which of the following would be the **most accurate** for measuring the thickness of metal?
 - A. Zig-zag rule
 - B. Vernier calipers
 - C. Steel rule
 - D. Combination square
6. Twist drill bits are sized by:
 - A. Letter (a,b,c,...)
 - B. Number (1,2,3,.....)
 - C. Fractions (by 64ths of an inch)
 - D. All of the above
7. Files and hacksaws should cut:
 - A. Only on the backstroke.
 - B. Only on the forward stroke.
 - C. On either the forward or the backstroke.
 - D. On either depending if you are right or left handed.
8. Files are named or classed by:
 - A. Shape
 - B. Coarseness
 - C. Single or double cut
 - D. All of the above
9. If a 2000 lb. force is applied to an immovable object to try move it .5 ft how much work is done?
 - A. 100 ft-lb.
 - B. 1000 ft-lb.
 - C. 4000 ft-lb.
 - D. 0 ft-lb.

10. If a hand saw has 5 teeth per inch what type of saw would it be?
A. Back saw
B. Coping
C. Rip
D. Crosscut
11. How far should the tool rest be from the grind stone?

12. Why isn't the head of a cold chisel tempered?

13. Why do tools need to be cooled frequently while they are being sharpened?

14. What should be used to clean files that have become plugged?

15. When buying a grind stone for use on the farm what are three things you need to know?
A. _____
B. _____
C. _____
16. What are two other common names for a portable reciprocating jig saw?
A. _____
B. _____
17. What are two materials used for the grit in a grindstone?
A. _____
B. _____
18. What does "Sounding" a grindstone test?

19. What are two types of pliers?
A. _____
B. _____
20. What are two types of torque wrenches?
A. _____
B. _____
21. What is the purpose of a chalk line?

22. What are three types of squares?
A. _____
B. _____
C. _____
23. What are two people that were talked about in class whose inventions changed agriculture?
A. _____
B. _____
24. Give an example of a class 2 lever.

25. What are three power sources used for power tools?
A. _____
B. _____
C. _____
26. How is a Blacksmith's vice different from a Utility vice?

28. What are two types of claw hammers
A. _____
B. _____
27. What are the five steps in the scientific method?
A. _____
B. _____
C. _____
D. _____
E. _____
29. When drilling a large hole a pilot hole may be needed, what is a good approximation of the smallest size pilot hole needed?

30. What are three types of simple machines?
A. _____
B. _____
C. _____
31. What is the minimum number of hacksaw blade teeth that should be on the metal when cutting. _____
32. Should the movable jaw of a crescent wrench be toward or away from the direction of pull? _____
33. How are vices sized?

34. How are portable electric hand drills sized?

35. The correct name for a crescent wrench is _____.
36. How is a square checked to see if it is accurate?

Test 2

1. The bending of teeth on a saw blade to create a wider path for the blade, called the Kerf, is done when _____ is done to the teeth.
 - A. Kerfing
 - B. Setting
 - C. Jointing
 - D. Beveling
2. How far (minimum distance) should fuel tanks be from farm buildings?
 - A. 10 ft.
 - B. 20 ft.
 - C. 40 ft.
 - D. 100 ft.
3. What should the air should be exchanged every _____ in a welding shop area?
 - A. 5-10 days
 - B. 5-10 min.
 - C. 5-10 hour
 - D. 5-10 sec.
4. As the intensity of sound doubles the decibel reading increases by how much?
 - A. 2 db
 - B. 5 db
 - C. 10 db
 - D. 20 db
5. What is the actual dimension of a 2x4?
 - A. 2"x 4"
 - B. 1 1/4"x 3 1/2"
 - C. 1 1/2"X 3 1/2"
 - D. 1 3/4"X 3 1/4"
6. What does the S-DRY stamp mean on lumber?
 - A. The moisture content of the lumber is 19% or less.
 - B. The moisture content of the lumber is 15%.
 - C. The moisture content of the lumber is greater than 19%
 - D. The moisture content of the lumber is so-so.
7. What is one thing that you do not need to know to determine the type and intensity of light to use in an area?
 - A. Area to be covered
 - B. Type of work that is to be done
 - C. Distance to the work surface
 - D. Color of the equipment to be worked on
8. When doing a rip cut on a table saw one should use:
 - A. The miter gauge and the fence.
 - B. Only the fence
 - C. Only the miter gauge
 - D. The fence and push on both sides of the blade.
9. The process used to put a fine cutting edge on a tool is called:
 - A. Quenching
 - B. Whetting
 - C. Tempering
 - D. Dressing
10. The correct angle to sharpen a wood chisel is:
 - A. 15⁰ to 20⁰
 - B. 25⁰ to 30⁰
 - C. 45⁰ to 50⁰
 - D. 60⁰ to 70⁰

11. The correct angle to sharpen a lawn mower blade is:
A. 25°
B. 45°
C. 56°
D. 65°
12. How many wedges should be use when putting a handle on a hammer?
A. One wood and one metal
B. One wood and no metal
C. Two wood and one metal
D. No wood wedges and as many metal as needed
13. Why shouldn't one lip of a twist drill bit be sharpened to a longer length than the other?

14. Why is a radial arm saw safer than a table saw for crosscuts on 20 ft 2x4's?

15. What are two types of cutting edges?
A. _____
B. _____
16. Which power tool has the cutting blades on the bottom, below the work, a planer or a jointer?

17. What type of tool uses these edges?
concave _____
Straight _____
18. What are three things that should be considered when deciding on the size and type of farm shop to build?
A. _____
B. _____
C. _____
19. A 40'x80' that has 10 ft side walls occupies how many cubic ft. and how much floor area does it have?
Area _____
Volume _____
20. What are two categories of softwood lumber?
A. _____
B. _____
21. What is manufactured wood?

22. What is the best method of tool storage for your home farm shop?

23. What does it mean if a tree is self-pruning?

24. What causes Knots in a piece of lumber?

25. What are two examples of softwood trees?
A. _____
B. _____
26. What makes a tree a hardwood?

26. Why is most lumber Plain or Slash sawn versus Quarter sawn?

27. What is meant by "nominal size" of a piece of lumber?

28. What are two methods for seasoning lumber?
A. _____
B. _____

- C.
29. What consideration needs to be made to determine the thickness of the shop floor?
-
30. What is the unit of measurement of light intensity?
-
30. What do the growth rings on a log indicate?
-

Test3

1. What is the part of the rafter called that is a vertical cut at the ridge?
 - A. Plumb cut
 - B. Seat cut
 - C. Tail or overhang
 - D. Truss
2. Nails are coated too:
 - A. Prevent corrosion.
 - B. Increase withdrawal resistance.
 - C. Appearance.
 - D. All of the above.
3. By which of the following are methods by which nails sized?
 - A. Penny/d
 - B. Length
 - C. Gauge
 - D. All of the above
4. What is the term used to describe the resistance of a material to heat flow?
 - A. Conductive heat loss, CHL
 - B. BTU
 - C. R-value
 - D. I-value
5. A simply or quickly prepared drawing that gives the major features but not the details of an intended project is a:
 - A. Plan
 - B. Mechanical drawing
 - C. Sketch
 - D. Blueprint
6. The typical shop drawing used for making small parts is called a/an:
 - A. Perspective
 - B. Isometric
 - C. Oblique
 - D. Orthographic
7. Which type of line would be used to show the centerline of a shaft?
 - A. Broad solid line
 - B. Light short then long line
 - C. Broad evenly broken small dash line
 - D. Light line with diagonals at even intervals
8. To make a square corner on for a concrete form one should use a /an:
 - A. 6,8,10 triangle
 - B. 2,4,5 Triangle
 - C. 1,2,3 Triangle
 - D. 10,15,25 Triangle
9. The supporting member over a door or window is called a/an:
 - A. Stud
 - B. Sill
 - C. Header
 - D. Joist
10. Typical frame type construction on a multi-story house is called:
 - A. Platform
 - B. Ladder
 - C. Balloon
 - D. Overlay

11. The pitch of a roof is:
A. The run over the span
B. The rise over the run
C. The rise over the span
D. The run over the span
12. Which type of pipe should be used for hydraulics?
A. PVC
B. Galvanized iron
C. Copper
D. Black iron
13. Why should the pole on a pole building be buried over 5 ft deep?

14. What is the purpose of a roof ridge vent?

15. Why are joists and studs placed on 16, and 24 inch centers?

16. How are wood screws sized?

17. What is one method of extracting a broken bolt?

18. Why symbols used to fill objects made of sand, glass, wood and metal?

19. What are two types of foundations?
A. _____
B. _____
20. What does a DWV stamp mean on a plastic pipe?
D _____
W _____
V _____
21. How are these types of pipe connected?
A. black iron pipe _____
B. PVC plastic pipe _____
C. rigid copper tubing _____
22. What are two types of nails?
A. _____
B. _____
23. What are two types of bolts
A. _____
B. _____
24. What are three types of roofing use on ag buildings?
A. _____
B. _____
C. _____
25. What are three types or shapes of roofs use on ag buildings?
A. _____
B. _____
C. _____
26. What are two types of insulation used in buildings?
A. _____
B. _____
27. Why are fine threaded bolts used?

28. What do the marks on the top of a bolts mean or indicate?

29. What is a batter board?

30. When putting shingles on a building what is one weather related condition that should be made?

31. List three parts of an eave?
A. _____
B. _____
C. _____
32. What is the step method of laying out a rafter or a stair step?

33. List two reasons for neat, consistent, well made plans for a given project.
A. _____
B. _____
34. list two types of hinges.
A. _____
B. _____

Test4

1. Heating metal to red heat, then cooling it quickly to make it as hard as possible is called:
A. tempering
B. annealing
C. heat treatment
D. quenching
2. What type of gas is used for plasma arc cutting?
A. oxygen
B. CO₂
C. argon
D. compressed air
3. What does the flux coating on a welding rod do?
A. forms a liquid cover over the weld during welding
B. forms a solid cover over the weld during welding
C. forms a gaseous cover over the weld during welding
D. arc welding rods don't use flux
4. Improperly cleaned or welds with contamination in them is said to have a/an _____ problem.
A. birds nest
B. porosity
C. overlap
D. whiskers
5. What type of flame should be used for oxy-welding steel?
A. oxidizing
B. carburizing
C. neutral
D. depends on metal thickness
6. What filter lens should be used for MIG welding to protect your eyes from harmful rays?
A. No. 6
B. No. 8
C. No. 14
D. No. 30
7. What gases are not used for shield gases for MIG welding?
A. nitrogen and oxygen
B. argon
C. argon and carbon dioxide
D. argon and helium

8. Soldering and brazing are considered to be:
 - A. fission
 - B. fusion
 - C. intermetallic solution
 - D. permanent gluing
9. As an electrical wire diameter (gage) decreases:
 - A. the letter denoting size moves further up the alphabet.
 - B. the number denoting size increases, gets larger.
 - C. the number denoting size decreases, gets smaller.
 - D. zeros are added to the number.
10. Which type of pipe should be used for hydraulics?
 - A. PVC
 - B. Galvanized iron
 - C. Copper
 - D. Black iron
11. The output of an arc welder is expressed in:
 - A. volts
 - B. minutes
 - C. amps
 - D. watts
12. What is the difference between soft and hard solder?
 - A. soft is a paste and hard is a bar
 - B. soft soldering is done at a lower temperature than hard soldering
 - C. soft solder never hardens permanently
 - D. soft solder does not require heat
13. Approximately, what is the lowest temperature that melts soft solder?
 - A. 160°F
 - B. 360°F
 - C. 560°F
 - D. 800°F
14. What type of arc welders are typically used on farms?
 - A. Industrial
 - B. Commercial
 - C. Limited output
 - D. Limited input
15. What are two purposes of a soldering flux?
 - A. _____
 - B. _____
16. To use the table for determining size wire for electrical installations what are two things one needs to know?
 - A. _____
 - B. _____
17. What are fuses and circuit breakers meant to protect?

18. Why can't lead solder be used for milk handling equipment?

19. Why should every electrical box have a minimum of 6" of wire inside the box?

20. What do the letters GFCI stand for?
G _____
F _____
C _____
I _____
21. What are three uses for PVC plastic pipe?
A. _____
B. _____
C. _____
22. What are the two types of electrical circuits used in homes and shops? (HINT: not Parallel an series.)
A. _____
B. _____
23. How are these types of pipe connected?
A. black iron
pipe _____
B. PVC plastic
pipe _____
C. soft copper tubing _____
24. What are two heat sources used for soldering?
A. _____
B. _____
25. What are two advantages of a MIG welder?
A. _____
B. _____
26. What three things does the trigger on a MIG welder control.
A. _____
B. _____
C. _____
27. What is the best way to become a better welder?

—
28. Why aren't there as many problems with the MIG welder 'sticking' when stopping the weld.

29. What does the duty cycle of a arc welder mean?

30. On a welding rod what do the numbers mean? (E 6013)
60 _____
1 _____
3 _____

31. What does MIG stand for?

32. Why shouldn't one use matches or a lighter to light a furnace or acetylene torch?

33. Which should be turned off first, the oxygen or the acetylene?

34. Why is propane so popular for oxy cutting?

35. Why are the threads on acetylene cylinders left handed?

36. What two things are needed so metal can be heat treated?
A.

B.

37. Fill in the blanks with the correct answers.
(iron, carbon, cementite, carbonite, martinsite, austinite, ferrite, hardinite, softite, perisite, pearlite, cast iron)
Ferrite + _____ = Cementite
Cementite + Ferrite = _____
Pearlite + Heat = _____

Final

1. Heating metal to red heat, then cooling it slowly to make it soft is called:
 - A. tempering
 - B. annealing
 - C. heat treatment
 - D. quenching
2. What type of gas is used for plasma arc cutting?
 - A. oxygen
 - B. CO₂
 - C. argon
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3. What does the flux coating on a welding rod do?
 - A. forms a liquid cover over the weld during welding
 - B. forms a solid cover over the weld during welding
 - C. forms a gaseous cover over the weld during welding
 - D. arc welding rods don't use flux
4. What type of arc welder is typically used on farms?
 - A. Limited output
 - Limited input
 - Industrial
 - Low voltage
5. What type of flame should be used for oxy-welding steel?
 - A. neutral
 - B. carburizing
 - C. oxidizing
 - D. depends on metal thickness
6. What filter lens should be used for MIG welding to protect your eyes from harmful rays?
 - A. No. 6
 - B. No. 8
 - C. No. 14
 - D. No. 30
7. What gases are not used for shield gases for MIG welding?
 - A. nitrogen and oxygen
 - B. argon
 - C. argon and carbon dioxide
 - D. argon and helium
8. Soldering and brazing are considered to be:
 - A. intermetallic solution
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 - C. fission
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 - D. 800°F

11. Improperly cleaned or welds with contamination in them is said to have a/an _____ problem.
- A. birds nest
 - B. whiskers
 - C. overlap
 - D. porosity
12. The length of time an arc welder can operate at full amperage is expressed as:
- A. volts
 - B. minutes
 - C. amps
 - D. duty cycle
13. Which has the least carbon in it?
- A. medium carbon steel
 - B. cast iron
 - C. wrought iron
 - D. pig iron
14. What is the disadvantage of brazing?
- _____
15. What are two gasses commonly used for MIG welding?
- A. _____
 - B. _____
16. What number filter lens should be used for the following?
- Arc welding 75-200 amps _____ Mig & Tig welding _____
- Gas welding and cutting _____
17. What are the three types of metal threading taps?
- A. _____
 - B. _____
 - C. _____
18. What does ferrous mean?
- _____
19. Why shouldn't one use matches or a lighter to light a furnace or acetylene torch?
-
20. What are two purposes of a soldering flux?
- A. _____
 - B. _____
21. Why can't lead solder be used for milk handling equipment?
- _____
22. What are two heat sources used for soldering?
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23. What are two advantages of a MIG welder?
- A. _____
 - B. _____
24. What three things does the trigger on a MIG welder control.
- A. _____
 - B. _____
 - C. _____
25. What is the best way to become a better welder?
- _____

26. Why aren't there as many problems with the MIG welder 'sticking' when stopping the weld.

27. On a welding rod what do the numbers mean? (E 6013)

60 _____

1 _____

3 _____

28. What does MIG stand for?

29. Which should be turned off first when shutting down a torch, the oxygen or the acetylene?

30. Why are the threads on acetylene cylinders left handed?

31. Fill in the blanks with the correct answers.

Ferrite + _____ = Cementite

Cementite + Ferrite = _____

Pearlite + Heat = austenite(cooled quickly)=_____

The numbering on metal threading dies has what meaning

3/8 _____

24 _____

NF _____