

Theoretical questions for qualification “WELDING”

Right answer in bold

WELDING SAFETY PRACTICES

1. Safe work environments are necessary because:
 - a. **people can get hurt in industrial situations**
 - b. people enjoy working in rustic looking places
 - c. people have no problem with working dangerously
 - d. people love to be hurt in order to receive sympathy

2. Attitudes toward working safely is best learned:
 - a. **through experience**
 - b. trial and error
 - c. in the laboratory
 - d. in the classroom

3. When people learn safety procedures, they develop an (a) concerning safety.
 - a. Habit
 - b. **Attitude**
 - c. mental program
 - d. none of the above

4. Most accidents are:
 - a. by chance
 - b. by plan
 - c. **caused**
 - d. none of the above

5. In order to work safely, workers should learn:
 - a. **to organize their work procedures and develop a plan of action**
 - b. to correctly use tools
 - c. to be cooperative
 - d. to work hard

6. A worker is responsible for wearing the proper protective
 - a. helmet
 - b. shoes
 - c. gloves
 - d. **equipment**



7. Safety in welding means knowing the ways to protect yourself from these common injuries and hazards:
- Burns
 - Cuts
 - inadequate ventilation
 - none of the above
 - all of the above**
8. One of the most common injuries that occur in welding is:
- eye Injuries
 - burns**
 - cuts
 - pinches
9. If clothing catches fire when a welder is working the flames should be extinguished by:
- running real fast away from the welding area
 - using water
 - patted out with a glove**
 - none of the above
10. In order to protect the eyes, a welder should wear awith a number 10 shade of colored lens.
- shoe
 - glove
 - helmet**
 - hat
11. Ventilation is a safety concern in a area.
- Woodworking
 - Metalworking
 - welding area**
 - plastics area
12. All types of welding give off
- sparks
 - smoke
 - gases**
 - water
13. A welding booth should have good
- light
 - sound control
 - ventilation**
 - none of the above

14. During spot welding you should wear:
 - a. steel toed shoes
 - b. leather gloves
 - c. face shield
 - d. none of the above
 - e. **all of the above**

15. If arc welders are well maintained, they are not an electrical hazard.
 - a. short
 - b. open
 - c. **shock**
 - b. none of the above

16. Spot welding of galvanized steel will create spatters that can direct molten metal into the welder's
 - a. shoe
 - b. apron pocket
 - c. **face**
 - d. eyes

17. When working with galvanized steel it is best for safety's sake to wear:
 - a. a face shield
 - b. a pair of gloves
 - c. steel toed shoes
 - d. **all of the above**

18. If arc welders are well maintained they are not an electrical shock
 - a. hazard
 - b. unit
 - c. cause
 - d. **problem**

19. In tungsten inert gas welding, it is possible to get a from the high frequency starting current.
 - a. noise
 - b. problem
 - c. **shock**
 - d. nudge

20. Small fires which do not create a great amount of heat can be controlled quickly by spraying with:
 - a. carbon dioxide
 - b. sand
 - c. mud
 - d. **water**

21. Carbon dioxide is a good method of fighting these fires:

- a. oil
 - b. gasoline
 - c. electrical fires
 - d. **all of the above**
 - e. none of the above
22. First aid is the immediate given a person who is suffering as the result of an accident.
- a. information
 - b. program
 - c. action
 - d. **treatment**
23. Using a fireis the first action to take to extinguish any fire on a person's hair or body.
- a. hose
 - b. **blanket**
 - c. sponge
 - d. vest
24. First degree burns in which the skin is reddened may be and covered with a burn ointment.
- a. heated
 - b. aerated
 - c. treated
 - d. **cooled**
25. A person in shock may collapse or may merely seem dazed or
- a. **stunned**
 - b. scalded
 - c. hallucinating
 - d. just sick
26. Shock is a very dangerous condition and must be treated
- a. slowly
 - b. with water
 - c. with sleep
 - d. **quickly**
 - e. none of the above
1. A person in shock may collapse or may merely seem gay and happy.
True False
2. Shock is a very serious condition and must be treated immediately.
True False
3. First aid is the immediate treatment given to a person who is suffering as the result of an accident.
True False



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4. When people learn safety procedures, they develop an attitude concerning safety.
True False
5. Safety procedures require planned movements
True False
6. When welders are inside or crossing between safety lines, they should feel safe.
True False
7. A welder is responsible for wearing the correct protective equipment.
True False
8. The arc welder's helmet is designed to protect the eyes and face from falling objects and ultraviolet 8. rays.
True False
9. Burns are one of the most common injuries when welding or cutting with a torch.
True False
10. If clothing catches on fire when welding, it is best to put out the flames by splashing the welder with water.
True False
11. At no time should a person look directly at the light produced by arc welding.
True False
12. Most eye injuries can be avoided by wearing safety glasses or a welder's helmet.
True False
13. Ventilation is a safety concern in the welding area
True False
14. Welding booths have ventilators over them to protect the welder from dirt, dust, carbon dioxide, iron oxides, cadmium oxide, lead oxide, and zinc oxides.
True False
15. The intense light produced by arc welding can cause burns to exposed skin.
True False
16. When setting up for welding, it is necessary to make sure the welding ground wire is clamped to the work so a welding circuit may be established. The welder should also be grounded.
True False
17. Electrical fires should be extinguished with water.
True False
18. There are four classes of fires: A, B, C, and D.
True False
19. Put out a class A fire by using plenty of water.
True False
20. Using a fire blanket is the first action to take when a person's hair or body is on fire,
True False

WELDING AND CUTTING

1. Oxidizing means:
 - a. too much oxygen
 - b. too little oxygen
 - c. **combining of materials with oxygen**



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- d. fusing oxygen
2. Plasma arc cutting means:
- melting with a soldering iron
 - melting metal with a torch
 - melting with very high temperatures**
 - cutting with a hacksaw
3. As metals heat and melt, the molecules become free from their neighboring and break the bonds holding them together as a rigid solid.
- atoms
 - molecules**
 - nucleus
 - electrons
4. Oxygen has a strong..... affinity for iron.
- Chemical**
 - Physical
 - Metaphysical
 - attractive
5. What is the critical element in cutting iron or steel?
- oxygen**
 - acetylene
 - nitrogen
 - air
6. When a narrow area of steel is heated to the temperature of 1400 to 1800 degrees F, a stream of oxygen is directed onto the metal, rapid oxidation takes place, and the oxygen stream metal along its direction of movement.
- Cuts**
 - Breaks
 - Welds
 - scars
7. The cutting torch and the welding torch are
- the same
 - different in construction
 - not alike
 - separate types**
8. The cutting torch has needle valves.
- one
 - two
 - three**



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- d. four
9. The cutting torch can be used for welding by changing the
- handle
 - tip**
 - hoses
 - none of the above
10. The cutting operation requires different from those necessary for welding.
- Hoses
 - Gases
 - Nozzles
 - pressures**
11. The size of the tip and the cutting pressure are related to the of the steel being cut.
- Thickness**
 - Length
 - Height
 - weight
12. If the oxygen regulator is set for 35 psi with a No. 1-sized cutting tip, what can be cut with it?
- 1/2-inch steel plate**
 - 1-inch steel plate
 - 3/4-inch-inch steel plate
 - 1-inch cast iron
13. The torch is held at a 45-degree angle to the plate over the edge of the plate until the edge is red hot Then the torch is moved so that it is degrees from all surfaces.
- 180
 - 60
 - 30
 - 90**
14. The end of an oxyacetylene cutting tip has a series of holes drilled into it. The center hole is the orifice.
- Oxygen**
 - Acetylene
 - oxygen
 - air
 - nitrogen
15. When starting and lighting the torch, the oxygen valve on the torch butt is opened:
- Halfway
 - all the way**
 - about quarter of the way



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- d. none of the above
16. When hand-held cutting tools are used, workers wear a covering to protect their
- Feet
 - Feet
 - Hands**
 - arms
17. In using the torch to cut steel when the edge of the plate has become red-hot, the cutting lever is pressed down to start the cutting.
- Oxygen**
 - Nitrogen
 - Acetylene
 - air
18. The cutting torch is used in cutting work such as removing rivets, gouging metal to prepare for welded joints, and cast iron.
- Heating
 - Cutting**
 - Molding
 - edging
19. The oldest method of shape cutting control is:
- Mechanical**
 - automatic
 - manual
 - none of the above
20. Photoelectric tracers are machines that use a photoelectric cell to follow paper drawings of pencil and ink.
- burning**
 - cutting
 - drawing
 - accurate
21. In industrial work, cams and templates are used to contoured cuts for small repetitive work.
- shape
 - guide**
 - start
 - saw
22. Numerically controlled flame-cutting machines are capable of very detailed and cutting.
- Applied
 - Free
 - Accurate**



- d. sloppy
23. Plasma arc cutting is used to cut nonferrous metals, steels, refractories, and carbon steels at high speeds.
- alloy
 - stainless**
 - wrought
 - none of these.
24. Stainless steel up to 2 inches thick can be cut with gas mixtures of argon and
- air
 - oxygen
 - nitrogen
 - hydrogen**
25. The carbon-dioxide laser is designed to cut, slit, drill, and
- draw
 - weld**
 - circle
 - slice
26. Laser cutting produces greater over the cutting process.
- error correction
 - quality
 - control**
 - efficiencies
27. Polarity is defined as:
- a pole used in welding
 - the direction of current flow in a welding circuit**
 - the direction of gas flow in a welding circuit
 - the label on the probe holding the welding rod
28. Root pass is used to designate:
- a weld that needed tacking
 - a weld on top of the plate being welded
 - a weld in the bottom of a welded joint**
 - a weld in the top of a welded joint
29. An inert gas is:
- a gas that does not react chemically with surrounding metals and materials**
 - a gas that reacts chemically with surrounding metals and materials
 - a gas that doesn't reach with anything
 - a gas that reacts with all metals
30. Bonding is the fastening of two pieces of metals by
- kinetic energy

- b. glue
 - c. plasma
 - d. **diffusion**
31. Bonding metal by heat is performed by a number of processes.
- a. **Welding**
 - b. Plasma
 - c. Gluing
 - d. sparking
32. Arc-welding safety is primarily concerned with preventing burns, electrical shock, and
- a. **radiation**
 - b. cuts and bruises
 - c. sunburn
 - d. ultraviolet vision problems
33. In arc welding the is the source of heat for melting the metal.
- a. **arc stream**
 - b. current
 - c. resistance
 - d. welding rod
34. The process of welding is dependent primarily on the condition and of the molten pool.
- a. control
 - b. size
 - c. **manipulation**
 - d. color
35. In arc welding how you use an electrode is important. The angle of the electrode is a factor that aids in the formation of the bead and the of the arc blow.
- a. Shape
 - b. **Control**
 - c. Color
 - d. size
36. In arc welding, the speed at which the electrode is moved controls the size and..... of the weld head.
- a. length
 - b. **contour**
 - c. color
 - d. shape
37. There are four common positions of welding: horizontal, vertical, overhead, and
- a. **flat**



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- b. right side
 - c. left side
 - d. sideways
38. In shield welding, polarity has higher melting and deposition rates than other types of current.
- a. wrong
 - b. **straight**
 - c. reverse
 - d. none of these
39. In alternating current the polarity
- a. is steady
 - b. never changes
 - c. stays the same
 - d. **reverses**
40. The of the electrode and the position of the weld determine the setting of the welding machine.
- a. **Size**
 - b. Shape
 - c. Composition
 - d. Color
41. The welding is one factor that controls the penetration and characteristics of the metal deposit.
- a. current type
 - b. **polarity**
 - c. type
 - d. speed
42. What does a deep-fat-frying sound indicate when welding?
- a. **the correct arc length is achieved**
 - b. the incorrect arc length is achieved
 - c. the rod is too big
 - d. the rod is too little
43. Thick metals may require a weld.
- a. **Multipass**
 - b. Short
 - c. Stacked
 - d. long
44. Gas metal welding is performed in a atmosphere around a bare wire electrode that melts in the arc.
- a. weak
 - b. **controlled**

- c. gas
 - d. strong
45. Welding distortion is controlled by keeping the heat concentration low:
- a. by balancing the heat in the workpiece
 - b. by mechanically overpowering the stress forces with clamps and fixtures.
 - c. **both of the above**
 - d. neither of the above
46. The gas-metal-arc welding process has different welding applications.
- a. no
 - b. **many**
 - c. few
 - d. some
47. Short-circuit transferring of metal takes place when the welding wire electrically shorts, pinches off, arcs to fuse metal to the work, and then
- a. fades out
 - b. **reshorts**
 - c. opens
 - d. spreads
48. Tubular wire welding has the flux on the of the filler rod tube.
- a. **inside**
 - b. outside
 - c. tip
 - d. clamped end
49. Flux-cored wire processes with a carbon-dioxide gas shield are operated with a high-arc density or transfer.
- a. **spray**
 - b. scatter
 - c. cool
 - d. temporary
50. The gas-tungsten arc produces a -quality weld.
- a. **High**
 - b. Low
 - c. Medium
 - d. none of the above
51. Reverse polarity produces an oxide film-cleaning action and a broad weld bead with a penetration.
- a. Deep
 - b. **Shallow**
 - c. Medium
 - d. none of these

1. Plasma arc-weld surfacing technology helps to produce better-quality products at a competitive market price.
True False
2. Electron-beam welding equipment is precision equipment, because the work piece may be moved by 0.001 inch in location and is controlled automatically.
True False
3. Electron-beam welding makes a hole in the metal, and as the beam is moved along the work, the liquid metal moves behind the beam and the surface tension of the liquid metal causes the metal from the sides of the weld to intermingle and to be joined upon freezing.
True False
4. Electron-beam welding needs a vacuum chamber in order to work properly.
True False
5. Laser welding is done by a burst of light that is concentrated into a diameter of 0.001 inch.
True False
6. The laser welder can fuse refractory metals, ceramics, and very thick material without warpage or heat damage to adjacent parts.
True False
7. Weld nugget refers to the fused area in the metal of a spot weld.
True False
8. Hard surfacing means melting a very hard metal powder and welding it in the surface of a base metal.
True False
9. Adhesion bonding refers to the fastening of two pieces of metals by diffusion.
True False
10. Arc-welding processes generate large amounts of heat, ultraviolet rays, infrared rays, and flying sparks.
True False
11. Arc-welding cables should be checked periodically for wear, cuts, and hot spots.
True False
12. The fumes generated by welding are not harmful to the welder.
True False
13. A chipping hammer is used to make small metal chips for welding.
True False
14. Shielded-metal arc welding is better known as manual arc welding.
True False
15. The process of arc welding is dependent primarily on the condition and manipulation Of the molten pool.
True False
16. The angle of the electrodes aids in the formation of the bead and the control of the arc blow.
True False
17. In arc welding the correct speed of travel of the rod will produce a bead that is about one-half the rod diameter high and one and one-half times the rod diameter wide.
True False

18. A fillet weld is made by welding the intersection of two surfaces at 45 degrees or other angles to each other.
True False
19. Welding electrodes are made of steel wires of various compositions with a flux covering the electrode.
True False
20. The American Welding Society has a code for welding-electrode designation.
True False
21. Reverse polarity delivers maximum penetration under standard welding conditions.
True False
22. If you hear a deep-fat-frying sound when arc welding, you know that you are not welding properly.
True False
23. Distortion is caused by unequal heat in the work, which in turn produces stress in the weld arc
True False
24. In order to obtain maximum penetration with a high deposition rate, two different electrodes may be used on heavy welds.
True False
25. Flux-cored arc welding is a development of the gas-metal arc process.
True False

GAS METAL ARC WELDING

1. Another name for gas-metal-arc welding is:
a. tungsten
b. submerged
c. **MIG**
d. TIG
2. The following gases may be used for proper gas-metal-arc welding operation.
a. helium, carbon dioxide
b. **helium, argon, carbon dioxide**
c. air, oxygen, carbon dioxide
d. oxygen, argon
3. Although the gas shield is effective in shielding the molten metal from the air, are usually added as alloys in the electrode.
a. **deoxidizers**
b. oxidizers
c. chemicals
d. none of these
4. When the term manual gas-metal-arc welding is used, the process with its handheld gun is implied.
a. Automatic
b. **semiautomatic**



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- c. both of these
 - d. neither of these
5. Which technique of welding is meant by the term short welding?
- a. shielded welding
 - b. gas welding
 - c. spray-arc welding
 - d. **short-circuiting welding**
6. To use short-arc welding efficiently, special power sources with adjustable slope, voltage, and characteristics are required.
- a. resistance
 - b. **inductance**
 - c. Capacitance
 - d. inductance
7. Which type of welding is a logical outgrowth of gas-tungsten-arc welding?
- a. pressure-gas welding
 - b. arc welding
 - c. **gas-tungsten-arc welding**
 - d. flux-cored-arc welding
8. Gas-metal-arc welding was originally developed to solve the problem of welding metals thicker than inch using the TIG method.
- a. 1/2 inch
 - b. **1/4 inch**
 - c. 1 inch
 - d. 1 1/2 inches
9. In the gas-metal-arc-welding process the electrode is consumed; however, in the welding process the electrode is not consumed.
- a. DC arc
 - b. Tungsten
 - c. **TIG**
 - d. MIG
10. MIG welding produces a:
- a. glob of weld fill with lots of slag
 - b. spotty, slag-covered weld
 - c. poor weld but clean
 - d. **strong, clean weld**
1. Gas-metal-arc welding was originally referred to as MIG welding.
True False
2. The shielding gases can be oxygen and carbon dioxide.
True False
3. CO₂ alone can be used for welding steel with MIG.



- True False**
4. Buried-arc welding is another variation in which carbon-dioxide-rich gas is used and the arc is buried in its own crater.
True False
5. The shielding gases have no effect on the nature of the metal transfer from the electrode to the work.
True False
6. Gas-metal-arc welding is fast and economical.
True False
7. MIG welding may be used with all the major commercial metals, including carbon, alloy, and stainless steels as well as aluminum, magnesium, copper, iron, titanium, and zirconium.
True False
8. MIG welding may be completely or fully automatic.
True False
9. Short-arc welding uses low currents, low voltages, and small-diameter wires.
True False
10. The power sources for short-arc welding do not produce reliable voltages and currents for good welds.
True False
11. The short-arc welding technique produces a high amount of heat.
True False
12. Short-arc welding tolerates poor fit-up and permits the bridging of wide gaps.
True False
13. There is a process of welding that is referred to as globular.
True False
14. Spray-arc MIG welding produces an intensely hot, higher-voltage arc and gives a higher deposition rate than short-arc welding.
True False
15. The spray arc technique is not recommended for 1/8 inch and thicker metals.
True False

GAS TUNGSTEN ARC WELDING

1. Tungsten-inert-gas welding is called in the trade.
- MIGW
 - TIGW
 - MIG**
 - TIG
2. What is the result of the atmospheric contaminants becoming part of the welding process?
- clean joints
 - strong joints
 - joints with nice lines**
 - weak spots in the joint



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3. An inert gas is:
 - a. Active
 - b. **Inactive**
 - c. Lazy

4. Tungsten-inert-gas welding was originally developed specifically for welding manganese, aluminum and
 - a. **stainless steel**
 - b. ferrous metals
 - c. heavy metals
 - d. copper

5. Before TIG welding was introduced, welders had to resort to using to remove contaminants from the weld.
 - a. Electrodes
 - b. Heat
 - c. Skill
 - d. **flux**

6. Tungsten is used for the electrode in TIG welding because:
 - a. it is plentiful
 - b. it is inexpensive
 - c. **it does not melt easily**
 - d. it melts easily

7. The TIG process is particularly suitable for welding materials where the requirements for quality and finish are exacting.
 - a. Heavy
 - b. Thick
 - c. **Thin**
 - d. Rough

8. The TIG electrode that does not melt in the arc is made of:
 - a. Aluminum
 - b. Copper
 - c. **Tungsten**
 - d. Magnesium

9. The advantage of using a hot wire with oscillation for filler in TIG welding is that:
 - a. it has a less rapid deposition rate
 - b. **it has a more rapid deposition rate**
 - c. it has a very easy-to-use coating
 - d. it can be easily coiled

10. Gas-tungsten-arc spot welding can be used where only one side of the work piece is available for applying
 - a. **Pressure**



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- b. Heat
 - c. cooling water
 - d. the arc
-
1. The advantage of a spot-welding process such as gas tungsten is that it can be used when access to only one side of the joint is available.
True False
 2. Argon is used in the TIG-welding process.
True False
 3. Helium is used in the TIG-welding process.
True False
 4. Carbon dioxide is used in TIG welding.
True False
 5. The electrode in the TIG process is melted in the arc.
True False
 6. Gas-tungsten-arc welding produces very clean welds, and no special cleaning or slag removal is required.
True False
 7. Tungsten electrodes often are treated with thorium or zirconium to provide better current-carrying and electron-emission characteristics.
True False
 8. The abbreviation often used to indicate gas-tungsten-arc welding is GTAW.
True False
 9. One of the main advantages of TIG welding is that it produces a clean, strong weld.
True False
 10. TIG welding is not easily adapted to automatic welding.
True False

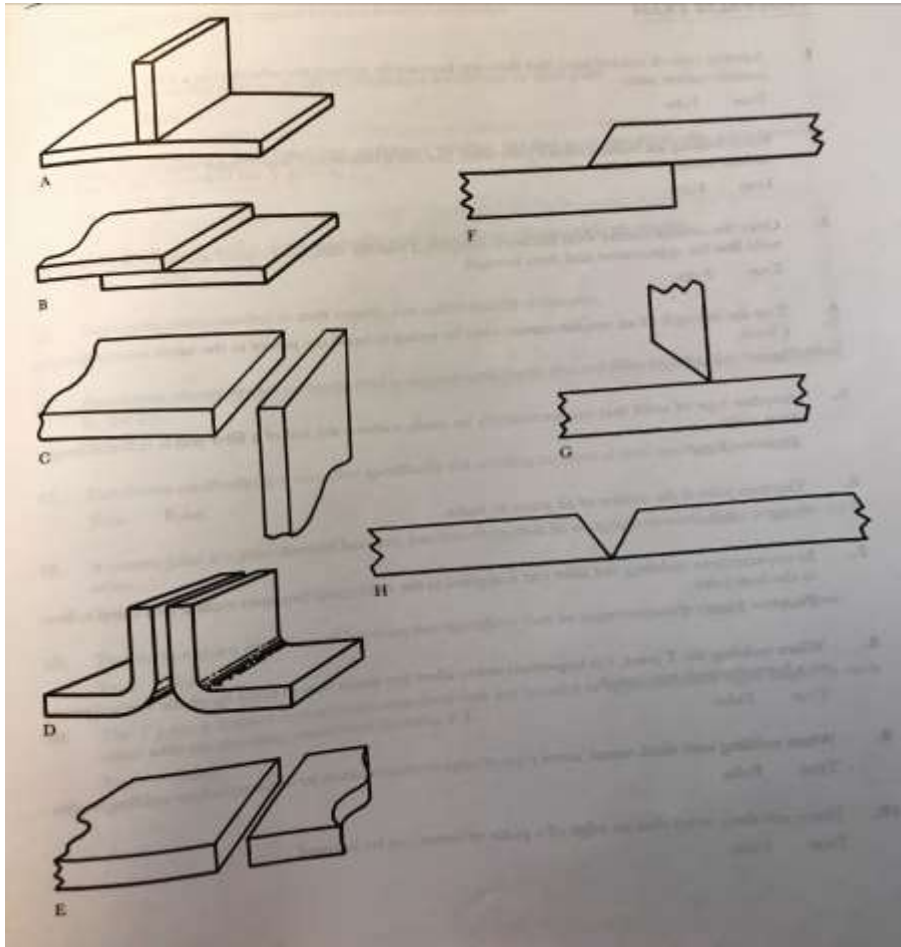
TYPE OF JOINTS

Match the joints with their names.

1. ...Butt joint
2. ...Corner joint
3. ...Edge joint
4. ...Lap joint
5. ...T joint
6. ...Beveled butt joint
7. ...Beveled lap joint
8. ...Beveled T joint



1. E
2. C
3. D
4. B
5. A



6. H
7. F
8. G

1. Another type of welded joint that does not necessarily require the addition of a filler rod is called the outside-corner weld.

True False

2. When making an outside-corner joint weld, less torch movement is necessary than usual, particularly on butt joints.

True False

3. Once the outside-corner weld has been completed and the metal has cooled and solidified, check the weld first for appearance and then strength.

True False



4. Test the strength of an outside-corner weld by trying to bend the pieces in the same way as opening a book.
True False
5. Another type of weld that can successfully be made without the aid of a filler rod is called a flange joint weld.
True False
6. The butt joint is the easiest of all joints to make.
True False
7. In oxyacetylene welding, the filler rod is applied as the weld metal becomes molten and starts to flow in the butt joint.
True False
8. When welding the T joint, it is important not to allow too much heat to build up on the vertical piece, or a burn through may result.
True False
9. When welding with thick metal, some type of edge treatment must be initiated before welding begins.
True False
10. There are three ways that an edge of a piece of metal can be beveled.
True False
11. The oxyacetylene torch cannot be used to bevel and edge.
True False
12. Use a guide on the grinder to aid in grinding a true bevel on steel plate.
True False
13. When building up a weld bead with multilayer welding, the first layer should provide good penetration at the bottom of the V groove.
True False
14. Most welding on steel is done manually with shielded-metal-arc (stick) electrodes.
True False
15. Electrodes compounded to melt rapidly are called fast-fill electrodes.
True False
16. Fast-freeze electrodes are compounded to deposit weld metal that solidifies rapidly after being melted by the arc.
True False
17. Fast-freeze electrodes are intended specifically for welding in vertical and overhead positions.
True False
18. A corner joint is a joint formed between two members that lie at approximately right angles to each other.
True False
19. The butt joint is a joint formed between two members that lie approximately on the same plane.
True False
20. The T joint is formed between two members that are located at approximately right angles to each other with the resulting connection forming a T.
True False

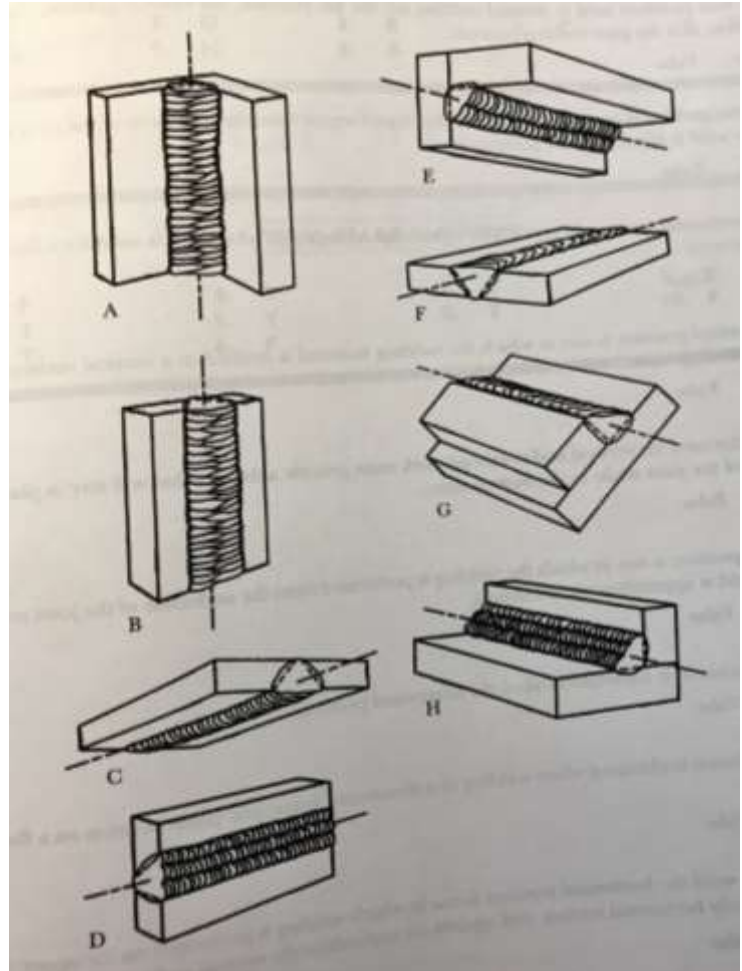


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WELDING POSITIONS

Match the joints with their positions:



1. Flat-position weld, groove
2. Flat-position weld, fillet
3. Horizontal-position weld, groove
4. Horizontal-position weld, fillet
5. Vertical-position weld, groove
6. Vertical-position weld, fillet
7. Overhead-position weld, groove
8. Overhead-position weld, fillet

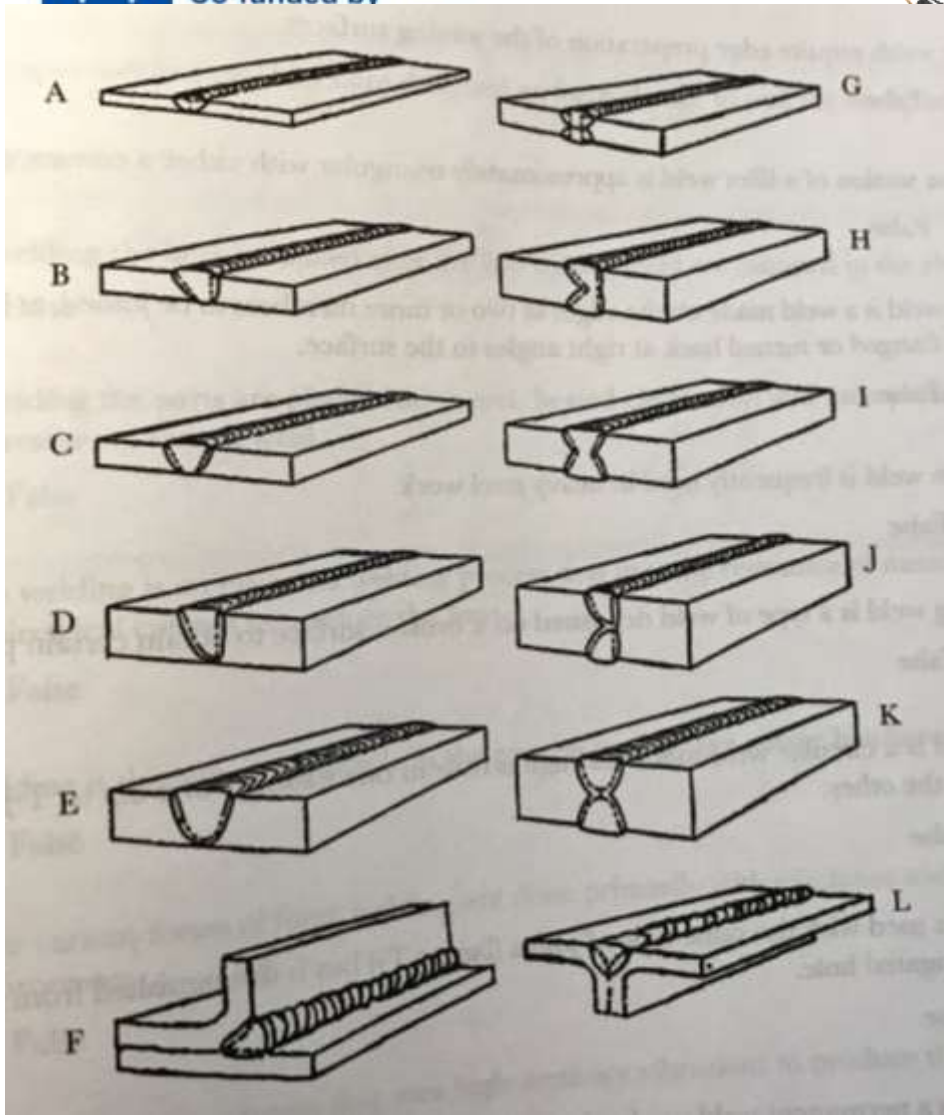
1. F
2. G
3. D
4. H
5. B
6. A
7. C
8. E

1. The four positions used in manual welding are the flat position, the vertical position, the horizontal position, and the pipe-welding position.
True False
2. The flat position is one in which the welding is performed from the underside of the joint and the face of the weld is approximately horizontal.
True False
3. The horizontal position has two basic forms depending upon whether it is used for a fillet weld or a groove weld.
True False
4. The vertical position is one in which the welding material is applied to a vertical surface or one inclined 45 degrees or less to the vertical.
True False
5. Electrodes used for vertical and overhead work must provide a deposit that will stay in place and not fall out of the joint while in the molten state.
True False
6. The flat position is one in which the welding is performed from the underside of the joint and the face of the weld is approximately horizontal.
True False
7. The flat position is sometimes called the downward position.
True False
8. The best fusion is obtained when welding in a downward horizontal-plane position on a flat piece Of steel plate.
True False
9. In the fillet weld the horizontal position is one in which welding is performed on the upper side of an approximately horizontal surface and against an approximately vertical surface.
True False
10. In the vertical-weld position the electrode is held horizontally or the welding end is inclined slightly upward.
True False

TYPES OF WELDS AND WELDING

Match the type of weld with its name:

1. Flare-bevel groove
2. Square groove
3. Single-U groove
4. Double-bevel groove
5. Single-J groove
6. Double-V groove
7. Single-V groove
8. Double-J groove
9. Single-bevel groove
10. Double-U groove
11. Double-square groove
12. Flare-V groove





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1. F
2. A
3. E
4. H
5. D
6. I
7. C
8. J
9. B
10. K
11. G
12. L

1. Two of the most common types of welds are groove welds and fillet welds.
True False
2. Groove welds require edge preparation of the joining surfaces.
True False
3. The cross section of a fillet weld is approximately triangular with either a convex or concave face.
True False
4. A flange weld is a weld made on the edges of two or more members to be joined, at least one of which has been flanged or turned back at right angles to the surface.
True False
5. The flange weld is frequently used in heavy steel work.
True False
6. A surfacing weld is a type of weld deposited on a broken surface to obtain certain properties.
True False
7. A plug weld is a circular weld made through a hole in one member of a lap or T-joint, joining that member to the other.
True False
8. A slot weld is used with the same type of joints (lap or T-) but is distinguished from the plug weld by its longer elongated hole.
True False
9. A tack weld is a permanent weld used to hold two parts in position until a more permanent weld can be made.
True False
10. Resistance welding is one of the oldest of the electric welding processes in use today.
True False
11. The gas-tungsten-arc spot weld is made from one side only.
True False
12. The staggered intermittent fillet welds consist of two lines of intermittent welds on a joint.
True False



13. The resistance-spot-weld nugget is formed when the interface of the weld joint is heated due to the resistance of the joint surfaces to electric current.
True False
14. Resistance-spot-welding machines are designed as force clamps to pull the workpieces together for welding.
True False
15. In upset welding the heat is applied after the two metal pieces are clamped in the electrodes.
True False
16. In butt welding the parts are placed end to end, heated electrically, and then pressed together with enough pressure to form a weld.
True False
17. Induction welding is an electrical welding process that uses the resistance of metal to the flow of an induced electrical current to produce the heat.
True False
18. Forge welding is the same in principle as the process used by the village blacksmith years ago.
True False
19. Today the various forms of forge welding are done primarily with machines and are essentially dieforming processes.
True False
20. Ultrasonic welding is a process that uses high-intensity vibrations to produce the temperatures necessary for fusion.
True False

WELDING TIPS AND TESTS

1. Inspection and testing are part of the welding trade.
True False
2. Certification of inspectors is done by the American Welding Society.
True False
3. A good weld has superior strength to the base metal surrounding it.
True False
4. In order to make a good weld, it is important to identify the base metal of the joint to be welded.
True False
5. Choosing the most suitable electrode or filler metal for the weld is not necessary.
True False
6. Some metals require preheating to reduce the possibility of cracking and the formation of residual stresses.
True False
7. Never attempt to weld over a porous or a cracked weld.
True False
8. You should never weld on metal surfaces below 32 degrees F.



- True False**
9. The destructive bend test may be used to determine a number of weld properties including ductility, weld penetration, tensile strength, and fusion.
True False
10. Destructive tests are used to determine the properties of a weld but in such a way that the weld itself is usually destroyed.
True False
11. The etch test is nondestructive.
True False
12. The eddy-current test is destructive.
True False
13. The root-bend tests are used primarily to determine the degree of weld penetration.
True False
14. The eddy-current testing method uses electromagnetic energy for detecting and locating weld defects.
True False
15. Magnetic-particle testing is a form of weld inspection in which surface or near-surface flaws are located by means of an induced magnetic field.
True False

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