

"Welding Technology"
Test Worksheet

1. What is the significance of an "Essential" variable?
 - a. Are the only variables permitted in a welding procedure
 - b. Must be addressed in a procedure qualification
 - c. Are applicable only when the Construction Code has toughness requirements
 - d. There is no special significance
2. What is the significance of a "Supplementary Essential" variable?
 - a. Are specified at the discretion of the welding procedure writer
 - b. There is no special significance
 - c. Are applicable only when the Construction Code has toughness requirements
 - d. Are the only variables permitted in a welding procedure
3. What provides the shielding in the shielded metal arc welding (SMAW) process?
 - a. Decomposition of the electrode covering
 - b. A gas or gas mixture
 - c. The transferred filler metal droplets
 - d. Base metal dissolved into the weld puddle
4. What are two variations of the shielded metal arc welding (SMAW) process?
 - a. With and without external shielding gas
 - b. Short circuiting (short arc) and spray transfer
 - c. Manual and automatic
 - d. Cellulosic coated and low hydrogen coated electrodes
5. What provides the shielding in the gas tungsten arc welding (GTAW) process?
 - a. A gas or gas mixture
 - b. Decomposition of the electrode covering
 - c. The transferred filler metal droplets
 - d. Base metal dissolved into the weld puddle
6. What type of filler metal/electrode is used in the flux cored arc welding (FCAW) process?
 - a. Tubular
 - b. Solid wire
 - c. Covered electrode
 - d. Tungsten
7. What is the temperature that distinguishes torch brazing (TB) from soldering?
 - a. 1000°F
 - b. 840°F
 - c. There is no distinction
 - d. 500°F
8. Name an important application for braze welding (BW).
 - a. Joining austenitic stainless steel
 - b. Hardfacing overlay
 - c. Repair of cast iron
 - d. Corrosion resistant overlay
9. What are two transfer modes when using the gas metal arc welding (GMAW) process?
 - a. Spray and globular
 - b. Low hydrogen
 - c. Ionic
 - d. Phased array
10. Name three of the five types of joints.
 - a. Groove, fillet, and edge
 - b. Fillet, corner, and edge
 - c. Butt, corner, and edge
 - d. Butt, fillet, and groove
11. Which of the following are structural (load-bearing) welds?
 - a. Fillet welds
 - b. Groove welds
 - c. Hardfacing
 - d. Both a and b
12. In a butt joint groove weld, which requires less weld metal?
 - a. A single Vee
 - b. A double Vee
 - c. There is no difference
 - d. A lap Vee
13. What is the purpose of a P-number designation?
 - a. To group base metals with similar toughness requirements
 - b. To group base metals with similar weldability
 - c. To group filler metals with similar characteristics
 - d. To identify a welding process
14. What is the purpose of a Group number designation?
 - a. To group base metals with similar toughness requirements
 - b. To distinguish martensitic and ferritic stainless steels
 - c. To group base metals with similar weldability
 - d. To group filler metals
15. What is the principal concern when welding P3 through P5C base materials?
 - a. Excessive thermal expansion
 - b. Overcoming the surface layer of aluminum oxide
 - c. Avoiding sigma phase
 - d. Increasing hardenability as the P number increases
16. What is the principal drawback to using Carbon Equivalent (CE) to determine preheat and post weld heat treatment requirements?
 - a. Considers only the carbon content of the weld metal
 - b. Does not address heat treated condition or degree of restraint
 - c. Is valid only for copper based alloys
 - d. Considers only the heat treated condition
17. What is the distinction between P6 and P7 stainless steel base materials?
 - a. P6 is martensitic and P7 is ferritic
 - b. P6 is austenitic and P7 is ferritic
 - c. P6 is ferritic and P7 is martensitic
 - d. There is no difference

18. What is an F number?
a. F numbers are identical to A numbers
b. A grouping of base metals with similar weldability
c. A grouping of filler metals with similar welding characteristics
d. A grouping of filler metals with similar toughness
19. What is an A number?
a. The composition of ferritic filler metal before welding
b. A designation for aluminum alloys
c. A grouping based on deposited ferritic weld metal composition
d. A designation for an automatic welding process
20. What is the “rule of thumb” in welding filler metal selection?
a. Use the lowest cost filler metal
b. Try to match the base metal composition
c. The deposited weld bead should not exceed the width of a thumb
d. The weld metal composition should always match the base metal
21. Progression is applicable for welding in what position?
a. Horizontal
b. Flat
c. Vertical
d. Overhead
22. Position is usually a variable for?
a. Procedure qualification
b. Performance qualification
c. The shielded metal arc welding (SMAW) process only
d. The gas tungsten arc welding (GTAW) process only
23. Name two purposes of preheat
a. Reducing porosity and hydrogen cracking
b. Reducing porosity and reducing corrosion resistance
c. Improving metallurgical structure and increasing martensite formation
d. Increasing hydrogen content and reducing porosity
24. The maximum interpass temperature for austenitic stainless steels should be limited to?
a. Reduce distortion
b. Prevent sensitization
c. Prevent hydrogen cracking
d. Both a and b
25. Post weld heat treatment (PWHT) includes?
a. Stress relief and solution annealing
b. Solution annealing and shot peening
c. Preheating and interpass temperature maintenance
d. Vibration stress relief
26. Weld size is important in determining PWHT requirements because?
a. Weld size determines the “quench mass” during welding
b. Preheat was less likely maintained during making large welds
c. Residual stresses are usually proportional to weld size
d. Residual stresses may exist up to the yield point
27. A commonly used shielding gas is?
a. Argon
b. Air
c. Methane
d. Water vapor
28. Purging must be maintained for some specified thickness because?
a. Heat from subsequent layers may be sufficient to cause harm from atmospheric gases
b. Gas pressures must be equalized
c. Dissolved gases in the weld puddle cannot be allowed to escape
d. The low hydrogen coating is not sufficient to protect the backside of the weld
29. The two types of current used in welding are?
a. Straight and reverse polarity
b. Ionizing
c. AC and DC
d. Pulsed and short circuiting
30. Arc blow is?
a. Melting through the root of full penetration joints
b. Extinguishing the arc due to excessive shielding gas flow
c. Moving of the arc caused by drafts
d. Deflection of the arc such as may occur in corners
31. Technique includes many things including?
a. String or weave beads
b. Current polarity
c. Bead sequencing
d. Both a and c
32. An example of technique includes?
a. Temperbead welding
b. Stud welding
c. Filler metal selection
d. Base material selection