Welding

I. Identify safety standards on a test with a score of at least 75 percent and demonstrate safety and health practices of welders in accordance to ANSI Z49.

Tasks Instructions:

Each number to the right refers to a single student/candidate (1-10). Place a check (√) in the respective column for the appropriate student/candidate number (1-10) if the skills listed below are observed as stated. Leave blank if not observed. Student/candidate will only get credit for the skills they have demonstrated.	1	2	3	4	5	6	7	8	9	10
Demonstrate proper use of equipment used for protection of personnel										
Demonstrate proper use and inspection of equipment used for ventilation										
Demonstrate Hot Work operation										
Demonstrate working in confined spaces properly										
Understand precautionary labeling										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (7)										

II. Demonstrate an understanding of practical measurement with a test score of at least 75 percent.

Tasks Instructions:

	1	2	3	4	5	6	7	8	9	10
Identify basic metal-working tools used in measuring										
Use visual measuring tools to accuracy of 1⁄64"										

Employ the components of a combination square set										
Use layout and marking tools as required										
Determine wire feed speed										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (7)										
III. Read and interpret blueprints with a test score of at least 75 percent.										
Tasks Instructions:										
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Apply information found in the information block of the drawing										
Identify the basic views used in blueprints including assembly, detail and fit-up drawings										
Identify common types of lines, abbreviations and symbols in accordance with national drawing standards (ANSI)										
Identify basic welding symbols and components of a symbol (such as arrow, reference line, tail, size or length) in accordance with the current national welding symbol standard AWS A 2.4, current edition										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (6)										
IV. Produce welds using a Shielded Metal Arc Welding (SMAW) process to AWS QC10 standards.										
Tasks Instructions:										

	1	2	3	4	5	6	7	8	9	10
Demonstrate safety procedures for SMAW										
Demonstrate ability to correctly set up SMAW power sources, related welding equipment and do basic process and equipment troubleshooting for welding of carbon steel and/or stainless steel										
Select correct type of electrode based on carbon steel and/or stainless steel plate (¼" to ½" thickness)										
Prepare carbon steel and/or stainless steel for welding										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (6)										

V. Produce welds using a Gas Metal Arc Welding (GMAW) process to AWS QC10 standards.

Tasks Instructions:

	1	2	3	4	5	6	7	8	9	10
Demonstrate correct safety procedures for GMAW										
Demonstrate ability to correctly set up GMAW power sources, related welding equipment and do basic process and equipment troubleshooting										
Identify short circuiting, globular, spray and pulsed transfer welding of carbon steel, stainless steel and/or aluminum										
Select correct type of filler metal, type of shielding gas, amperage and voltage based on carbon steel, stainless steel and/or aluminum sheet and/or plate (1/16" to 3/8" thickness)										

Prepare the carbon steel, stainless steel and/or aluminum for welding										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (7)										

VI. Produce welds using a Fluxed Cored Arc Welding (FCAW) process to AWS QC10 standards.

Tasks Instructions:

	1	2	3	4	5	6	7	8	9	10
Demonstrate correct safety procedures for FCAW										
Demonstrate ability to correctly set up FCAW power sources, related welding equipment and do basic process and equipment troubleshooting										
Select correct type of filler metal, type of shielding gas, amperage and voltage based upon carbon steel and/or stainless steel sheet and/or plate (1/16" to 3/8" thickness)										
Prepare stainless steel and/or carbon steel for welding										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (6)										

VII. Produce welds using a Gas Tungsten Arc Welding (GTAW) process to AWS QC10 standards.

Tasks Instructions:

	1	2	3	4	5	6	7	8	9	10

Demonstrate safety procedures for GTAW										
Demonstrate ability to correctly set up GTAW power sources, related welding equipment and do basic process and equipment troubleshooting for regular and pulsed welding of aluminum, stainless steel and/or carbon steel										
Select the correct type of tungsten and/or filler metal based on aluminum, stainless steel or carbon steel sheet and/or plate (1/16" to 1/4" thickness)										
Prepare aluminum, stainless steel and/or carbon steel for welding										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (6)										

VIII. Produce cut materials using an Oxygen Fuel Cutting (OFC) process to AWS QC10 standards.

Tasks Instructions:

	1	2	3	4	5	6	7	8	9	10
Demonstrate safety procedures for OFC										
Demonstrate ability to correctly set up the OFC equipment for cutting and do basic process troubleshooting										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (4)										

IX. Produce cut materials using a Plasma Arc Cutting (PAC) process to AWS QC10 standards.

Tasks Instructions:

	1	2	3	4	5	6	7	8	9	10
Demonstrate safety procedures for PAC										
Demonstrate ability to correctly set up the PAC power sources, related cutting equipment and do basic process and equipment troubleshooting										
Set up and shut down equipment for cutting carbon steel, stainless steel and/or aluminum										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (5)										

X. Demonstrate knowledge of visual inspection with a test score of at least 75 percent.

Tasks Instructions:

	1	2	3	4	5	6	7	8	9	10
Examine and measure undercut										
Examine and measure porosity										
Measure fillet size										
Examine and measure weld reinforcement										
Determine acceptability of welded samples in accordance with provided acceptance criteria										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (7)										

XI. Demonstrate knowledge of welding positions and terminology.

Tasks Instructions:										
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Start, stop and restart stringer beads in the flat, horizontal, vertical up and down and overhead positions										
Weld a pad with a multiple pass weld in the flat, horizontal, vertical up and down and overhead positions										
Weld a lap joint with a single pass, fillet weld in flat, horizontal, vertical up and down and overhead positions										
Weld a lap joint with a multiple pass, fillet weld in the flat, horizontal, vertical up and down and overhead positions										
Weld a T-joint with a single pass, fillet weld in the flat, horizontal, vertical up and down and overhead positions										
Weld a T-joint with a multiple pass, fillet weld in the flat, horizontal, vertical up and down and overhead positions										
Weld a butt joint with a single pass square groove weld in the flat, horizontal, vertical up and down and overhead positions										
Weld a butt joint with a partial joint penetration, single pass, double V-groove weld in the flat, horizontal, vertical up and down and overhead positions										
Weld a butt joint with a multiple pass V-groove weld in the flat, horizontal, vertical up and down and overhead positions										
Weld a butt joint with complete joint penetration, multiple pass, double groove weld in the flat, horizontal, vertical up and down and overhead positions										
Weld a 2" to 8" diameter, schedules 40 to 80 pipe, single/multiple pass V-groove weld in the 2G, 5G and 6G positions										
Lay out, weld, cut and prepare coupons for evaluation										
Safety and infection control are adhered to during all aspects of this task.										

The student completed task within the time limited.										
Points earned										
Total possible points (14)										
Total points earned for all sections (A)										
Total possible points for all sections (B) 75										
Student/candidate score (divide A/B)										