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<https://www.virtulearner.com>  
[support@virtulearner.com](mailto:support@virtulearner.com)

**API**

**API-577**

**Welding Inspection and  
Metallurgy**

**QUESTION: 1**

Which of the following is the test that can measure most aspects of weldability?

- A. Impact testing
- B. There is no single test
- C. Weld tension tests
- D. Bend testing

**Answer(s): B**

**QUESTION: 2**

Base metals are assigned P-numbers by the ASME Code, Section IX to reduce the number of:

- A. Required welding procedure specifications.
- B. Required welding procedure qualifications.
- C. Required procedure and performance qualifications.
- D. Required mechanical tests.

**Answer(s): C**

**QUESTION: 3**

The WPS gives the welder specific guidelines to:

- A. Set the machine amperage, voltage, and travel speed.
- B. Confirm the project heat input is followed during welding.
- C. Successfully complete production welds.
- D. Make imperfection/defect-free welds.

**Answer(s): A**

**QUESTION: 4**

When performing a carbon steel to carbon steel hot tap where the CE of one of the metals is greater than 0.42%, which of the following electrodes should be used?

- A. E7048-H4
- B. E7048
- C. E7018-A1
- D. E7018

**Answer(s): D**

**QUESTION: 5**

Which of the following is a commonly accepted advantage of flux core arc welding (FCAW)?

- A. Equipment is simple, inexpensive, and portable.
- B. The slag supports and shapes the weld bead.
- C. There is a reduced requirement for ventilation.
- D. There is minimal postweld cleanup.

**Answer(s): B**

**QUESTION: 6**

Hardenability of a steel can be an indirect indicator of:

- A. Weldability
- B. Toughness
- C. Strength
- D. Cooling rate

**Answer(s): A**

**QUESTION: 7**

The most common measure of weldability and susceptibility to hot cracking of austenitic stainless steels is the ferrite content of the weld metal.

Which of the following ranges is the recommended minimum ferrite content of the weld metal needed to prevent cracking?

- A. 1%-10%
- B. 5%-20%
- C. 8%-18%
- D. 15%-20%

**Answer(s): C**

**QUESTION: 8**

For what maximum outside diameter may a radiographic technique be used in which the radiation passes through two walls and the weld in both walls is viewed for acceptance?

- A. 1.5 in. (38.0 mm)
- B. 2.5 in. (63.5 mm)
- C. 3 in. (76.2 mm)
- D. 3.5 in. (90.0 mm)

**Answer(s): C**

**QUESTION: 9**

In hardness testing of carbon steel weldment specimens, there is an approximate relationship between hardness and:

- A. Toughness
- B. Tensile strength
- C. Ductility
- D. Yield strength

**Answer(s): B**

**QUESTION: 10**

When welding nickel alloys, it is important that: