Practice quiz: AWS CWI - Part C Code Application (AASHTO/AWS D1.5 Bridge Welding Code)

10 questions. The answer key is on page 2.

Name _____ Date _____

1. **A question asks who must accept a substitute base metal that is not listed for the job. Which D1.5 section first sets out the roles of the Engineer and the Contractor?**
   A. Stud welding
   B. General provisions
   C. Technique
   D. Inspection

2. **A bridge drawing lists the girder plate by specification and grade. Which ASTM specification is written specifically for structural steel for bridges?**
   A. ASTM A36
   B. ASTM A572
   C. ASTM A992
   D. ASTM A709

3. **Before welding a flange splice, the inspector measures the root opening. Against what should the measurement be compared?**
   A. The WPS and the code's workmanship tolerances
   B. The opening the crew used on the last bridge
   C. The welder's usual shop practice for that joint
   D. The largest gap the electrode can bridge in one pass

4. **A thick flange butt joint needs preheat. Where and when should the inspector confirm the preheat temperature?**
   A. Only on the side facing the heater, after the root pass
   B. Anywhere on the plate, once at the start of the shift
   C. At the distance from the joint the code states, before the arc starts and during welding
   D. On the electrode stub, right after it leaves the oven

5. **Welding on a preheated joint stops for a long break, and the joint cools below the required preheat. What is required before welding resumes?**
   A. Nothing, since preheat counts only when the first pass starts
   B. Resume at once and grind the next pass flush
   C. Reheat the joint to the required preheat
   D. Resume with a smaller electrode to limit heat input

6. **A groove weld rejected by ultrasonic testing has been repaired. At a minimum, how should the repaired area be inspected?**
   A. Visually, then by the ultrasonic method that found the defect
   B. Visually only, since the defect has been ground out completely
   C. By whichever method the welder prefers
   D. Not at all, if the original welder made the repair

7. **A crack is found in the base metal of a main member next to a weld. Under D1.5's approach to repairs, what should happen before it is repaired?**
   A. The welder grinds it out and rewelds it at once
   B. The crack is left alone if it is shorter than the weld
   C. The Contractor's foreman gives a verbal go-ahead
   D. The Engineer accepts the repair

8. **Who identifies which members on a bridge are fracture critical?**
   A. The welding inspector, from the weld size
   B. The contract documents, as set by the designer
   C. The welder, from the steel grade on the drawing
   D. The NDT technician, after testing the welds

9. **Which change is typical of what a fracture control plan adds for fracture-critical members?**
   A. Tighter control of consumables, preheat and toughness
   B. Looser fit-up tolerances to speed up fabrication
   C. No need for NDT on welds that carry tension
   D. Permission to use WPSs without any qualification testing at all

10. **A question asks how welded shear connectors on a deck girder are qualified and inspected. Which D1.5 section should you open?**
    A. Technique
    B. Workmanship
    C. Stud welding
    D. Design of welded connections

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Answer key

AWS CWI - Part C Code Application (AASHTO/AWS D1.5 Bridge Welding Code). One line of why for each answer.

1. **B** D1.5 opens with its general provisions, which set the scope and the roles of the Engineer and the Contractor.
2. **D** ASTM A709 is the structural steel specification for bridges, published by AASHTO as M 270, and it is the bridge steel D1.5 work is ordered to.
3. **A** A fit-up measurement is judged against the WPS and the workmanship tolerances in D1.5.
4. **C** Preheat is measured at the distance the code sets from the joint, before welding starts, and kept through welding.
5. **C** The required temperature applies throughout welding, so the joint is brought back up before the next pass.
6. **A** A repair is checked visually and then by at least the method that found the original defect, because that method has been shown to detect it.
7. **D** D1.5 brings the Engineer into repairs of cracks in members and of base metal, so the repair waits for the Engineer's acceptance.
8. **B** Fracture-critical members are identified in the contract documents by the designer.
9. **A** A fracture control plan tightens the steps that could start a brittle fracture: hydrogen and consumable control, preheat, and toughness of base and weld metal.
10. **C** Shear connectors on bridge girders are studs, and D1.5 covers them in their own section from qualification to inspection.

Full explanations

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