



Illinois Society of Professional Engineers - University of Illinois
College of Engineering
Professional Engineer On-Line Seminars



INSTRUCTIONS:

1. View the on-line seminar.
2. Complete the quiz below.
3. Complete the "Engineer Information" section.
4. Make a copy for your records.
5. Mail the quiz along with your \$20 payment (credit card information or check payable ISPE) to:
ISPE, 100 East Washington Street, Springfield, IL 62701.

If you score an 80% or better on the quiz, you will receive your certificate within 4 weeks. If you fail to earn an 80% score, the quiz will be returned to you and you will have the opportunity to retake it.

Each seminar/quiz is worth 1 Professional Development Hour.

QUIZ: 05-02
TOPIC: Toughness in Structural and Reinforcing Steels
PRESENTER: Christopher Hahin, IDOT

1. Which of the following structures can be subject to cyclic loads or impact?
 - a. Fixed Bridges
 - b. Highway pavements
 - c. Signal structures
 - d. Piling walls
 - e. All of the above
2. The reason that Izod impact testing is not often used is because of the difficulty in controlling the specimen's temperature.
(circle) TRUE FALSE
3. What equation is used to convert impact toughness to fracture toughness?
 - a. Charpy equation
 - b. IDOT Eq 9-3
 - c. Barsom – Rolfe equation
 - d. Izod equation
4. The welded notch toughness test was developed in:
 - a. 1967
 - b. 1972
 - c. 1987
 - d. 1991
 - e. 2002
5. In order to find the notch in the welded notch toughness test, what had to take place?
 - a. More load was placed on the specimen to increase the size of the notch
 - b. NDT methods were used to find its location
 - c. A gap was placed to allow detection of the notch

QUIZ 05-01 CONTINUED

6. One of the benefits of using a charpy bar test is that no standardization is needed and any size notch can be used.
(circle) TRUE FALSE
7. ASTM A710 Grade B High Performance Steel has a high carbon content, usually above 0.15%.
(circle) TRUE FALSE
8. ASTM A710 Grade B High Performance Steel has extremely high toughness.
(circle) TRUE FALSE
9. AWS E7018 electrode provided a weld metal that showed higher fracture toughness than the A710 Grade B Steel.
(circle) TRUE FALSE
10. The welded notch toughness test indicates that the choice of the electrode and process is important to jointing of A710 Steel.
(circle) TRUE FALSE
11. As the carbon content of hot-worked carbon steels increases, the yield strength increases.
(circle) TRUE FALSE
12. Manganese is a strengthening element that is used for a de-oxidizer.
(circle) TRUE FALSE
13. Nickel within A615 Rebars decreases the fracture toughness of the material.
(circle) TRUE FALSE
14. In UTS, Yield Strength and Fracture Toughness, A 615 Steel was found to not perform as well as A 706 Steel.
(circle) TRUE FALSE

ENGINEER INFORMATION

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