###### Chapter 25 FUNDAMENTALS OF WELDING

###### Multiple Choice Quiz

There are 21 correct answers in this multiple choice quiz (some questions have multiple answers that are correct). To achieve a perfect score on the quiz, all correct answers must be given. Each correct answer is worth 1 point. Each omitted answer or wrong answer reduces the score by 1 point. Percentage score on the quiz is based on the total number of correct answers.

1. Welding can only be performed on metals that have the same melting point; otherwise, the metal with the lower melting temperature always melts while the other metal remains solid: (a) true, (b) false?
2. An autogenous weld is best described as which one of the following: (a) a fusion-welding operation in which filler metal is added, (b) a fusion-welding operation in which no filler metal is added, (c) a fusion-welding operation in which no heat is applied, or (d) a solid-state welding operation in which no heat or pressure are applied?
3. Which of the following welding processes are classified as solid-state welding (two correct answers): (a) arc welding, (b) electron beam welding, (c) friction welding, (d) resistance welding, and (e) ultrasonic welding?
4. A fillet weld can be used to join which of the following joint types (three correct answers): (a) butt, (b) corner, (c) edge, (d) lap, and (e) tee?
5. A fillet weld has a cross‑sectional shape that is approximately which one of the following: (a) rectangular, (b) round, (c) square, or (d) triangular?
6. Groove welds are most closely associated with which one of the following joint types: (a) butt, (b) corner, (c) edge, (d) lap, or (e) tee?
7. A flange weld is most closely associated with which one of the following joint types: (a) butt, (b) corner, (c) edge, (d) lap, or (e) tee?
8. A surfacing weld is a weld in which one or more parts are joined to the surface of flat plate stock: (a) true or (b) false?
9. Power density can be defined as the rate of heat energy transferred to the work per unit surface area: (a) true or (b) false?
10. For metallurgical reasons, it is desirable to melt the weld metal with minimum energy input. Which one of the following heat sources is most consistent with this objective: (a) high power, (b) high power density, (c) low power, or (d) low power density?
11. Which one of the following welding operations generates the highest power density: (a) arc welding, (b) electron beam welding, (c) oxyfuel welding, or (d) resistance welding?
12. Which one of the following welding operations generates the lowest power density: (a) arc welding, (b) electron beam welding, (c) oxyfuel welding, or (d) resistance welding?
13. The amount of heat required to melt a given volume of metal depends strongly on which of the following properties (three best answers): (a) coefficient of thermal expansion, (b) heat of fusion, (c) melting temperature, (d) modulus of elasticity, (e) specific heat, (f) thermal conductivity, and (g) thermal diffusivity?
14. The heat transfer factor in welding is correctly defined by which one of the following descriptions: (a) the proportion of the heat received at the work surface that is used for melting, (b) the proportion of the total heat generated at the source that is received at the work surface, (c) the proportion of the total heat generated at the source that is used for melting, or (d) the proportion of the total heat generated at the source that is used for welding?
15. The melting factor in welding is correctly defined by which one of the following descriptions: (a) the proportion of the heat received at the work surface that is used for melting, (b) the proportion of the total heat generated at the source that is received at the work surface, (c) the proportion of the total heat generated at the source that is used for melting, or (d) the proportion of the total heat generated at the source that is used for welding?
16. Weld failures always occur in the fusion zone of the weld joint, because this is the part of the joint that has been melted: (a) true or (b) false?