26 AUTOMATED LINES, SYSTEMS, OR PROCESSES

QUIZ 1 (12 POINTS TOTAL)

True/False (3 points)

1. CMMS is becoming more popular because of its money-saving potential.
   a. true
   b. false

2. Hazard controls should always be outside the restricted boundaries.
   a. true
   b. false

3. AGVs are controlled by signals transmitted via wire guidepath in the ceiling.
   a. true
   b. false

Multiple Choice (2 points)

4. What is CMMS?
   a. computer-managed manufacturing system
   b. computerized maintenance management systems
   c. control methods for manufacturing safety
   d. none of the above

5. Which of the following is not an established method of hazard identification?
   a. hazard surveys
   b. process checklists
   c. review of standards and regulations
   d. hazards and operability studies

Short Answer (5 points)

6. What is the "just-in-time" method?

7. What is the downside of JIT for automation?

8. In what two ways can safety in automated manufacturing be increased?

9. What are two design-in safety objectives for automated guided vehicles (AGV)?

10. List the three "whats" that the persons in charge of any chemical process must ask about safe operation.

Short Essay (2 points)

11. What is process safety management?

QUIZ 2 (12 POINTS TOTAL)

True/False (3 points)

1. Safety and health professionals are primarily interested in the area of safeguarding workers exposed to robots.
   a. true
   b. false

2. When a robot is in the TEACH mode, the highest degree of hazard exists.
   a. true
   b. false

3. Computer-integrated manufacturing (CIM) has significant implications for safety.
   a. true
   b. false

Multiple Choice (3 points)

4. How many robots were operating in the United States as of 1990?
   a. 100,000
   b. 40,000
   c. 25,000
   d. 10,000

5. Which of the following is not one of the three basic parts that make up a robot?
   a. a manipulator
   b. a power supply
   c. a system for controlling the robot
   d. a guidance system

6. What do companies use most industrial robots for?
   a. to perform regular, repetitive tasks
   b. to do very hazardous tasks
   c. for tasks requiring great precision
   d. for jobs needing strength

Short Answer (4 points)

7. What is a robot's manipulator?

8. What are two points that everyone involved with robots must remember?

9. What is "up-front planning for safety"?

10. How can the design-in safety approach contribute to safer working conditions?

Short Essay (2 points)

11. Why does effective safety training become even more important in automated production?