

Certification Test

CT.ServoMotion.01.eLM.BasicConcepts.CertificationTest



Taking the Test

- The purpose of this test is to validate the learning experience corresponding to the applicable eLearning Module. It is recommended to preview the questions before viewing the module, and answer them as the module progresses.
- The test is open book. You may use any website, manuals, software, demo, etc. The test must be taken individually; you may not contact another person for help.
- Each question has only one correct answer unless otherwise noted. Please clearly record all answers on the answer sheet. All questions are equally weighted. A passing score is 86%.

Returning the Test

- Please return **only the first page** of the test (the answer sheet) with completed answers and contact information.

Option 1: Fax the answer sheet to **Yaskawa Technical Training Services** at **(847) 887-7185**.

Option 2: e-mail a scan, photo, or edited pdf of the answer sheet with all answers and contact information to training@yaskawa.com.

Receiving Your Score

You may review your answers only if a passing score is received. You will receive a system-generated email with your score. Please allow up to 5 business days.

1. What is the term used for a device that produces motion in response to command, then regulates the speed and direction of that motion in response to feedback?
 - A. Actuator
 - B. Positioning System
 - C. Servo

2. What are the basic components of an AC servo system?
 - A. Servo Mechanism
 - B. Servo Motor
 - C. Servo Amplifier
 - D. Controller
 - E. HMI
 - F. Answers B and C only
 - G. Answers A, B and C
 - H. All of the above

3. What is the **purpose** of the optical encoder on the servo motor?
 - A. It provides electrical pulses as feedback to the amplifier
 - B. It spins opposite to the direction of the motor shaft
 - C. It uses photo sensors located on the servo amplifier

4. What is the purpose of the CONTROLLER in a motion control system?
 - A. It commands when and how the servomotor will move
 - B. It is used to start, stop and adjust the various functions of the machine
 - C. It is the mechanical system that moves

5. What is the purpose of the HMI in a motion control system?
 - A. It commands when and how the servomotor will move
 - B. It is used to start, stop and adjust the various functions of the machine
 - C. It is the mechanical system that moves

6. What is the purpose of the SERVO MECHANISM in a motion control system?
 - A. It commands when and how the servomotor will move
 - B. It is used to start, stop and adjust the various functions of the machine
 - C. It is the mechanical system that moves

7. Which of the following is the best definition of a servo AXIS?
 - A. Each servo and the mechanism it moves
 - B. Each direction moved in the Cartesian coordinate system
 - C. Each shaft in motion during machine operation

8. What applies the power that the amplifier will use to drive the motor?
 - A. Control Power
 - B. Main Power
 - C. Servo Enable

9. What signal from the controller causes the servo motor shaft to hold its position?
 - A. Control Power
 - B. Main Power
 - C. Servo Enable

10. What is an OVER-TRAVEL?
 - A. An amplifier input
 - B. An emergency stop (E-stop)
 - C. A safety-stop
 - D. A way to stop the motor in one direction
 - E. All of the above
 - F. Answers A and C only
 - G. Answers A and D only

11. A controller program that requires the servomechanism to repeat a certain travel distance several times is likely to accomplish this using which of the following?
 - A. Relative Moves
 - B. Absolute Moves
 - C. Homing

12. A controller program with a preset table of positions to which the machine is to move is likely to accomplish this using which of the following?
 - A. Relative Moves
 - B. Absolute Moves
 - C. Homing

13. A controller with a fully automated sequence to find absolute position zero upon power-up is likely to accomplish this using which of the following?
 - A. Relative Moves
 - B. Absolute Moves
 - C. Homing

14. In a typical homing routine, why have a home offset?
 - A. For system calibration without moving the home sensor
 - B. For system calibration requiring movement of the home sensor
 - C. To leave the sensor in place when the machine is off

15. A rotating fixture with cables has a fixed distance it can move without twisting or breaking the cables. How would this motion be categorized?
 - A. Linear, finite
 - B. Linear, infinite
 - C. Rotary, finite
 - D. Rotary, infinite