

Please Note – To successfully complete this test you must review eLM.AFD.06 though eLM.AFD.09.

Taking the Certification Test

Each question has **only one correct answer**. Please record all answers on this answer sheet. The order of the questions in the test roughly follows the order of topics covered in class. All questions are equally weighted. A passing score is 90%.

Returning the Certification Test

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

Option 2: E-mail the answers to all questions to training@yaskawa.com. Be sure to include all of the contact information listed on the answer sheet.

Option 3: Mail the answer sheet to **Yaskawa Technical Training Services** at the address shown on the bottom of this page.

Receiving Your Score

When the test is taken during the training class, you will receive your score in class as soon as it can be graded. When taken as a CLEP test, receive your score from Technical Training Services by sending an email to training@yaskawa.com or or call 800-927-5292, dial 4 for product training. In either case, you may review your answers only if a passing score is received.

Answer Sheet:

- | | | | | |
|----------|-----------|-----------|-----------|-----------|
| 1. _____ | 6. _____ | 11. _____ | 16. _____ | 21. _____ |
| 2. _____ | 7. _____ | 12. _____ | 17. _____ | 22. _____ |
| 3. _____ | 8. _____ | 13. _____ | 18. _____ | 23. _____ |
| 4. _____ | 9. _____ | 14. _____ | 19. _____ | |
| 5. _____ | 10. _____ | 15. _____ | 20. _____ | |

24.

25.

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28.

Contact Information:

Name: _____ Title: _____

Company: _____ Email: _____

Address: _____

Phone Number: _____ Fax number: _____

Supervisor's Name/ Title: _____

Test Date: _____

1. How many layers are in the OSI network model?
 - a. 3
 - b. 4
 - c. 5
 - d. 7

2. How many layers are in the condensed network model?
 - a. 3
 - b. 4
 - c. 5
 - d. 7

3. Ethernet defines an entire network.
 - a. True
 - b. False

4. Industrial Ethernet is an adaptation of Ethernet defined by IEEE 802.4.
 - a. True
 - b. False

5. Which of the following does Ethernet utilize?
 - a. Carrier sense multiple access with bitwise arbitration
 - b. Carrier sense multiple access with collision detection
 - c. Carrier sense multiple access with collision avoidance
 - d. Carrier sense multiple access for wireless networks

6. What is the maximum size of an Ethernet data packet?
 - a. 1500 bytes
 - b. 1600 bytes
 - c. 1700 bytes
 - d. 1800 bytes

7. When should an Ethernet crossover cable be used?
 - a. Connecting from a node into a switch.
 - b. Connecting from a master node into a hub.
 - c. Connecting from a master directly to a node.
 - d. Connecting from a laptop to a node through a switch.

8. Yaskawa recommends using shielded twisted pair Cat-5 cable for industrial Ethernet applications.
 - a. True
 - b. False

9. 10 Gb/s and 100 Gb/s are the common standard in industrial Ethernet today.
 - a. True
 - b. False

10. Which type of signaling is most common with Ethernet?
 - a. Broadband
 - b. Baseband

11. Which of the following indicates Ethernet over a twisted pair?
 - a. 10BASE-T
 - b. 10BASE-5
 - c. 1000BASE-CX
 - d. 10GBASE-LR

12. Cat-5e is a version of Cat-5 with elongated transmission lengths.
- a. True
 - b. False
13. Which of the following is not a standard Ethernet connector?
- a. RJ-45
 - b. IP67 RJ-45
 - c. 9 pin Sub-D
 - d. M12
14. Which of the following does not encapsulate the fieldbus equivalent?
- a. Foundation Fieldbus HSE
 - b. PROFINet
 - c. EtherNet/IP
 - d. Modbus TCP/IP
15. What does TCP stand for?
- a. Transportation Control Protocol
 - b. Transportation Catalog Profile
 - c. Transmission Catalog Profile
 - d. Transmission Control Protocol
16. UDP is slower than TCP?
- a. True
 - b. False
17. TCP guarantees message receipt.
- a. True
 - b. False
18. Which type of CSMA does Ethernet use?
- a. Bitwise Arbitration
 - b. Collision Avoidance
 - c. Collision Detection
 - d. Wireless CDMA
19. Which is not included with the CM090 kit?
- a. Modbus TCP/IP Ethernet card
 - b. Installation Guide (IG.AFD.25)
 - c. Shielded RJ45 M-F Cable
 - d. Modbus Messaging Manual

20. To change both Drive run and speed control to Ethernet, set parameters b1-01 and b1-02 to:
- a. 0: Operator
 - b. 1: Terminals
 - c. 2: Communications
 - d. 3: Option PCB
21. The LED notated as D3 indicates:
- a. Communication speed on network
 - b. Drive is receiving communication
 - c. A control connection has been made
22. The Ethernet Modbus TCP/IP card is installed at connector 2CN.
- a. True
 - b. False
23. The included shielded RJ45 M-F cable should be connected to the Ethernet Modbus TCP/IP option card after the card is installed in the Drive.
- a. True
 - b. False

Short Answer Questions

24. What is the procedure for restoring factory set IP addresses to the Ethernet Modbus TCP/IP card?
25. What are the differences between a Unit ID 0 connection and a Unit ID 1 connection?
26. What fault is enabled when DriveWizard is opened using RunWizard allowed?
27. List the five steps for configuring a simple test network.

28. What are the two available methods for connecting the Drive to the computer?