ChargePoint Training & Certification

AC and DC Certification Exam Topics

AC Exam

1. Introduction to AC Charging
2. Electrical Fundamentals of AC Charging
3. AC Charging Station Components
4. AC EV Charging Infrastructure
5. Charging and Protocol Standards
6. Site Assessment and Installation
7. Safety and Codes
8. Charging Management and Control
9. Troubleshooting and Maintenance
10. User Support and Education

DC Exam

1. Introduction to DC Charging
2. Electrical Fundamentals of DC Charging
3. DC Charging Station Components
4. DC EV Charging Infrastructure
5. Charging and Protocol Standards
6. Site Assessment and Installation
7. Safety and Codes
8. Charging Management and Control
9. Troubleshooting and Maintenance
10. User Support and Education

Sample Questions

1. The onboard charging equipment within an electric vehicle contains a rectifier. What is the purpose of the rectifier?
    a. To convert DC power into AC power to charge the vehicle battery.
    b. To limit charging capacity to 22 kW AC
    c. To bypass the DC fast charging and supply electricity directly to the battery.
    d. To convert AC power into DC power to charge the battery.

2. What is the minimum height required for a charging point socket outlet when measured at centreline?
    a. 1050 mm
    b. 900 mm
    c. 800 mm
    d. 650 mm

3. What is the purpose of load management systems (LMS) in EV charging stations?
    a. To maintain service and stability by keeping electric loads under infrastructure capacity.
    b. To increase the electricity demand during peak usage times.
    c. To eliminate recurring costs associated with networked charger management.
    d. To allow each charging station to use as much electricity as it needs.

4. When troubleshooting a cellular modem in a networked EV charging station, you notice the connection is unstable. Which value does the modem use to assess the state of the connection to a given cellular tower in a standard way?
    a. Received Signal Strength Indicator (RSSI)
    b. Reference Signal Received Quality (RSRQ)
    c. Signal-to-Interference plus Noise Ratio (SINR)
    d. Reference Signal Received Power (RSRP)

5. What type of residual current device (RCD) is recommended for Mode 3 EV charging installations?

a. Type D
b. Type C
c. Type B
d. Type G

6. What is a benefit of using DC fast charging stations compared to AC charging stations for vehicle charging?
    a. DCFC can rapidly replenish a vehicle's battery.
    b. DCFC stations are less expensive to install compared to AC charging stations.
    c. DCFC is compatible with every EV on the market.
    d. DCFC can be used to rapidly charge plug-in hybrid vehicles with small battery packs.

7. In the DC fast charging process, what happens exclusively inside the charging station?
    a. The charger communicates with the battery to establish a connection.
    b. The charger converts the alternating current (AC) power from the grid into DC power.
    c. The charger supplies a high-voltage DC current directly to the electric vehicle (EV) battery.
    d. The charger assesses various parameters in the electric vehicle (EV) to ensure safe and efficient charging.

8. You are installing a Mode 2 charger in a home. What is a likely requirement for the home's electrical system in order to install the charger?
    a. Install dedicated circuits and outlets
    b. Upgrading the home's electrical system
    c. Replacing the main service panel
    d. Pouring a new dedicated concrete pad

9. What is the maximum voltage drop allowed on the final circuit supplying an EV charging point?
    a. 2%
    b. 3%
    c. 5%
    d. 8%

10. You are an electric vehicle supply equipment (EVSE) field service professional dispatched to troubleshoot a station that would not initiate charging. You perform diagnostic tests and determine input power and the power electronics are functioning as designed. What is the most likely cause of the fault?
    a. There is environmental damage to the station or its components.
    b. There is too much demand on the site electrical infrastructure.
    c. There are communication errors between the charge station and the EV.
    d. There is a malfunction in the station cooling system.

Study Materials and References

1. IEC 61851-1
2. IEC 61851-23
3. IEC 62368-1:2020
4. IEC 62196-1
5. IEC 62196-3
6. IEC 62893-4-1
7. IIEC 606445
8. IEC 61557-8
9. ISO 15118-1
10. ISO 15118-2
11. BS EN 50160
12. BS EN 60947-3
13. BS EN 7671
14. BS EN 7671:2018 + A2:2022
15. BS IEC 61851
16. PAS 1899:2022
17. IET Code of Practice
18. IET Wiring Regulations and Manufacturer Specs
19. HSE British Workplace Safety
20. UK Town and Country Planning Act 1990

ChargePoint articles, papers, and helpful links

1. https://www.chargepoint.com/blog/
2. https://www.chargepoint.com/blog/drumroll-please-lets-bust-7-ev-home-charging-and-installation-myths
3. https://www.chargepoint.com/blog/how-weve-built-ev-interoperability-day-1
4. https://www.chargepoint.com/blog/whats-plug-beginners-guide-ev-connector-types
5. https://www.chargepoint.com/blog/whats-difference-between-level-2-ac-charging-and-dc-fast-charging
6. https://www.chargepoint.com/blog/which-better-your-business-level-2-ac-or-dc-fast-charging
7. https://www.chargepoint.com/blog/understanding-ev-building-codes-designing-and-building-future-greenbuild
8. https://www.chargepoint.com/blog/how-national-electric-vehicle-infrastructure-nevi-formula-program-can-be-success-9-ev

9. https://www.chargepoint.com/resources/business/video/
10. https://www.chargepoint.com/products/guides
11. https://www.chargepoint.com/resources/business/interactive-tours/
12. https://www.chargepoint.com/resources/business/ebooks-reports/