

KNOWLEDGE PROBE 3: PORTABLE POWER TECHNOLOGY

Battery Charging

Learning Objectives

1. Select the correct charging method for battery types.
 2. Identify safety precautions to be used while charging batteries.
 3. Identify battery storage conditions.
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1. When charging a battery, current flows through it in the opposite direction than that when discharging the battery into a load.
 - a. True
 - b. False
 2. What limits the charging current when charging a lead acid cell?
 - a. Battery internal resistance
 - b. Battery voltage
 - c. Charging voltage
 - d. External resistor
 3. The typical charging voltage for a lead acid battery is
 - a. 10 volts
 - b. 12 volts
 - c. 13 volts
 - d. 14 volts
 4. Which batteries use the voltage charging method?
 - a. Lead acid
 - b. Lithium manganese dioxide
 - c. Nickel-cadmium
 - d. Nickel metal hydride
 5. Which batteries used the voltage charging method?
 - a. Lithium ion
 - b. Lithium manganese dioxide
 - c. Nickel Cadmium
 - d. Nickel Metal Hydride
 6. Which batteries use the constant current charging method?
 - a. Lithium ion
 - b. Lead acid
 - c. Lithium manganese dioxide
 - d. Nickel metal hydride



7. Which batteries use the constant current charging method?
 - a. Lead acid
 - b. Lithium ion
 - c. Lithium manganese dioxide
 - d. Nickel-cadmium

8. The basic rule for choosing a charger for a battery is
 - a. Charger type must match the battery type
 - b. Chargers must have a large enough current rating
 - c. Use a universal charger
 - d. Use any charger on any battery

9. A trickle charger is one that
 - a. Discharges the battery fully before recharging it
 - b. Only uses a small charge current
 - c. Provides a minimum charging voltage or current to offset self discharge
 - d. Takes a really long time to charge

10. In most chargers, the charging voltage, current and other factors are fully set by
 - a. A special battery charging integrated circuit
 - b. Automatically monitoring battery voltage and selecting the charge method.
 - c. The AC input voltage
 - d. The user

11. What factors are monitored by a charger as a battery is charged?
 - a. Current
 - b. Temperature
 - c. Voltage
 - d. All of the above
 - e. None of the above

12. Which of the following is NOT usually part of a power management IC?
 - a. DC-DC converters
 - b. Voltage regulators
 - c. Power amplifiers
 - d. Charging circuits
 - e. Timers