

Automotive Electrical and Engine Performance 8th Edition
Chapter 11 – Battery, Starting and Charging Diagnosis, and Stop-Start
Quiz B

1. What is the primary purpose of an automotive battery?
 - a. To provide a source of electrical power and act as a voltage stabilizer
 - b. To enhance alternator output during high demand
 - c. To charge the cranking circuit directly during engine start
 - d. To isolate parasitic loads during vehicle operation

2. What is the reserve capacity rating of a battery?
 - a. The time required to recharge a fully discharged battery
 - b. The amperes supplied for a specified temperature range
 - c. The duration a battery can provide 25 amperes while maintaining 10.5 volts
 - d. The number of charge cycles the battery can endure

3. Which battery type is most suited for stop-start vehicle systems?
 - a. Flooded lead-acid (FLA) batteries
 - b. Marine cranking batteries
 - c. Enhanced flooded batteries (EFB)
 - d. Absorbed glass mat (AGM) batteries

4. What is the significance of a conductance tester in battery diagnostics?
 - a. Measures the charging efficiency of the alternator
 - b. Identifies voltage-drop across starter circuits
 - c. Determines state-of-charge and capacity through plate conductance
 - d. Tests electrolyte levels in maintenance-free batteries

5. What is the maximum allowable parasitic drain on a battery?
- a. 10% of the reserve capacity in milliamps
 - b. 25 milliamps
 - c. 50 milliamps
 - d. 75 milliamps
6. Which condition might cause high resistance during a cranking voltage-drop test?
- a. Dirty battery terminals or loose cable connections
 - b. Low state-of-charge of the alternator
 - c. High AC ripple current in the charging circuit
 - d. A failed diode in the alternator output terminal
7. Why is slow-charging a battery often preferred?
- a. To optimize electrolyte saturation and acid density
 - b. To prevent overheating and plate warping
 - c. To extend alternator life during high electrical demand
 - d. To reduce the alternator's charging duty cycle
8. What is a key feature of stop-start system starter motors?
- a. They are limited to 25,000 engine starts over the vehicle's lifetime
 - b. They utilize permanently engaged starter gears for rapid starts
 - c. They operate independently of alternator-generated power
 - d. They disconnect battery sensors during operation
9. What is the purpose of testing the AC ripple voltage of an alternator?
- a. To determine if the alternator is producing excessive current draw
 - b. To verify the state-of-charge of the vehicle battery
 - c. To check the rectifier diodes and stator for faults
 - d. To measure the maximum alternator output during high loads

10. Why is registering a new battery necessary in some vehicles?
- a. It resets the charging system algorithm for the new battery type
 - b. It synchronizes the starter motor and alternator output levels
 - c. It calibrates the battery management sensor for enhanced durability
 - d. It allows use of a higher capacity battery for extended operation

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Correct Answers:

1. a
2. c
3. d
4. c
5. c
6. a
7. b
8. b
9. c
10. a