Automotive Electrical and Engine Performance 9th 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