

Automotive Electrical and Engine Performance 9th Edition
Chapter 13 – Starting System Parts and Operation
Multiple Choice Questions Quiz A

1. What is the primary function of the starter solenoid in a cranking circuit?
 - a) To directly crank the engine
 - b) To engage the starter drive and control current flow to the starter motor
 - c) To monitor the battery's state of charge
 - d) To maintain idle speed when the engine is running

2. Technician A states that a series-wound motor develops maximum torque at 0 RPM. Technician B states that a shunt motor decreases in torque as RPM increases. Who is correct?
 - a) Technician A only
 - b) Technician B only
 - c) Both Technician A and Technician B
 - d) Neither Technician A nor B

3. In a push-button start system, the engine will only crank if:
 - a) The battery is fully charged
 - b) The engine temperature is within operational range
 - c) The brake pedal is depressed, and the gear is in park or neutral
 - d) The driver is seated with the seatbelt fastened

4. What component in the starter motor prevents it from being damaged when the engine rotates faster than the starter motor?
 - a) The starter solenoid
 - b) The pull-in winding
 - c) The overrunning clutch
 - d) The neutral safety switch

5. Which part of the starter motor provides a strong magnetic field inside the starter to initiate cranking?
- a) Commutator
 - b) Field coils
 - c) Armature windings
 - d) Brushes
6. The CEMF (counter electromotive force) generated within a starter motor serves what purpose as the motor speed increases?
- a) Reduces current draw from the battery
 - b) Increases the magnetic field strength
 - c) Increases the motor's torque
 - d) Reduces voltage output to the field coils
7. A planetary gear set is used in gear-reduction starters to:
- a) Decrease the engine RPM
 - b) Increase the starter motor speed for higher torque output
 - c) Maintain constant RPM in the starter
 - d) Regulate voltage in the starter motor circuit
8. Which type of starter motor is designed to stay permanently engaged with the flywheel?
- a) Gear-reduction starter
 - b) Tandem solenoid starter
 - c) Permanently engaged (PE) starter
 - d) Advanced engagement (AE) starter

9. In a stop-start system, what parameter must be met for the engine to automatically restart after stopping?

- a) Brake pedal must be depressed
- b) Accelerator pedal must be engaged
- c) Transmission must be in a low gear
- d) Battery state-of-charge must be below 25%

10. What part of the starter motor houses the pinion gear that engages with the engine flywheel?

- a) Field housing
- b) Drive-end housing
- c) Commutator-end housing
- d) Brush-end housing

Automotive Electrical and Engine Performance 9th Edition
Chapter 13 – Starting System Parts and Operation
Answer Key Quiz A

Correct Answers:

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