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

1. What is the primary purpose of the cranking circuit in a vehicle?

a) To monitor the engine's rotation speed

b) To regulate the voltage across the ignition system

c) To rotate the engine using external power for starting

d) To provide a backup power source to the vehicle's electrical system

2. What is the function of the neutral safety switch in the starting system?

a) To prevent the starter motor from operating unless the vehicle is in park or neutral

b) To limit the current flow to the starter motor

c) To regulate voltage from the battery to the ignition switch

d) To isolate the starter solenoid during vehicle operation

3. How does a series-wound starter motor develop its maximum torque?

a) By reducing resistance at higher RPM

b) By drawing less current as speed increases

c) At 0 RPM during initial cranking

d) When the field coils are in parallel with the armature

4. What is the primary function of a starter solenoid in the starting system?

a) To regulate the engine's idle speed

b) To engage the starter drive and allow high current to the starter motor

c) To disconnect the battery from the alternator

d) To maintain constant magnetic field strength in the starter motor

5. What type of starting system component prevents engine damage by disengaging the starter drive after engine start?

a) Overrunning clutch

b) Neutral safety switch

c) Gear reduction mechanism

d) Push-button ignition control

6. Which of the following describes the operation of a tandem solenoid (TS) starter?

a) It uses two solenoids to separately control pinion engagement and motor energization.

b) It uses permanent magnets to enhance field coil strength.

c) It engages only when the engine RPM is above idle speed.

d) It relies solely on a compression spring for engagement.

7. What is the typical gear reduction ratio between the starter pinion and the flywheel ring gear in gear-reduction starters?

a) 1:5 to 1:10

b) 15:1 to 20:1

c) 2:1 to 4:1

d) 25:1 to 30:1

8. What material is commonly used for starter motor brushes to provide lubrication and reduce wear?

a) Aluminum

b) Lead

c) Copper-carbon composite

d) Pure graphite

9. What is the primary purpose of the pull-in winding in a starter solenoid?

a) To engage the pinion gear with the flywheel ring gear

b) To regulate the starter motor's rotational speed

c) To provide additional torque at high engine speeds

d) To maintain consistent voltage to the ignition system

10. Which of the following is a key feature of a stop-start system?

a) It reduces fuel consumption by stopping the engine at idle.

b) It includes a permanently engaged starter to eliminate engagement delays.

c) It can start the engine up to 500,000 times over its lifespan.

d) All of the above

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Correct Answers:

1. c

2. a

3. c

4. b

5. a

6. a

7. b

8. c

9. a

10. d