Automotive Electrical and Engine Performance 9th Edition
Chapter 15 – Charging System Parts and Operation
Multiple Choice Questions Quiz A

1. What is the main function of the diodes in an alternator?

a) To convert DC voltage to AC voltage

b) To convert AC voltage to DC voltage

c) To generate magnetic fields within the alternator

d) To regulate the current flowing through the stator

2. In the context of alternator construction, what is the purpose of the drive-end (DE) housing?

a) It houses the alternator's internal cooling fan

b) It supports and provides friction reduction for the rotor assembly

c) It serves as the mounting point for the alternator's voltage regulator

d) It holds the diodes used for current rectification

3. Which of the following factors determines the output voltage and current of an alternator?

a) The stator connection type (wye or delta)

b) The duty cycle of the stator winding

c) The alternator’s resistance levels

d) The specific type of brushes used in the rotor

4. What function does the voltage regulator serve in an alternator system?

a) It adjusts the engine speed to control alternator output

b) It controls the current flow through the rotor winding

c) It limits the rotor’s rotation speed to prevent overheating

d) It reduces the electrical load on the alternator during idle

5. In a wye-connected stator, what is one characteristic advantage?

a) It produces maximum output only at high RPM

b) It provides a more constant output across a range of speeds

c) It reduces resistance by connecting in parallel

d) It operates independently of rotor speed

6. The term "OAD" in alternator systems stands for which of the following?

a) Overload Alternator Dampener

b) Overrunning Alternator Drive

c) Overrunning Alternator Dampener

d) Oscillating Alternator Drive

7. What occurs in the fuel economy mode of a computer-controlled alternator system?

a) The alternator output is minimized to save fuel

b) Engine speed is increased to raise alternator output

c) The alternator switches off all auxiliary systems

d) Voltage is increased to charge the battery more rapidly

8. Why is the magnetic field strength of the rotor essential in determining alternator output?

a) It allows for the use of lighter, less costly materials

b) It directly increases the current induced in the stator windings

c) It keeps the diodes at a safe operating temperature

d) It reduces the overall size of the alternator assembly

9. How is heat typically managed within an alternator?

a) Through an external fan, internal fan, or coolant cooling

b) By regulating the engine's thermostat

c) Using thermistors attached to the rotor windings

d) By intermittently stopping rotor current flow

10. In what situation would a technician observe the voltage reduction mode in a General Motors EPM system?

a) During high engine RPMs to prevent overload

b) When battery discharge rate is below 7 amperes

c) When alternator output is insufficient to meet system demands

d) After engine start-up for the first 30 seconds

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Answer Key Quiz A

Correct Answers:

1. b

2. b

3. a

4. b

5. b

6. c

7. a

8. b

9. a

10. b