Advanced Automotive Electricity and Electronics
Quiz 27A

Name_____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) A brushless motor works by _____. 1) _____
A) Rapidly switching the polarity of the permanent magnet rotor
B) Rapidly switching the stator field windings
C) Either of these
D) Neither of these

2) In a regenerative braking system, which part of the electric motor is being controlled by the computer? 2) _____
A) The rotor
B) The stator
C) Both the rotor and the stator
D) Neither the rotor nor the stator

3) When the electric motor is acting as a generator it produces alternating current (AC). This current is converted to direct current (DC) by use of _____. 3) _____
A) Large diodes
B) Large capacity filters
C) Special AC batteries
D) None of these

4) Two technicians are discussing deceleration rates. Technician A says that a one "g" stop is a gentle slowing of the vehicle. Technician B says that a stopping rate of 8 ft/sec^2 is a severe stop. Who is correct? 4) _____
A) Technician A only
B) Technician B only
C) Both Technicians A and B
D) Neither Technician A nor B

5) In the Toyota Prius, which controller is responsible for regenerative braking control? 5) _____
A) The engine ECU
B) The ABS ECU
C) The body control module (BCM)
D) The Hybrid ECU

6) During braking on a hybrid electric vehicle equipped with a regenerative braking system, what occurs when the driver depresses the brake pedal? 6) _____
A) The friction brakes are only used as a backup and not used during normal braking.
B) The motors become generators.
C) The driver needs to apply a braking lever instead of depressing the brake pedal to energize the regenerative braking system.
D) The batteries are charged to 100 percent SOC.

7) Inertia is _____. 7) _____

A) The energy of any moving object that has mass (weight)
B) The force that the driver exerts on the brake pedal during a stop
C) The electric motor force that is applied to the drive wheels
D) The force that the internal combustion engine and the electric motor together apply to the drive wheels during rapid acceleration

8) Technician A says that a front wheel drive hybrid electric vehicle can only generate electricity during braking from the front wheel motor(s). Technician B says that antilock braking (ABS) is not possible with a vehicle equipped with a regenerative braking system. Who is correct? 8) _____

A) Technician A only
B) Technician B only
C) Both Technicians A and B
D) Neither Technician A nor B

9) Which type of regenerative braking system uses an electrohydraulic system? 9) _____

A) Series
B) Parallel
C) Both Series and parallel
D) Neither series nor parallel

10) Regenerative braking uses the inertia of the vehicle to recapture energy during braking. Where is this recaptured energy stored? 10) _____

A) In the 12 volt battery bank
B) In the high voltage battery bank
C) In the electrohydraulic master cylinder
D) In large resistors

Answer Key
Testname: AAEE_27A

1) B
Page Ref: 383, 387
2) B
Page Ref: 383
3) A
Page Ref: 387
4) D
Page Ref: 387
5) B
Page Ref: 384
6) B
Page Ref: 386
7) A
Page Ref: 380
8) A
Page Ref: 384
9) A
Page Ref: 382
10) B
Page Ref: 381