

Name _____

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

- 1) All of the following statements about hybrid electric vehicle A/C compressors are true, EXCEPT 1) _____
_____.
A) Most are reciprocating piston designs
B) Some use a belt drive along with an electric motor
C) Some use only an electric motor without a belt drive
D) Nonconductive refrigeration oil must be used with A/C compressors utilizing an electric drive motor.
- 2) What is the color of the plastic conduit used over high- voltage wiring to an electric A/C compressor? 2) _____
A) Blue
B) Orange
C) Yellow
D) Red
- 3) Technician A says that the high voltage batteries in all hybrid electric vehicles are cooled and maintained at the same temperature as the engine's coolant system (195–210°F.) Technician B says many hybrid electric vehicle high voltage systems are water cooled by separate cooling systems that operate in much the same way as the engine cooling system. Which technician is correct? 3) _____
A) Technician A only
B) Technician B only
C) Both technicians
D) Neither technician
- 4) What coolant is used in a motor/electronics cooling system? 4) _____
A) Special electrically-insulated coolant
B) DEX-COOL
C) The same coolant that is used in the ICE cooling system
D) Either A or C, depending on the vehicle
- 5) All of the air entering the passenger compartment must pass through the _____. 5) _____
A) Evaporator
B) Condenser
C) Heater core
D) Radiator
- 6) All of these statements regarding HEV electrical component cooling systems are true EXCEPT 6) _____
_____.
A) Most of these systems use thermostats to regulate coolant flow
B) The heat exchanger (radiator) for these systems is located at the front of the vehicle
C) Some of these systems circulate coolant the entire time the vehicle ignition is on
D) The HEV cooling system runs at a lower temperature than the engine cooling system

- 7) What is the optimum operating temperature for an internal combustion engine? 7) _____
A) 200 deg F
B) 165 deg F
C) 100 deg F
D) 235 deg F
- 8) Technician A says that because of hybrid / electric technology, the internal combustion engine used on these vehicles runs colder than peak operating temperatures. Technician B says that PTC coolers located in the A/C system are used to overcome this excessive engine heat. Which technician is correct? 8) _____
A) Technician A only
B) Technician B only
C) Both technicians
D) Neither technician
- 9) Which of these components of a hybrid electrical vehicle does NOT need cooling? 9) _____
A) Motor-generator
B) Inverter
C) High voltage cables
D) Transmission
- 10) Technician A says that HEV compressors may be both electrically and belt driven. Technician B says that scroll type A/C compressors contain rotating scrolls to pressurize the refrigerant. Which technician is correct? 10) _____
A) Technician A only
B) Technician B only
C) Both technicians
D) Neither technician

Answer Key

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1) A

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2) B

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3) B

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4) C

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5) A

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6) A

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7) A

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8) D

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9) C

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10) A

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