

Name _____

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

- 1) Technician A says that the Atkinson cycle improves combustion efficiency by leaving the intake valve open longer than normal. Technician B says that this increases the effective compression ratio. Which technician is correct? 1) _____
A) Technician A only
B) Technician B only
C) Both technicians
D) Neither technician
- 2) Which is a characteristic of many hybrid electric vehicle (HEV) gasoline engines? 2) _____
A) Smaller displacement
B) Offset Crankshaft
C) Variable valve timing and/or displacement
D) All of the above
- 3) Technician A says that all piston pins are offset. Technician B says that offset piston pins increase friction. Which technician is correct? 3) _____
A) Technician A only
B) Technician B only
C) Both technicians
D) Neither technician
- 4) Hybrid electric vehicles _____. 4) _____
A) Usually do not use a conventional starter motor
B) May use an offset engine crankshaft to reduce internal friction
C) Both A and B
D) Neither A nor B
- 5) A hybrid electric vehicle (HEV) gasoline engine usually uses what viscosity of engine oil? 5) _____
A) SAE 0W-20
B) SAE 5W-30
C) SAE 10 W-30
D) SAE 20W-50
- 6) Technician A says that variable valve timing improves performance. Technician B says that cylinder deactivation helps improve performance. Which technician is correct? 6) _____
A) Technician A only
B) Technician B only
C) Both technicians
D) Neither technician

- 7) When an engine is operating leaner than 14.7:1 lambda will be _____. 7) _____
- A) Less than 1.00
 - B) More than 1.00
 - C) Closed
 - D) ETC controlled
- 8) Which of these is NOT a characteristic of the gasoline engines that are used in hybrid vehicles? 8) _____
- A) Uses the electric motor to start the engine
 - B) Has a larger than usual displacement
 - C) A low viscosity oil is used
 - D) Has a smaller than usual displacement
- 9) If a wide band oxygen sensor is used, it may be called a _____. 9) _____
- A) Wide-band oxygen sensor
 - B) Linear air-fuel sensor
 - C) Lean air-fuel sensor
 - D) All of the above
- 10) What type of ignition system is used on hybrid electric vehicle gasoline engines? 10) _____
- A) Distributor-type system with electronic control
 - B) Waste spark
 - C) Coil-on-plug system
 - D) Compression sensing ignition

Answer Key

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1) A

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2) D

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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) B

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8) B

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9) D

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10) C

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