

Name _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

1) What are the four modes of operation of a typical hybrid vehicle?

2) What are the advantages and disadvantages of a series hybrid design?

3) Why does a BAS system cost less than the other types of hybrid vehicles?

4) What are the advantages and disadvantages of mild, medium, and full hybrid vehicles?

5) What type of hybrid electrical vehicle is a Toyota Prius hybrid and a Ford Escape hybrid?

Answer Key

Testname: AAEE_SHORT26

- 1) The four modes of operation of a typical hybrid electric vehicle include: idle stop, regenerative braking, power assist, and electric vehicle mode (full hybrid only).
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- 2) A series hybrid uses the electric motor to propel the vehicle which sometimes results in a less complex powertrain. However, to maintain the battery charge, using an ICE to charge the batteries adds to the weight and complexity of the vehicle.
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- 3) A belt alternator starter (BAS) system cost less because there does not need to be a connection between the engine and the transmission as is needed on other types of hybrids.
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- 4) Mild and medium hybrids cost less than full (strong) hybrids. Mild hybrids are the least expensive to manufacture but also provide the least improvement in fuel economy. Full hybrids cost more, but deliver greater fuel savings.
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- 5) Both are considered to be a series-parallel design hybrid because they are able to operate and propel the vehicle using battery power alone even if they can do so for a limited distance.
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