

Question 1

The maximum theoretical efficiency for a Carnot heat engine is 100%.

☒ False

☐ True

Question 2

The coefficient of performance (COP) of any refrigeration system can be calculated from the temperature of the refrigerated space and warm environment.

☐ False

☐ True

Question 3

1 points

Save Answer

A proposed system for generating energy is described as follows: a generator is used to power a motor which in turn drives the same generator. Excess electricity from the generator would be the useful output power. What type of perpetual motion machine is this?

- ☐ PMM of the 2nd kind
- ☐ PMM of the 1st kind
- ☐ It is not a PMM

Question 4

Given the amount of heat absorbed and heat discharged by a heat engine, its thermal efficiency can be calculated without knowing the net work output.

☐ False

☐ True

Question 5

Which of the following cannot be considered as a thermal energy reservoir?

- ☐ All of the options
- ☐ The atmosphere
- ☐ The body of water behind a dam
- ☐ The ocean
- ☐ None of the options



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A proposed system for generating energy is described as follows: a generator is used to power a motor which in turn drives the same generator. Excess electricity from the generator would be the useful output power. What type of perpetual motion machine is this?

Selected Answer: PMM of the 1st kind

Question 3

What unit of measurement is used for calculating Carnot efficiencies or Carnot coefficients of performance with the thermodynamic temperature scale?

Selected Answer: Kelvin

Question 4

The coefficient of performance (COP) for a heat pump used for heating a room can sometimes be less than 1 if the temperature outside the room is far too cold.

Selected Answer: False

Question 5

The maximum theoretical efficiency for a Carnot heat engine is 100%.

Selected Answer: False

Which of the following statements is false?

Selected Answer: Certain thermodynamic processes are reversible in real life.

Question 2

A proposed system for generating energy is described as follows: a generator is used to power a motor which in turn drives the same generator. Excess electricity from the generator would be the useful output power. What type of perpetual motion machine is this?

Selected Answer: PMM of the 1st kind

Question 3

What unit of measurement is used for calculating Carnot efficiencies or Carnot coefficients of performance with the thermodynamic temperature scale?

Selected Answer: Kelvin

Question 4

The coefficient of performance (COP) for a heat pump used for heating a room can sometimes be less than 1 if the temperature outside the room is far too cold.

Selected Answer: False

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Question 1

The maximum theoretical efficiency for a Carnot heat engine is 100%.

Selected Answer: False

Question 2

The coefficient of performance (COP) of any refrigeration system can be calculated from the temperature of the refrigerated space and warm environment.

Selected Answer: True

Response Feedback: Only the efficiency or COP of Carnot devices can be calculated using the operating temperatures.

Question 3

A proposed system for generating energy is described as follows: a generator is used to power a motor which in turn drives the same generator. Excess electricity from the generator would be the useful output power. What type of perpetual motion machine is this?

Selected Answer: PMM of the 1st kind

Question 4

Given the amount of heat absorbed and heat discharged by a heat engine, its thermal efficiency can be calculated without knowing the net work output.

Selected Answer: False

Response Feedback: The formula for thermal efficiency of the heat engine can be changed to be in terms of heat absorbed and heat rejected. Even if the net work output needs to be calculated, it can be done using energy balance based on the given heat absorbed and heat rejected values.

Question 5

Which of the following cannot be considered as a thermal energy reservoir?

Selected Answer: None of the options