

Thermodynamics Fundamentals Quiz

Thermodynamics · Answer Key · 4 Questions

1. Which fundamental principle is described by the First Law of Thermodynamics?

- A) The total entropy of an isolated system can only increase over time.
- B) Energy can neither be created nor destroyed, only transformed from one form to another.**
- C) The entropy of a perfect crystal at absolute zero is exactly zero.
- D) Heat spontaneously flows from a colder body to a hotter body.

2. What does the Second Law of Thermodynamics primarily state about entropy?

- A) Entropy is always conserved in any thermodynamic process.
- B) The total entropy of an isolated system tends to increase over time, moving towards a state of greater disorder.**
- C) Entropy of a system always decreases when work is done on it.
- D) Entropy can be completely converted into useful work without any loss.

3. What concept is established by the Zeroth Law of Thermodynamics?

- A) The conservation of energy in all processes.
- B) The direction of spontaneous processes and reactions.
- C) The definition of absolute zero temperature.
- D) The concept of thermal equilibrium and the transitive property of temperature.**

4. In an adiabatic process, what defines the exchange of heat with the surroundings?

- A) Temperature remains constant throughout the process.
- B) Pressure remains constant throughout the process.
- C) No heat is exchanged with the surroundings ($Q=0$).**
- D) Volume remains constant throughout the process.