

Principles of Thermodynamics

Thermodynamics · Practice Test · 10 Questions

1. Which process describes the transfer of thermal energy through the movement of fluids like liquids and gases?

- A) Conduction
- B) Convection
- C) Radiation
- D) Insulation

2. What happens to the kinetic energy of particles in a substance when it undergoes a phase change from a solid to a liquid?

- A) It decreases significantly
- B) It remains constant
- C) It increases
- D) It fluctuates randomly

3. Which state of matter is the most effective at transferring heat via conduction due to its tightly packed molecular structure?

- A) Gas
- B) Plasma
- C) Liquid
- D) Solid

4. What is the term for the amount of heat required to raise the temperature of one kilogram of a substance by one degree Celsius?

- A) Specific heat capacity
- B) Thermal equilibrium
- C) Latent heat
- D) Calorimetry

5. Why does an object reach 'thermal equilibrium' when placed in contact with another object of a different temperature?

- A) Energy stops flowing between them
- B) They both reach the same average kinetic energy
- C) The objects become chemically identical
- D) The total volume of the objects expands

6. Which form of heat transfer does not require a medium (matter) to travel through?

- A) Convection
- B) Conduction
- C) Radiation
- D) Molecular diffusion

7. What is the physical state change called when a substance transitions directly from a solid to a gas without becoming a liquid?

- A) Deposition
- B) Condensation
- C) Evaporation
- D) Sublimation

8. During a phase change such as boiling water, what happens to the temperature of the substance while it is transitioning from liquid to gas?

- A) It continues to rise
- B) It remains constant
- C) It drops rapidly
- D) It fluctuates based on pressure

9. Which material property describes how well a substance resists the transfer of thermal energy?

- A) Thermal conductivity
- B) Thermal resistivity
- C) Thermal expansion
- D) Thermal capacity

10. According to the kinetic molecular theory, what does 'temperature' actually measure in a substance?

- A) Total potential energy
- B) Total mass of the atoms
- C) Average kinetic energy of particles
- D) The rate of chemical reactions