

Thermodynamics Fundamentals

Thermodynamics · Answer Key · 20 Questions

1. What is the SI unit of temperature?

- A) Celsius
- B) Fahrenheit
- C) Kelvin**
- D) Rankine

2. Which law of thermodynamics states that energy cannot be created or destroyed, only transferred or changed from one form to another?

- A) Zeroth Law
- B) First Law**
- C) Second Law
- D) Third Law

3. What does absolute zero represent?

- A) The temperature at which water boils
- B) The lowest possible temperature**
- C) The temperature at which ice melts
- D) The temperature at which most chemical reactions stop

4. What is the process by which heat is transferred through direct contact of particles?

- A) Convection
- B) Radiation
- C) Conduction**
- D) Absorption

5. Which form of energy transfer does not require a medium?

- A) Conduction
- B) Convection
- C) Radiation**
- D) Evaporation

6. What is defined as the measure of the average kinetic energy of the particles in a substance?

- A) Heat
- B) Temperature**
- C) Internal Energy
- D) Pressure

7. The tendency of systems to become more disordered is described by which concept?

- A) Enthalpy
- B) Entropy**
- C) Gibbs Free Energy
- D) Work

8. What state of matter has a definite shape and a definite volume?

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

9. In thermodynamics, what is 'work' generally defined as?

- A) Heat transferred
- B) Change in internal energy
- C) Force applied over a distance**
- D) Mass multiplied by acceleration

10. What is the process called when a gas turns directly into a solid?

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

11. Which law of thermodynamics states that the entropy of an isolated system never decreases over time?

- A) First Law
- B) Second Law**
- C) Third Law
- D) Zeroth Law

12. What is the term for the energy contained within a system due to the motion of its particles?

- A) Heat
- B) Work
- C) Internal Energy**
- D) Potential Energy

13. What is the process of a solid turning directly into a gas called?

- A) Condensation
- B) Melting
- C) Sublimation**
- D) Freezing

14. Which of these is a measure of how much heat a substance can absorb before its temperature changes?

- A) Thermal conductivity
- B) Specific heat capacity**
- C) Latent heat
- D) Heat flux

15. What is the state of matter where particles are far apart and move randomly?

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

16. The Zeroth Law of Thermodynamics deals with the concept of:

- A) Absolute zero
- B) Heat transfer
- C) Thermal equilibrium**
- D) Entropy

17. What happens to the volume of most substances when heated?

- A) They contract
- B) They expand**
- C) They remain the same
- D) They decompose

18. What is the term for the energy transferred between systems due to a temperature difference?

- A) Work
- B) Heat**
- C) Power
- D) Enthalpy

19. Which law of thermodynamics states that as the temperature of a perfect crystal approaches absolute zero, its entropy approaches zero?

- A) First Law
- B) Second Law
- C) Third Law**
- D) Zeroth Law

20. In which state of matter do particles have a definite volume but take the shape of their container?

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