

Heat Energy Review

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- _____ 1. Which of two rods has the greatest thermal conductivity?
- a rod with electrons that are freer to move from atom to atom than are the electrons another rod
 - a rod with greater specific heat than another rod
 - a rod with greater cross-sectional area than another rod
 - a rod with greater length than another rod
- _____ 2. Which of the following is a substance in which the temperature and pressure remain constant while the substance experiences an inward transfer of energy?
- gas
 - liquid
 - solid
 - substance undergoing a change of state
- _____ 3. The use of fiberglass insulation in the outer walls of a building is intended to minimize heat transfer through what process?
- conduction
 - radiation
 - convection
 - vaporization
- _____ 4. Which statement is the best example of heat energy transfer by conduction?
- Heat energy is transferred from the Earth's surface to the upper atmosphere.
 - Heat energy is transferred from the surface soil to the rocks below.
 - Heat energy is transferred from the Sun to the Earth.
 - Heat energy is transferred from the bottom to the top of a lake.
- _____ 5. Conduction is the transfer of heat energy by
- movement through a vacuum
 - electromagnetic waves
 - molecular contact
 - density differences
- _____ 6. The collision of molecules within a substance results in the transfer of energy by
- conduction
 - insolation
 - radiation
 - convection
- _____ 7. During which process of energy exchange does cold air displace warmer air?
- Convection
 - Radiation
 - Conduction
 - Absorption
- _____ 8. What method of energy transfer requires no medium for transfer?
- advection
 - convection
 - radiation
 - conduction

- ___ 9. Which action would help an air-conditioner use less energy on a hot, sunny summer day?
- a. replacing light-colored roofing materials with dark-colored ones
 - b. adding insulation in the walls and ceiling
 - c. opening draperies and blinds
 - d. turning on lights and heat-producing appliances
- ___ 10. In general, good absorbers of electromagnetic radiation are also good
- a. refractors
 - b. radiators
 - c. reflectors
 - d. convectors
- ___ 11. By which process do light rays pass through
- a. conduction
 - b. compression
 - c. radiation
 - d. convection

True/False

Indicate whether the statement is true or false.

- ___ 12. A fluid can be either a gas or a liquid.
- ___ 13. Heat transfer by means of electrons colliding with other electrons in a metal is convection.
- ___ 14. Materials that are poor heat conductors are insulators.
- ___ 15. Heat transfer by means of atoms moving from place to place is conduction.
- ___ 16. Winds and weather patterns are good examples of radiation currents.
- ___ 17. Heat that is transferred to us from the sun is transferred by radiation.
- ___ 18. All objects above 0 K radiate energy.
- ___ 19. A good reflector of heat is a poor absorber of heat.
- ___ 20. A good emitter of heat is also a good reflector of heat.
- ___ 21. The rate of cooling of an object is proportional to the temperature difference between the object and its surroundings.
- ___ 22. The absorption effect is the name given to the process whereby long-wavelength radiation enters a house through the windows, is absorbed and reradiated by objects in the house, and is unable to be retransmitted through the windows.