Heat

1. Which of the following statements best describes particles in a solid?

   A close together and stationary
   B close together and vibrating
   C close together and moving at random
   D far apart and stationary
   E far apart and moving at random

2. When ethanol and water are dabbed on the hand, the ethanol feels colder, even though both are at the same temperature. This is because

A it has a higher boiling point than water
B it is a worse conductor of heat than water
C it takes more energy to evaporate than water
D it evaporates more readily than water
E it cools on evaporation

3. When more molecules of a liquid return to it rather than escape from it, the substance is said to be

A condensing
B conducting
C diffusing
D evaporating
E subliming

4. A test tube filled with water can be made to boil at the top while a (weighed down) ice cube remains unmelted at the bottom. It may therefore be deduced that

A water transfers heat by conduction
B glass is a good conductor of heat
C water is a poor conductor of heat
D glass transfers heat by convection
E ice has an extremely high melting point

5. Which colour is most suitable for a solar panel, designed to absorb the sun's radiation?

A black
B silver
C white
D yellow
E see through

6. Convection occurs in

A solids only
B liquids only
C gases only
D solids and liquids
E liquids and gases

7. Double glazing reduces heating bills because

A glass of double thickness does not conduct heat
B radiation will not pass through two sheets of glass
C the air trapped between the glass panes is a bad conductor of heat
D convection currents between the glass sheets are restricted
E radiation cannot traverse the layer of trapped air

8. In a thermos flask, the silver coating on the glass walls

A increases heat conduction from the environment to help keep drinks hot
B reflects back the radiation given off by contents to keep them hot
C strengthens the brittle glass walls
D reduces the radiation emitted by the inner wall of the flask
E prevents people from seeing what's in others' flasks

9. In a kettle the element is placed at the bottom because

A conduction occurs more readily upwards than downwards
B it is cheaper to place it close to the power supply
C convection currents can flow and heat the water effectively
D evaporation of the water while heating takes place is minimised
E of historical reasons

10. Infrared radiation

A is responsible for heating the contents of saucepans
B can travel through a vacuum
C has a smaller wavelength than visible light
D is only emitted by objects which have temperatures greater than 100°C
E travels straight through glass like visible light

11. Which one of the following explains why metals are generally better heat conductors than non metals?

A they are denser, so vibrations are transferred more easily
B they have a regular arrangement of atoms, so vibrations are transferred more easily
C they are shiny, so energy is reflected from atom to atom
D they have free electrons which can move throughout the material and transfer energy
E they have very strong interatomic bonds, so vibrations are transferred more easily