

Answers to selected questions

Chapter 10

- Q6** No. The zero point on the Kelvin scale represents the lowest possible temperature, and that temperature can only be attained in an asymptotic limit.
- Q12** Yes, if the substance is undergoing a change in phase.
- Q18** The stirring involves work done on the water which according to the first law of thermodynamics increases the internal energy by the same amount as an equivalent amount of energy transferred as heat.
- Q24** By the First Law of Thermodynamics there is only work done on the system in this adiabatic process. There will be an increase in the gas's internal energy that will appear as a rise in temperature.
- Q30** No. The metal is a better conductor of heat than the wood so it conducts heat away from the hand.
- Q36** Like carbon dioxide gas, glass is transparent to light in the visible range but opaque to the longer wavelengths of the infrared. Visible light from the sun can pass through the glass, and be absorbed by material inside which is reradiated as longer wavelength light, which then remains trapped in the greenhouse.