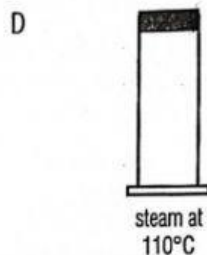
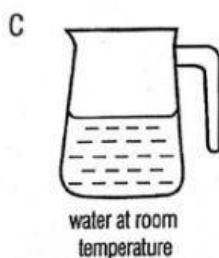
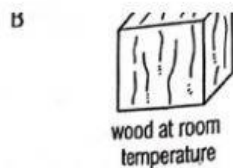
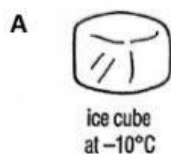


## Thermal revision

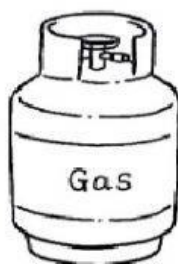
- The temperature of water is raised from  $5^{\circ}\text{C}$  to  $90^{\circ}\text{C}$ . Which of following best describes the changes to the molecules of liquid?
  - They gain kinetic energy and move more quickly.
  - They gain thermal energy and the intermolecular forces become stronger.
  - They move close together and the density increases.
  - They move freely and randomly in all directions resulting in an increase in volume.
- A student conducted an experiment to study Brownian motion of smoke particles in air. What should the student see when he looked into the microscope?
  - air molecules moving in a random manner
  - air molecules colliding with each other
  - smoke particles moving in random manner
  - smoke particles vibrating about their fixed positions
- Which statement is true when water is heated at boiling point?
  - The water molecules do not gain energy
  - The water molecules gain potential energy.
  - The water molecules gain kinetic energy.
  - The water molecules gain kinetic and potential energy.
- Why are smoke particles used to observe Brownian motion?
  - The smoke particles are visible and allow us to understand the motion of air molecules.
  - The smoke particles are visible and air molecules are constantly in random motion
  - The smoke particles are lighter than air particles and hence they can be bombarded by air particles.
  - Smoke particles are in constant random motion while the air particles are vibrating about a fixed position.
- Which of the following contains molecules with the highest average speed?



6. When a metal is being heated to a higher temperature without melting, which of the following will occur?

- 1 The atoms can move freely.
  - 2 The atoms have larger amplitude of vibration.
  - 3 The average kinetic energy of the atoms is increased.
- A 1 and 2 only                      B 1 and 3 only  
C 2 and 3 only                      D 1, 2 and 3

7. A fixed mass of gas is kept in a rigid sealed cylinder.



How does a change in temperature affect the pressure of the gas?

|   | Temperature change | Pressure change |
|---|--------------------|-----------------|
| A | decreases          | increases       |
| B | decreases          | unchanged       |
| C | Increases          | decreases       |
| D | Increases          | increases       |

8. The temperature of a gas is halved at constant volume. Which of the following changes is/are correct?

- 1 The number of collisions on the walls per unit time remains the same.
  - 2 The average kinetic energy of the gas molecules becomes lower
  - 3 The molecules collide with less force on the walls.
- A 1 only                      B 2 only  
C 1 and 3 only              D 2 and 3 only

9. Which quantity must be the same for two bodies if they are to be in thermal equilibrium?

- A internal energy                      B potential energy  
C temperature                      D mass