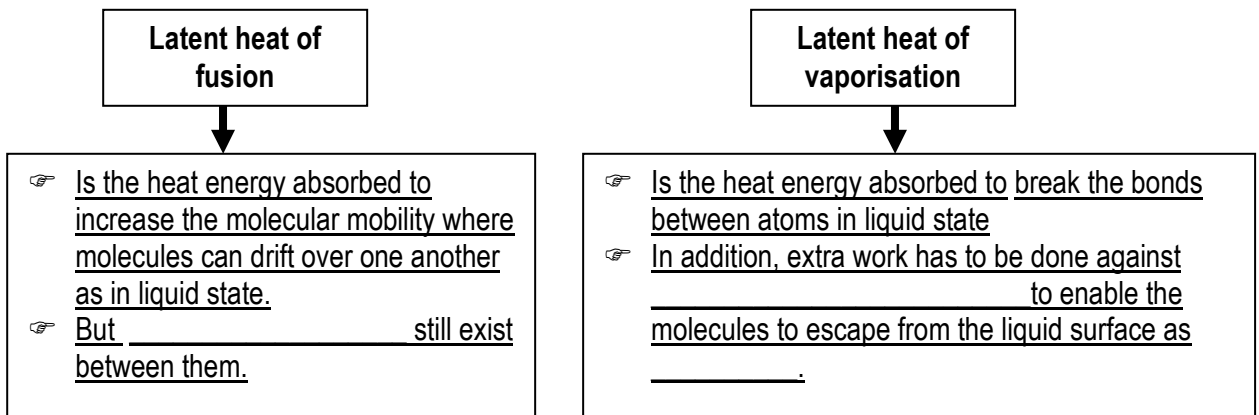


Lesson 13:1

(Please listen to the explanations, fill in the blanks and then complete the on-line quiz on BB7)

1. Explain using a simple kinetic model for matter why:**a. Melting and boiling take place without a change in temperature**

- During melting/boiling process, work has to be done to _____ / _____ the bonds or intermolecular forces between atoms in the substance to change it from solid to liquid/ liquid to gas.
- Molecules in solid are slightly loose from their fixed position and drifting freely over one another in melting process.
- Therefore, molecular _____ energy of the substance increases as the _____ between atoms increases.
- Heat energy is absorbed to increase the potential component of its _____ energy but not the _____ energy. Since _____ is directly proportional to its _____, these processes occurs at a _____ temperature.

b. The specific latent heat of vaporisation is higher than specific latent heat of fusion for the same substance.**c. A cooling effect accompanies evaporation.**

- Evaporation is a change of state from liquid to gas that takes place at the surface of a liquid at _____ temperature.
- The molecules of a liquid have an average kinetic energy which increases with temperature.
- These molecules drift over one another and transfer _____. Some molecules gain energy, some lose energy.
- Molecules with higher energy move faster. When coming to liquid surface, these _____ moving molecules have enough energy to escape from the _____ forces of neighbouring molecules and jump out from the liquid.
- As the _____ energetic molecules escape from the liquid (evaporation occurs), the _____ of the liquid is reduced, $KE \propto T$, it results in a drop in _____.
- Hence, evaporation produces cooling effect.