

Question 4

The interaction energy of London force is inversely proportional to sixth power of the distance between two interacting particles but their magnitude depends upon

- (i) charge of interacting particles
- (ii) mass of interacting particles
- (iii) polarisability of interacting particles
- (iv) strength of permanent dipoles in the particles.

Answer:

(c) polarizability of interacting particles

London dispersion forces operate only over a very short distance. The energy of interaction varies as $1/(\text{distance between two interacting particles})^6$

Large or more complex the molecules are, the greater is the magnitude of London forces, since the large electron clouds are easily distorted or polarised.

Hence, greater the polarizability of the interacting particles, greater is the magnitude of the interaction energy.