

Question 6

The viscosity of a liquid arises due to strong intermolecular forces existing between the molecules. Stronger the intermolecular forces, greater is the viscosity.

Name the intermolecular forces existing in the following liquids and arrange them in the increasing order of their viscosities. Also, give a reason for the assigned order in one line.

Water, hexane ($\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$), glycerine ($\text{CH}_2\text{OH CH(OH) CH}_2\text{OH}$)

Answer:

Water has hydrogen bonding existing as intermolecular forces,

Hexane has Vander Waal force of attraction existing as intermolecular force,

Glycerin has hydrogen bonding as a major intermolecular force

Glycerin > Water > Hexane is the order of viscosities.

This is because glycerin has the greatest number of the hydrogen bond, followed by water, and followed by hexane which has Vander Waal force of attraction.