Quiz 12.1 – Intermolecular Forces and Liquid Properties

Name: Key

Question 1

State the strongest intermolecular force for each of the compounds below:

CH_2O	$COOH$	CO_2	C_6H_{14}	CH_2Cl_2	CH_3OH
dipole-dipole	H-bond	Dispersion	Dispersion	/ dipole-dipole	H-bond

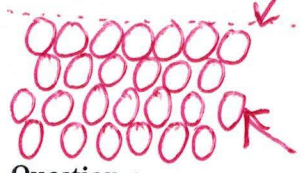
Question 2

From each pair of substances, circle the one with *stronger* intermolecular forces:

F_2 | Cl_2 C_3H_8 | $C_{12}H_{26}$ straight-chain C_8H_{18} | branched C_8H_{18}

Question 3

Provide an explanation for why liquids exhibit surface tension, from a microscopic perspective. You may find it useful to draw a simple diagram.



Question 4

Soap bubbles take a tiny amount of water and stretch it out to form a very thin shell with both inner and outer surfaces. Compared to a droplet made from the same amount of water, a bubble has enormous surface area. Based on this information, do you predict that soap increases, or decreases the surface tension of water? Why?

Decreases - A strong surface tension makes large surface-areas contract to form smaller surface areas

Question 5

Water in a glass vessel will form a concave meniscus, while mercury in a class vessel will form a convex meniscus. What can this tell you about the adhesive and cohesive forces in each case?

Water-glass ~~cohesion~~ adhesion is stronger than water-water ~~adhesion~~ cohesion

Hg-glass ~~cohesion~~ adhesion is weaker than Hg-Hg Cohesion