Quiz 8.1 – Intermolecular Forces and Gases

Name: Key

Question 1

State the strongest intermolecular force exhibited by each molecule:

CH_3CO_2H	O_3	NO_2	C_3H_8	CH_3OH	CH_2F_2	N_2
H-bonds	London	dipole/dipole	London	H-bonds	dipole/dipole	London

Question 2

Which substance in each pair would have the highest melting point and boiling point:

Kr / Ne NO_2 / N_2O_4 O_2 / N_2 $CH_3CH_2CH_2CH_3$ / $CH(CH_3)_3$ C_6H_{14} / C_8H_{18}

Question 3

Draw and describe the two features that a substance must have to be capable of forming H-bonds

H-donor: (O, F, N)–H

H-acceptor: :(O, F, N)

Question 4

List the five postulates of the kinetic molecular theory:

1) Gas particles are in constant random motion
2) No Intermolecular forces
3) Volume of particles = 0
4) Average $KE \propto T$
5) Collisions are elastic

Question 5

Complete the following pressures into *atm*

- 224 *mm*Hg $\left| \frac{1\ atm}{760\ mm\ Hg} \right.$ = 0.295 atm
- 65 *millitorr* $\left| \frac{1\ Torr}{1000\ mTorr} \right| \frac{1\ atm}{760\ Torr}$ = $8.6 \cdot 10^{-5}$ atm

Question 6

Convert 1.25 *atm* to *torr*

$1.25\ atm \left| \frac{760\ Torr}{1\ atm} \right.$ = 950 Torr = $9.50 \cdot 10^{2}$ Torr