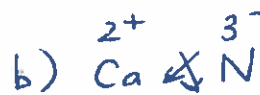
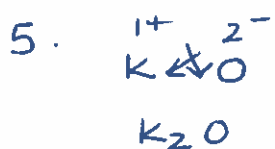


Review #4 Bonding

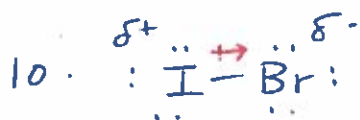
1. full valence shell
2. full valence shell - not reactive, lower E
3. ionic \rightarrow metal and nonmetal
4. a) $\text{Be} \rightarrow \text{He}$ b) $\text{Al} \rightarrow \text{Ne}$ c) $\text{K} \rightarrow \text{Ar}$ d) $\text{S} \rightarrow \text{Ar}$ e) $\text{F} \rightarrow \text{Ne}$



8. ionic compounds have high melting points due to the crystal lattice \rightarrow each positively charged ion is surrounded by negatively charged ions
 \rightarrow need to break the attraction to melt

9. ionic - transfer of e^- and oppositely charged ions are attracted

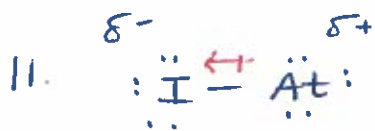
covalent - share e^-



$\Delta\text{EN} = 2.96 - 2.66$
 $= 0.3$

slightly polar

Br is slightly negative



$$\Delta \text{EN} = 2.66 - 2.2 = 0.46$$

polar

I is slightly negative.



$$\Delta \text{EN} = 1.26$$

↑

more polar



$$\Delta \text{EN} = 0.54$$

↑

more polar

$$\Delta \text{EN} = 0.97$$

$$\Delta \text{EN} = 0.86$$



$$\Delta \text{EN} = 0.61$$

↑

more polar

$$\Delta \text{EN} = 0.35$$

13. A molecule is 2 or more covalently bonded atoms (not charged) ion charged atom or particle.



14. a) low mp → covalent

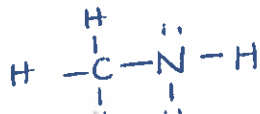
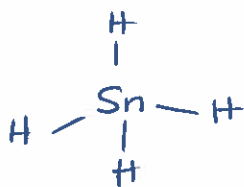
c) hard but brittle → ionic

b) high bp → ionic

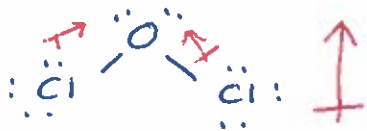
d) molecules → covalent



$$\Delta \text{EN} = 0.24 \text{ covalent}$$

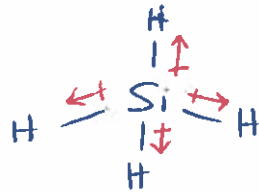


17. a) Cl_2O



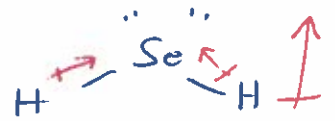
bent
slightly
bonds are polar
molecule is polar
DDF, LDF

b) SiH_4



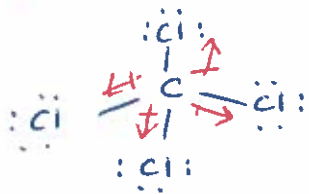
tetrahedral
bonds are slightly polar
molecule is nonpolar
LDF

c) H_2Se



bent
bonds are slightly polar
molecule is polar
DDF, LDF

d) CCl_4



tetrahedral
bonds are polar
molecule is nonpolar
LDF

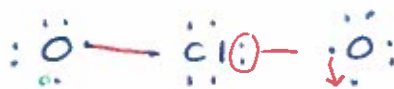
18. see above

polar - dipole-dipolar forces and London dispersion forces
nonpolar - London dispersion forces

19. ClO^-



ClO_2^-



Cl donates both electrons to form the bond

↑ co-ordinate covalent bond

20. metals are malleable because metal atoms release their electrons to a shared pool of electrons and because the electrons are free to move, the metal ions are not rigidly held in