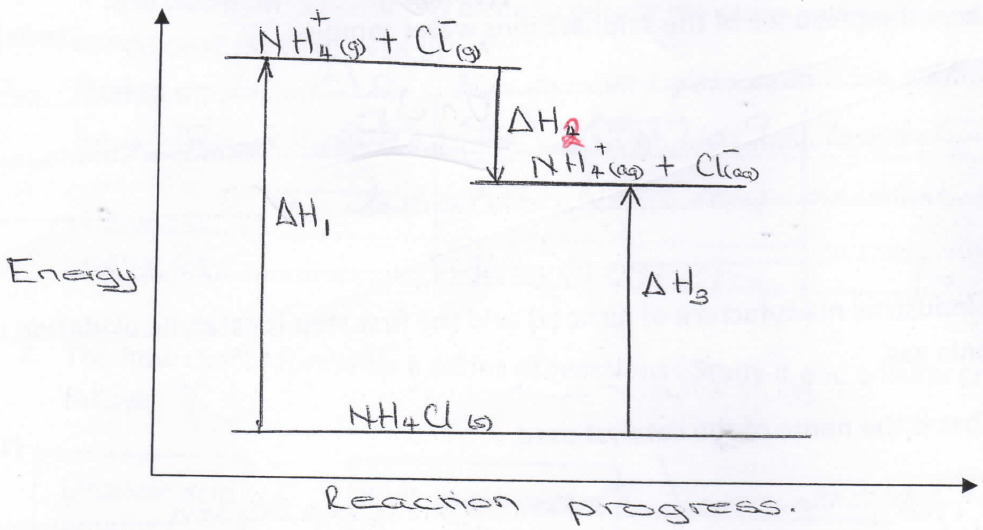
8. Study the diagram below and answer the questions that follow.



(a) What do ΔH_1 and ΔH_2 represent (2mks)

i) ΔH_1 ..... lattice energy .....

ii) ΔH_2 ..... Hydration energy .....

(b) Give an expression for heat of solution in terms of ΔH_1, ΔH_2 and ΔH_3. (1mk)

..... $\Delta H_3 = \Delta H_1 + \Delta H_2$ $\Delta H_1 =$ .....

.....

9. 6.84g of aluminium sulphate were dissolved in $300cm^3$ of water. Calculate the molar concentration of sulphate ions in the solution. (R.M.F=342) (3mks)

..... $Al_2(SO_4)_3 \longrightarrow 2Al^{3+}_{(aq)} + 3SO_4^{2-}_{(aq)}$ ✓1 .....

$\frac{6.84}{342} = 0.02$	$Al_2(SO_4)_3 : SO_4^{2-}$	$\frac{1000}{300} \times 0.06$
	1 : 3	
	0.02 : 0.06	$= 0.2\ M$ ✓2

10. Study the information given in the table below and answer the questions that follow.

Bond	Bond energy (KJ mol)
C-H	413
Br-Br	193
C-Br	280
H-Br	365

(a) Calculate the Enthalpy changes for the reaction below (2mks)

$CH_4\ (g) + Br_2\ (g) \longrightarrow CH_3Br\ (g) + HBr\ (g)$

B.B.	B.F
$(4 \times 413) + 193$	$(3 \times 413) + 280 + 365$
$= +1845$	$= -1874$