

Discussion Quiz #5 (5 minutes)

Your Name: _____

TF's name: _____

Discussion /dayTime: _____

1. (6points)Of the ionic solids sodium sulfate, sodium chlorate, and calcium sulfide, write the name of the ionic solid that has the largest magnitude lattice enthalpy and the name of the ionic solid that has the smallest magnitude enthalpy of aquation.

largest
 $|\Delta_{\text{latt}}H|$: _____ CaS _____

smallest
 $|\Delta_{\text{aq}}H|$: _____ NaClO₃ _____

- 2 (4 points) For each of the pairs of lattice enthalpy and aquation enthalpy below (A, B, C, D, and E), circle the letter of each pair that is possible and dissolving will make water warmer. $\Delta_{\text{latt}}H$ (kJ/mol) $\Delta_{\text{aq}}H$ (kJ/mol)

A	-1200	1000	not possible
B	-500	-500	not possible
C	1200	1000	not possible
D	1200	-1000	possible but Endo
E	1000	-1200	correct

-1 point each wrong circled

1. (2points extra credit)If $K=10^{-13}$ what must be true? (circle all that apply)
- The reaction will be spontaneous
 - The reaction will be nonspontaneous
 - The reaction is at equilibrium
 - Reactants are favored at equilibrium**
 - Products are favored at equilibrium
 - Reactants and products are equally favored at equilibrium
 - Currently, the reaction has more products than reactants
 - Currently, the reaction has more reactants than products

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Periodic table of chemical elements

I		II		Transition elements										III		IV		V		VI		VII		VIII																																																																							
1 H 1.0079	3 Li 6.941	4 Be 9.0122	11 Na 22.990	12 Mg 24.305	19 K 39.098	20 Ca 40.078	21 Sc 44.956	22 Ti 47.88	23 V 50.942	24 Cr 51.996	25 Mn 54.938	26 Fe 55.847	27 Co 58.933	28 Ni 58.69	29 Cu 63.546	30 Zn 65.39	31 Ga 69.723	32 Ge 72.61	33 As 74.922	34 Se 78.96	35 Br 79.904	36 Kr 83.80	55 Cs 132.91	56 Ba 137.33	87 Fr (223)	88 Ra (226)	89 Ac (227)	90 Th 232.04	91 Pa 231.04	92 U 238.03	93 Np (237)	94 Pu (244)	95 Am (243)	96 Cm (247)	97 Bk (247)	98 Cf (251)	99 Es (252)	100 Fm (257)	101 Md (258)	102 No (259)	70 Yb 173.0	69 Tm 168.9	68 Er 167.3	67 Ho 164.9	66 Dy 162.5	65 Tb 158.9	64 Gd 157.3	63 Eu 152.0	62 Sm 150.4	61 Pm (145)	60 Nd 144.2	59 Pr 140.9	58 Ce 140.1	57 La 138.9	86 Rn (222)	85 At (210)	84 Po (209)	83 Bi 208.98	82 Pb 207.2	81 Tl 204.38	80 Hg 200.59	79 Au 196.97	78 Pt 195.08	77 Ir 192.22	76 Os 190.2	75 Re 186.21	74 W 183.85	73 Ta 180.95	72 Hf 178.49	71 Lu 174.97	70 Y 88.906	69 Zr 91.224	68 Nb 92.906	67 Mo 95.94	66 Tc (98)	65 Ru 101.07	64 Rh 102.91	63 Pd 106.42	62 Ag 107.87	61 Cd 112.41	60 In 114.82	59 Sn 118.71	58 Sb 121.75	57 Te 127.60	56 I 126.90	55 Xe 131.29	54 Ar 39.948	53 Cl 35.453	52 S 32.066	51 P 30.974	50 N 14.007	49 O 15.999	48 F 18.998	47 Ne 20.180	46 He 4.0026

Lanthanide series									
57 La 138.9	58 Ce 140.1	59 Pr 140.9	60 Nd 144.2	61 Pm (145)	62 Sm 150.4	63 Eu 152.0	64 Gd 157.3	65 Tb 158.9	66 Dy 162.5

Actinide series									
89 Ac (227)	90 Th 232.04	91 Pa 231.04	92 U 238.03	93 Np (237)	94 Pu (244)	95 Am (243)	96 Cm (247)	97 Bk (247)	98 Cf (251)