- 14. Lattice Energy: Heat evolved when 1 mole of pure solid is formed from its constituent gaseous ions
- 15. LE = $\Delta H_{hyd} \Delta H_{sol}$
- 16. $\Delta H_r^{\theta} = \sum n \Delta H c^{\theta} (reactants) \sum m \Delta H c^{\theta} (products)$
- 17. $\Delta H_r^{\theta} = \sum m \Delta H f^{\theta} (\text{products}) \sum n \Delta H f^{\theta} (\text{reactants})$
- 18. **Bond dissociation energy:** The energy required to break 1 mole of a specified covalent bond in a specified compound in the gaseous state
- 19. **Bond energy:** Average energy required to break 1 mole of covalent bond in the gaseous state
- 20. Factors affecting bond energy:
 - a. Bond order
 - b. Effectiveness of bond overlap
 - c. Bond polarity
- 21. **1**st Electron Affinity: The enthalpy change when 1 mole of electrons is added to 1 mole of gaseous atoms to form 1 mole of singly charged gaseous anions
- 22. **Bond Haber Cycle:** An extension of Hess's Law to ionic compounds. It can be used to determine the LE of ionic compounds
- 23. Entropy: S is a thermodynamic quantity related to the number of ways the ender of a system can be dispersed through the motions of its particles
- 24. 2nd Law of Thermodynamics: The total entropy of the release always tends to increase
- 25. $\Delta S > 0$: greater disorder/more no. of ways entry can be dispersed in a system
- 26. $\Delta S < 0$: more ordered state/less of ways energy of n be dispersed in a system
- 27. Factors affecting enthopy of a system
 - Dracchange in temper cure
 - b. Change in phase
 - c. Mixing of particles
 - d. Expansion of a gas
 - e. Change in number of particles
 - f. Dissolution of an ionic solution
- 28. Gibbs free energy: $\Delta G = \Delta H T\Delta S$
- 29. ΔG<0: Reaction is feasible and can take place spontaneously (reaction is exergonic)
- 30. ΔG=0: Reaction is at equilibrium. There is no net change (during melting and boiling)
- ΔG>0: Reaction is not feasible and cannot take place spontaneously (reaction is endergonic, and spontaneous if in reverse direction)

	ΔS<0	ΔS>0
ΔH<0	Feasible at low	Feasible at all
	temperatures	temperatures