	Energetics/Thermochemistry
n led d	Heat is a form of energy that flows from something at a higher temperature to something at a lower temperature.
1,000	higher temperature to something at a lower temperature.
	entities high at a grant of
	Temperature is a measure of the average kinetic energy of particles.
30	Por the recent and army of property making the
	In an exthermic reaction, heat energy is transferred from a system to the surroundings - the surrounding gots hatter.
	system to the surroundings - the surrounding gets hotter.
	Tomas One
	In an endothermic reaction, a system takes in heat energy from the surrounding - the surroundings get cooler.
0.0	from the surrounding - the surroundings get cooler.
14	Chaires along the color of and inclusion males less than the
	Enthalpy change is the amount of heat energy taken in/ given out in a chemical reaction.
	given out in a chemical reaction.
Y	SH for an exothermic is regative
	DH for an endothermic reaction is positive
101	" celed to fine a soldier of the best of
	DH = DH products - DHreactant
	Total energy is conserved in a chemical reaction -
is not	The enthalpy change accompanying a sharing war
Je so	The term stability is usually used to describe the relative
	energies of reactants and products. in a chemical reaction.
	If products have less energy than the reactants then they
- 4	are more stable to some against the some
1 - mil	a sadio i la sion se esti peta minima
	Standard enthalou change of reaction (AH, is the enthalou
	change when molar amounts of reactants react together
	under standard conditions to give products.
r 15	a state to clause to the in together your son the
	pressure = 1:0×105 Pa, temperature = 298 K
Carlos	

	" courseties Therese new tes
e.	Standard enthalous chance of combustion (SHC) is the enthalous
	Standard enthalpy change of combustion (SHC) is the enthalpy change when one mole of a substance is completely burnt
	in ax are under stoodard conditions
tran la	in oxygen under standard conditions
1	The energy required to raise the temperature of 19 of
0 0	substance by 1 K
1,00	to the supplied of a post-
	Q=mcsT
0 90	is what were a miner since the a kin of the
	Enthalpy change of neutralisation (SHn) is the enthalpy
	change when one male of water molecules are formed
1 AL OS	when an acid (H+) reacts with an alkali (OH-) under
	standard conditions. (always exothermic)
	Enthalpy change of solution (OHSOL) is the entahalpy
	change when one mole of solute is dissolved in excess
	solvent to form a solution of infinite dilution' under
	standard conditions
	110 ' 1
	Hess's claw and his known is and Intelled
	The enthalpy change accompanying a chemical reaction is independent of the pathway between the initial and final states.
i de con	fool states
	in the state of th
	Standard cathology change of formation (ALEO) is the
	Standard enthalpy change of formation (AHF) is the enthalpy change when one mole of a substance is formed from its elements in their standard states under
7100	from its elements in their standard states under a
11.	Standard condutions.
	After for any element in its standard state is zero
	After for any element in its standard state is zero
	Men cally was offered and a series

	SHr = EDH (products) - Esty (reactants)
<u></u>	and to sport and other was my propose in employed.
	of a ender the other conditions
	Bond enthalpy is the enthalpy change when one mole of covalent bonds, in a gaseous molecule, is broken under standar
	avalent bonds, in a gaseous molecule, is broken under standar
Λ	conditions - validities att of (HA) inlatte without
di	inge nation is language since so to atom one.
	Bond breaking requires energy (endothermic): Att positive
	Bond making releases energy (exothermic): DH negative
¢ _N	inder He electrotates altertian between the ions of
Here	DHB = DH Bonds broken - DH Bonds made
	DI'B - ZII WIND DIOREN - ZIFI BONCO MACLE.
	Och object on the
1	Only gives accurate answer wif all the pareadants are
1~1	products are in gas phase and not in solid ofer liquid
-19/0	restate. c) release in the last traffe this of
	ZI o la la energy
	Fractivation energy 3 activation and activation
	energy to
	producti & reactante
19	to the second is the second of the same what
_	reaction coordinate
	and the sand the sand it is a sand
	Standard enthalpy change of atomisation (DHat) - this is t
	enthalpy change when one male of gaseous atoms is formed
	from an element under standard conditions.
4	From an element broker stemation conditions.
	First ionisation energy is the enthalpy change when one
1	electron is removed from each atom in one mole of gaseous
	atoms under standard conditions:
	$M'_{(q)} \longrightarrow M^+ + e^-$
	(all energies are endothermic)
	,

	First electron affinity is the enthalpy change when one electron is added to each atom in one mole of gaseous
	electron is added to each atom in one mole of gaseous
	atoms under standard conditions:
	$(x_0) + e^- \rightarrow (x_0)$
Service 1	the work is a work position in a bound to allowing is a
	Lattice enthalpy (SHLULL) is the enthalpy change when one mole of an ionic compound is broken apart into its constituent gaseous ions under standard conditions:
	one male of an ionic compound is broken apart into
- "V"	its constituent gaseous ions under standard conditions.
	Greater the electrostatic attraction between the ions, the
	Greater the electrostatic attraction between the ions, the more energy has to be supplied to break the lattice apart.
	apart.
k	the sine accorde sines and all the call the
13.	The higher the charges on the ions, the more strongly the will attract each other greater lattice enthalps
	the will attract each other . : greater lattice enthalas
	Lattice enthalpy is larger for smaller ions.
	Enthalpy change of hydration is the enthalpy change
	when one mole of gaseous ions is succovaded to
	Troubles to som an intentely delete solution
	onater standard conditions.
- 1	I straday wholy show of when eating taken
e e i a gal	Higher the charge more exothermic enthalpy change of hydration. Smaller the ions more exothermic
	of hydration. Smaller the ions more exothermic
	enthalpy change is.
Sar +07	
	Entropy is a measure of how the available energy
	Entropy is a measure of how the available energy is distributed among the particles-
7	AND THE RESERVE OF THE PARTY OF
F 7	Land Marketan and Company of the National States of the National Sta

Solids have lower entropy than gas as less freedom of movement and there are fewer ways of distributing the energy among particles. increasing entropy. liquid gas An increase in number of moles of gas: As is positive. An decrease in number of moles of gas: As is negative 15 = Esproducts - Especialis Spontaneous reaction: one that occurs without any outside DG = DH - TDS For a reaction to be spontaneous, DG, for the reaction must be regative. SH DS -TDS DE Spontaneous regative positive regative regative regative at all temperature positive negative positive becomes more negative (sportaneous) at high temp. negative positive negative becomes more positive (not spontaneous) as 1T positive negative positive positive not never -D6 closer to products ΔG +DG doser to reactants equilibrium pure product pure reactants