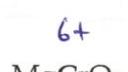
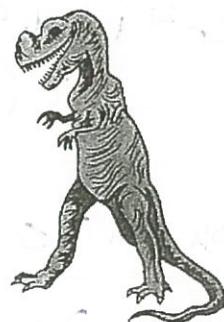
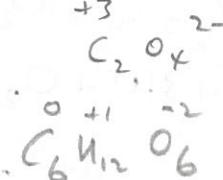
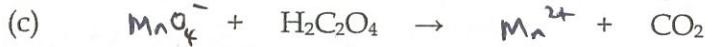
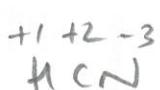


**Balancing Overall Equations from
1st Principles by Dissection
WORKSHEET**

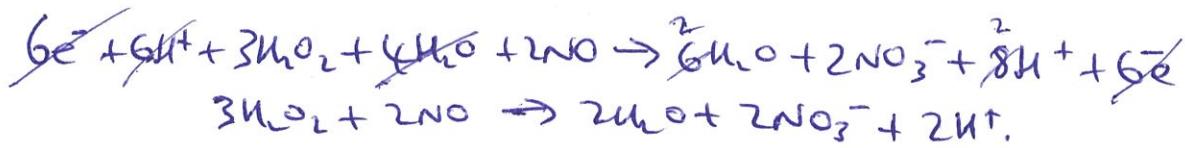
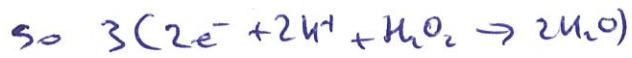
1. Calculate the oxidation state/number of the underlined and bolded element in each of the following chemical species:



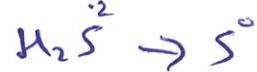
2. Balance the following equation by establishing two half equations, balancing these by 1st principles, and combining them to give a fully balanced equation (show your intermediate equations):



a)

Reduction

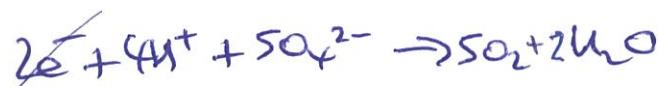
b)



c)



d)



e)

