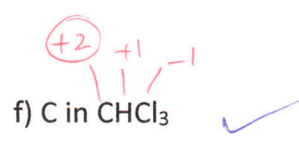
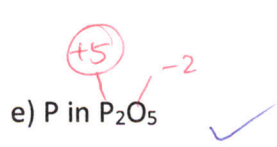
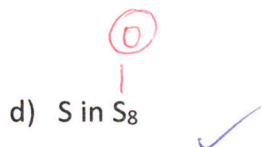
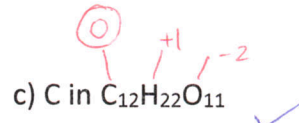
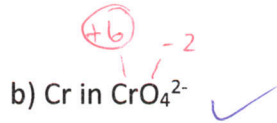
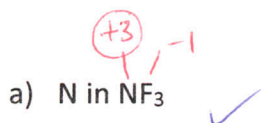
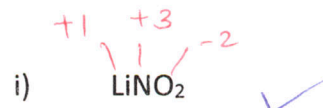
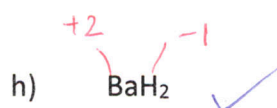
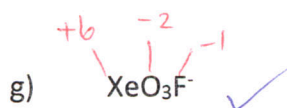
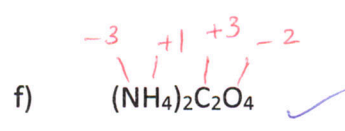
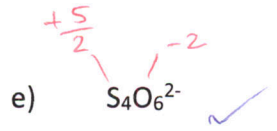
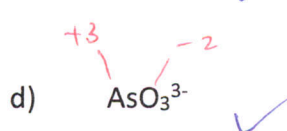
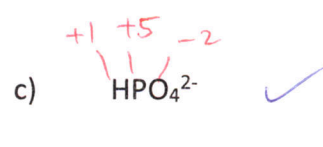
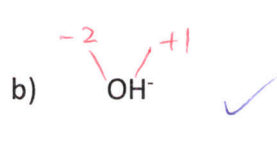
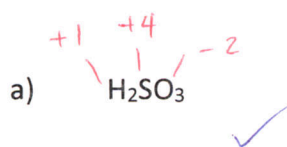


G12 Chemistry: Class 15 Homework

1. Determine the oxidation number of the specified number of the specific element in each of the following. [6 marks]

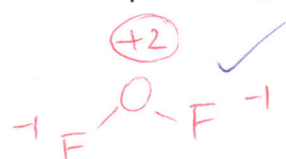


2. Determine the oxidation number of each element in each of the following. [9 marks]

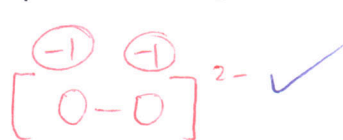


3. As stated in rule 4, oxygen does not always have its usual oxidation number of -2. Determine the oxidation number of oxygen in each of the following. [2 marks]

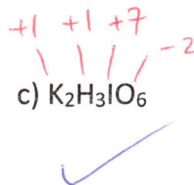
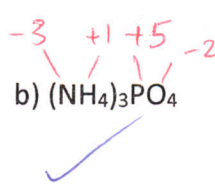
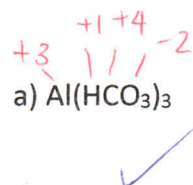
a. The compound OF_2



b. The peroxide ion O_2^{2-}

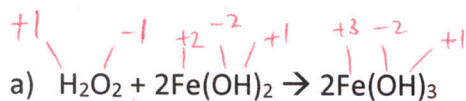


4. Determine the oxidation number of each element in each of the following ionic compounds by considering the ions separately. Hint: one formula unit of the compound in part (c) contains two identical monatomic ions and one polyatomic ion. [3 marks]



* $\text{H}_3\text{IO}_6^{2-}$ = ortho periodate.

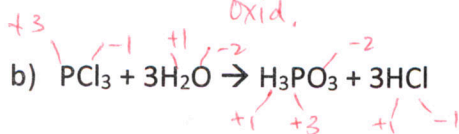
5. Determine whether each reaction is a redox reaction. For redox reactions, identify the oxidizing agent and the reducing agent. [7 marks]



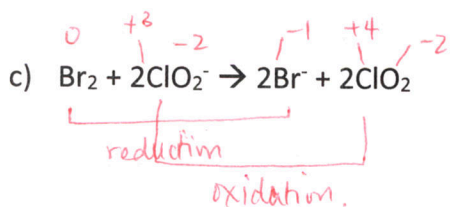
- redox

H_2O_2 = oxidizing agent ✓

$\text{Fe}(\text{OH})_2$ = reducing agent ✓



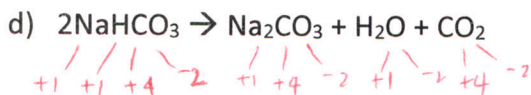
- not redox ✓



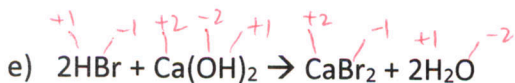
- redox

Br_2 = oxidizing agent ✓

ClO_2^- = reducing agent ✓

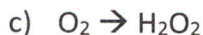
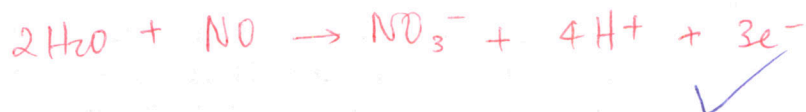
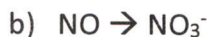


- not redox ✓

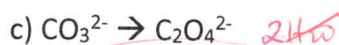
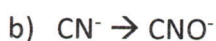
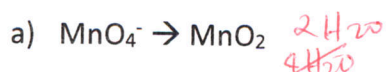


- not redox ✓

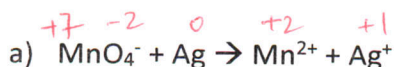
6. Balance each of the following half-reactions under acidic conditions. [3 marks]



7. Balance each of the following half-reactions under basic conditions. [3 marks]



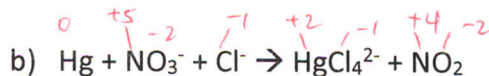
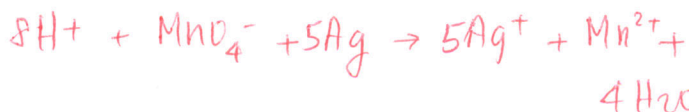
8. Balance each of the following ionic equations for acidic conditions. Identify the oxidizing agent and the reducing agent in each case. [6 marks]



oxidation



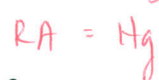
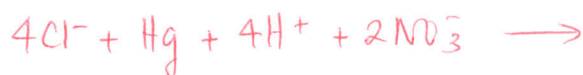
reduction



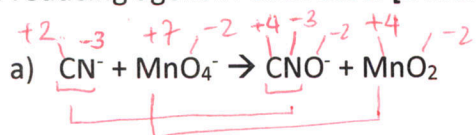
oxidation



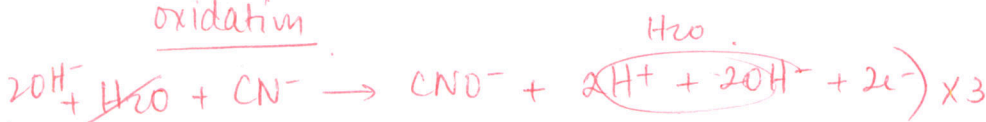
reduction



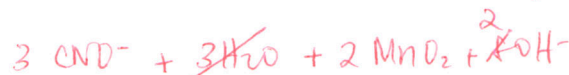
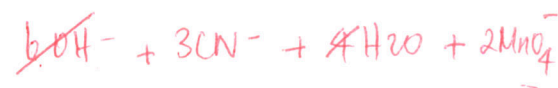
9. Balance the following ionic equations for basic conditions. Identify the oxidizing agent and the reducing agent in each case. [6 marks]



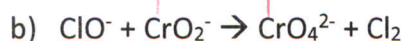
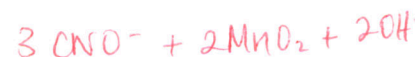
oxidation



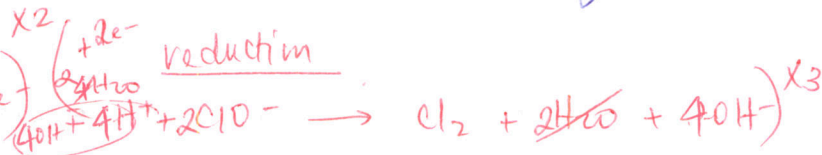
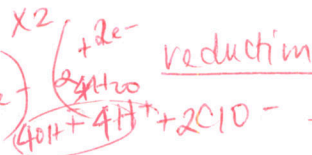
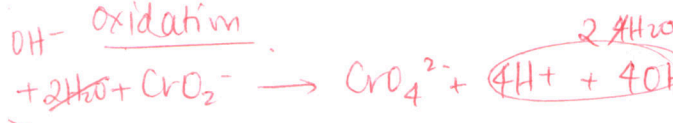
reduction



↓



oxidation



10. Use the oxidation-number method to balance the following equations. [5 marks]

