

Assign the oxidation state of each atom in the following species:

1.  $\text{AgMnO}_4$

Ag \_\_\_\_\_ Mn \_\_\_\_\_ O \_\_\_\_\_

2.  $\text{ClO}_3^-$

Cl \_\_\_\_\_ O \_\_\_\_\_

3.  $\text{Ca}(\text{NO}_3)_2$

Fe \_\_\_\_\_ N \_\_\_\_\_ O \_\_\_\_\_

4. Write a balanced equation for the combination of zinc metal with hydrochloric acid.

5. For the above reaction, indicate the oxidation state of each element over top of its symbol.

6. For the above reaction, identify and clearly label the reducing and oxidizing agents.

7. Write half reactions for the reduction and oxidation portions of a redox reaction in question 4.

8. Which of the following would be a good oxidizing agent (circle all that apply)?

$\text{O}_2$    Na   Cu    $\text{Br}_2$

9. In one sentence, explain why you chose the species above as good oxidizing agents.