UNIT 5B PRACTICE QUIZ 1 – OXIDATION AND REDUCTION

Consider the following reactions and use them to answer Questions 1 – 7:

Reaction V	**$2Na + Cl_2 \rightarrow 2NaCl$** 0 0 +1, -1 Na is oxidized, Cl is reduced
Reaction W	**$H_2 + Br_2 \rightarrow 2HBr$** 0 0 +1, -1 H is oxidized, Br is reduced
Reaction X	**$Mg + 2HCl \rightarrow MgCl_2 + H_2$** 0 +1, -1 +2, -1 0 Mg is oxidized, H is reduced
Reaction Y	**$CaO + 2HCl \rightarrow CaCl_2 + H_2O$** +2,-2 +1,-1 +2, -1 +1,-2 nothing changes – not a redox reaction
Reaction Z	**$Mg + CuO \rightarrow MgO + Cu$** 0 +2,-2 +2,-2 0 Mg is oxidized, Cu is reduced

1.	In Reaction W, what is the charge on H in H_2? 0
2.	In Reaction W, what is the charge on H in HBr? +1
3.	In Reaction Y, what is the charge of the Ca in $CaCl_2$ and CaO? +2 Note: Ca is the same charge in both compounds
4.	In Reaction X, what is oxidized and what is reduced? Mg is oxidized and H is reduced
5.	What is the oxidizing agent in Reaction V? Cl_2 because it contains Cl which is reduced
6.	What is the reducing agent in Reaction Z? Mg because it is oxidized
7.	Which of the above reactions is not a redox reaction? Reaction Y because the charges don't change (it is a neutralization reaction)

8.	Which of the following is a correct oxidation half-equation?		
	A	$Zn^{2+} + 2e^- \rightarrow Zn$	this is a correct reduction half-equation
√	**B**	$Zn \rightarrow Zn^{2+} + 2e^-$	this is a correct oxidation half-equation
	C	$Zn^{2+} \rightarrow Zn + 2e^-$	this is nonsense (the electrons are on the wrong side)
	D	$Zn + 2e^- \rightarrow Zn^{2+}$	this is nonsense (the electrons are on the wrong side)

9.	Which of the following is a correct reduction half-equation?		
√	**A**	$Zn^{2+} + 2e^- \rightarrow Zn$	this is a correct reduction half-equation
	B	$Zn \rightarrow Zn^{2+} + 2e^-$	this is a correct oxidation half-equation
	C	$Zn^{2+} \rightarrow Zn + 2e^-$	this is nonsense (the electrons are on the wrong side)
	D	$Zn + 2e^- \rightarrow Zn^{2+}$	this is nonsense (the electrons are on the wrong side)

10.	Consider the following redox reaction: $Cu + 2Fe^{3+} \rightarrow Cu^{2+} + 2Fe^{2+}$ Which of the following is the reduction half-equation for this reaction?		
	A	$Cu \rightarrow Cu^{2+} + 2e^-$	this is the oxidation half-equation
	B	$Cu + 2e^- \rightarrow Cu^{2+}$	this is nonsense (the electrons are on the wrong side)
√	**C**	$Fe^{3+} + e^- \rightarrow Fe^{2+}$	this is the reduction half-equation
	D	$Fe^{3+} \rightarrow Fe^{2+} + e^-$	this is nonsense (the electrons are on the wrong side)
	E	$Cu \rightarrow Cu^{2+} + e^-$	This is not balanced (should be $Cu \rightarrow Cu^{2+} + 2e^-$)

Here is the link to the answer sheet