Lesson: Redox reactions Quiz

Unit Question:Why do cell phone batteries sometimes overheat?

NAME: _____

PERIOD: _____ DATE: _____

Oxidation - Reduction (redox) reaction Quiz

1. Is this reaction a redox reaction? Explain your answer. $2K(s) + Br_2(\ell) \rightarrow 2KBr(s)$

2. Is this reaction a redox reaction? Explain your answer. $2NaCl(aq) + Pb(NO_3)_2(aq) \rightarrow 2NaNO_3(aq) + PbCl_2(s)$

3. Which substance loses electrons and which substance gains electrons in this reaction? $2Mg(s) + O_2(g) \rightarrow 2MgO$

4. Which substance loses electrons and which substance gains electrons in this reaction? $16Fe(s) + 3S_8(s) \rightarrow 8Fe_2S_3(s)$

5. Which substance is oxidized and which substance is reduced in this reaction? $2Li(s) + O_2(g) \rightarrow Li_2O_2(s)$

6. Which substance is oxidized and which substance is reduced in this reaction? $2Fe(s) + 3I_2(s) \rightarrow 2FeI_3(s)$

7. What are two different definitions of oxidation?
8. What are two different definitions of reduction?

9. Assign oxidation numbers to the atoms in each substance.
    a. P_4
    b. SO_3
    c. SO_3^{2-}
    d. $Ca_3(PO_3)_2$

10. Assign oxidation numbers to the atoms in each substance.
    a. PCl_5
    b. $(NH_4)_2Se$

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c. Ag
d. Li_2O_2

11. Assign oxidation numbers to the atoms in each substance.
    a. NO
    b. NO_2
    c. $CrCl_2$
    d. $CrCl_3$

12. Assign oxidation numbers to the atoms in each substance.
    a. NaH
    b. N_2O_3
    c. NO_2^-
    d. $CuNO_3$

13. Assign oxidation numbers to the atoms in each substance.
    a. CH_2O
    b. NH_3
    c. Rb_2SO_4
    d. $Zn(C_2H_3O_2)_2$

14. Assign oxidation numbers to the atoms in each substance.
    a. C_6H_6
    b. $B(OH)_3$
    c. Li_2S
    d. Au

15. Identify what is being oxidized and reduced in this redox reaction by assigning oxidation numbers to the atoms. $2NO + Cl_2 \rightarrow 2NOCl$

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16. Identify what is being oxidized and reduced in this redox reaction by assigning oxidation numbers to the atoms. $Sr + SO_3 \rightarrow SrSO_3$

17. Identify what is being oxidized and reduced in this redox reaction by assigning oxidation numbers to the atoms. $2KrF_2 + 2H_2O \rightarrow 2Kr + 4HF + O_2$

18. Identify what is being oxidized and reduced in this redox reaction by assigning oxidation numbers to the atoms. $SO_3 + SCl_2 \rightarrow SOCl_2 + SO_2$

19. Identify what is being oxidized and reduced in this redox reaction by assigning oxidation numbers to the atoms. $2Rb + MgCl_2 \rightarrow 2RbCl + Mg$

20. Identify what is being oxidized and reduced in this redox reaction by assigning oxidation numbers to the atoms. $2C_8H_{18} + 25O_2 \rightarrow 16CO_2 + 18H_2O$

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Answers

1. yes because oxidation numbers are changing

3. lose: Mg; gain: O

5. oxidized: Li; reduced: O

7. increase in oxidation number; loss of electrons

9.

a. P: 0
b. S: +6; O: −2
c. S: +4; O: −2
d. Ca: +2; P: +3; O: −2

11.

a. N: +2; O: −2
b. N: +4; O: −2
c. Cr: +2; Cl: −1
d. Cr: +3; Cl: −1

13.

a. C: 0; H: +1; O: −2
b. N: −3; H: +1
c. Rb: +1; S: +6; O: −2
d. Zn: +2; C: 0; H: +1; O: −2

15. oxidized: N; reduced: Cl

17. oxidized: O; reduced: Kr

19.oxidized: Rb; reduced: Mg