

Knowledge	Communication	Application	Total Mark
/ 10	/ 6	/ 14	/ 30

Knowledge:

[...../10]

1. The oxidation number of carbon in $C_2O_4^{2-}$ is

- A) +3 B) +4 C) +5 D) +6

2. Consider the following reaction: $3As_2O_3 + 4NO_3^- + 7H_2O \rightarrow 6H_3AsO_4 + 4NO$
The oxidizing agent is

- A) H^+ B) H_2O C) NO_3^- D) AsO_3

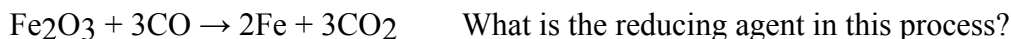
3. Which of the following represents a redox reaction?

- A) $H_2CO_3 \rightarrow H_2O + CO_2$ B) $CuS + H_2 \rightarrow H_2S + Cu$
C) $AgNO_3 + NaCl \rightarrow AgCl + NaNO_3$ D) $2HCl + Na_2SO_3 \rightarrow 2NaCl$

4. An oxidizing agent will cause which of the following changes?

- A) $PtO_2 \rightarrow PtO$ B) $PtO_3 \rightarrow PtO_2$ C) $Pt(OH)_2 \rightarrow Pt$ D) $Pt(OH)_2^{2+} \rightarrow PtO_3$

5. The following represents the process used to produce iron from iron III oxide:



- A. Fe B. CO C. CO_2 D. Fe_2O_3

6. Consider the following reaction: $2HNO_2 + 2I^- + 2H^+ \rightarrow 2NO + I_2 + 2H_2O$ The oxidation number for each nitrogen atom

- a. increases by 1 b. increases by 2 c. decreases by 1 d. decreases by 2

7. Which of the following is not a redox reaction?

- a. $Cu + Br_2 \rightarrow CuBr_2$ b. $CO + H_2O \rightarrow CO_2 + H_2$
c. $CH_4 + H_2O \rightarrow CO_2 + 2H_2O$ d. $NaOH + HCl \rightarrow NaCl + H_2O$

8. Which of the following half-reactions are balanced?

- a. $ClO^- + H_2O + e^- \rightarrow Cl_2 + 2OH^-$ b. $2ClO^- + H_2O + 2e^- \rightarrow Cl_2 + 3OH^-$
c. $2ClO^- + 2H_2O + 2e^- \rightarrow Cl_2 + 4OH^-$ d. $2ClO^- + 2H_2O \rightarrow Cl_2 + 4OH^- + 2e^-$

9. When MnO_4^- reacts to form Mn^{2+} , the manganese in MnO_4^- is

- a. reduced as its oxidation number increases
- b. reduced as its oxidation number decreases
- c. oxidized as its oxidation number increases
- d. oxidized as its oxidation number decreases

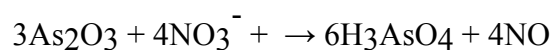
10. Electrons are lost by the

- A. reducing agent as it undergoes oxidation.
- B. reducing agent as it undergoes reduction.
- C. oxidizing agent as it undergoes oxidation.
- D. oxidizing agent as it undergoes reduction.

Communication:

[...../6]

1- Consider the following redox reaction: (6)



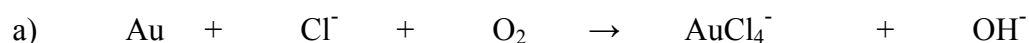
a) Identify each half reaction, including electrons.

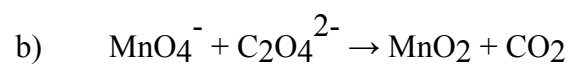
b) Identify the oxidizing and reducing agents.

Application:

[...../14]

1. Balance the following redox reaction in basic solution using half reaction method : (...../8)





2- Balance the following redox reaction in acidic solution using half reaction method : (...../6)

