	INDIAN SCHOOL AL WADI AL KABIR	
Class: XI	**DEPARTMENT: SCIENCE 2021-22** **SUBJECT: CHEMISTRY**	**Date of completion:** **14.11.2021**
Worksheet No: 05 **with answers**	TOPIC: Redox reactions	**Note:** **A4 FILE FORMAT**
NAME OF THE STUDENT	CLASS & SEC:	**ROLL NO.**

Objective Type Questions

1. What is the Oxidation Number of Sulphur in H_2SO_4?
   (a) +2 (b) +4 (c) +6 (d) -6

2. What is Oxidation state of Oxygen in H_2O_2?
   (a) -1 (b) -2 (c) +1/2 (d) -1/2

3. Which of the following arrangements represent increasing oxidation number of the central atom?
   a. CrO_2^-, ClO_3^-, CrO_4^{2-}, MnO_4^-
   b. $ClO3^-$, CrO_4^{2-}, MnO_4^-, CrO_2
   c. CrO_2^-, ClO_3^-, MnO_4^-, CrO_4^{2-}
   d. $CrO4^{2-}$, MnO_4^-, CrO_2^-, ClO_3^-

4. The reaction $S_8 + 12OH^- \longrightarrow 4S^{2-} + 2S_2O_3^{2-} + 6H_2O$ is
   a. Combination reaction
   b. Decomposition reaction
   c. Non-metal displacement
   d. Disproportionation reaction

5. Which of the following is not a rule for calculating the oxidation number
   a. for ions oxidation number is equal to the charge on the ion
   b. the oxidation number of Oxygen is always -2 in all compounds
   c the oxidation number of Fluorine is -1 in all its compounds
   d the oxidation number of Hydrogen is +1 in all compounds except the binary hydrides of s block elements
6. Write the formula of Iron (II)sulphate

   a. $FeSO_4$
   b. $Fe_2(SO4)_3$
   c. Fe_2SO_4
   d. $Fe(SO_4)_2$

7. The element that does not show the positive oxidation state is
   (a) O
   (b) N
   (c) F
   (d) Cl
8. Which of the following processes does not involve either oxidation or reduction?

   (a) Formation of slaked lime from quick lime
   (b) Heating Mercuric Oxide
   (c) Formation of Manganese Chloride from Manganese oxide
   (d) Formation of Zinc from Zinc blende

9. H_2O_2 changes $Cr_2O_7^{2-}$ ion to CrO_5 in an acidic medium, the oxidation state of Cr in CrO_5 is

   (a) +6

   (b) +5

   (c) -10

   (d) +3

Questions 10- 12 are *Assertion Reason* type questions

a. If both *Assertion* and *Reason* are correct and *Reason* is the correct explanation of *Assertion*.
b. If both *Assertion* and *Reason* are correct but *Reason* is not the correct explanation of *Assertion*.
c. If *Assertion* is correct and *Reason* is wrong.
d. If *Assertion* is wrong and *Reason* is correct.

10. Assertion (A): In a redox reaction the oxidation number of oxidants decreases and that of reductant Increases
    Reason(R): Oxidant gains electrons and reductant loses electrons

11. Assertion(A): In the reaction between potassium permanganate and potassium iodide, giving MnO_2 and I_2 permanganate ions act as oxidising agent
    Reason (R): Oxidation state of Manganese changes from +2 to +7 during the reaction.
12. Assertion (A): The decomposition of hydrogen peroxide to form water and oxygen is an example of disproportionation reaction.
    Reason (R): The oxygen of peroxide is in –1 oxidation state and it is converted to zero oxidation state in O_2 and –2 oxidation state in H_2O

Questions 13- 16 are Case study-based Questions

Redox reactions are those reactions in which oxidation and reduction occur simultaneously. A redox reaction is made up of two half reactions. In the first half reaction, oxidation takes place and second half reduction occurs. Oxidation is a process in which a substance loses electrons and in reduction substance gains electrons. The substance which gains electrons is reduced and acts as an oxidizing agent. On the other hand, a substance which loses electrons is oxidized and acts as a reducing agent. The oxidation number of an atom increases during oxidation and reduces during reduction. The redox reactions may include combination of atoms or molecules displacement of metals or non-metals and disproportionation reaction.

1. Which of the following is a redox reaction?

a $CaCO_3 \longrightarrow CaO+CO_2$
b.$H_2 + C1_2 \longrightarrow 2HCl$
c $CaO+ 2HCl \longrightarrow CaCl_2 + H_2O$
d $CaO + H_2O \longrightarrow Ca(OH)_2$

2. For the following reactions, identify the correct statement

ZnO + CO ---------Zn + CO2

a. ZnO is being reduced
b.CO_2 is being oxidized
c. ZnO is being oxidized
d. CO_2 is being reduced

3. $3Br_2 + 6CO_3^{2-} + 3H_2O \longrightarrow 5Br^- + BrO_3^- + 6HCO_3^-$

(a) Bromine is oxidised and Carbonate is reduced
(b) Bromine is neither oxidised nor reduced
(c) Bromine is oxidised and water is reduced
(d) Bromine is both reduced and oxidised

Answers

1.	c
2.	a
3.	a
4.	d
5.	b
6.	a
7.	c
8.	a
9.	b
10	A
11	C
12	A
	Case study-based questions
1	b
2	c
3	d

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