



INDIAN SCHOOL DARSAIT



DEPARTMENT OF CHEMISTRY

Subject: Chemistry Topic : Redox reaction Date of Worksheet: 13.10.2019		
Resource Person: Rohitha P N Date of Submission: _____		
Name of the Student: _____ Class & Division: XI Roll Number: _____		
1.	A standard hydrogen electrode has zero electrode potential because A. hydrogen is easiest to oxidize B. the electrode potential is assumed to be zero C. hydrogen has only one electron D. hydrogen is the lightest element	1
2.	In a reaction between $\text{CuSO}_{4(s)}$ and $\text{Zn}_{(s)}$, A. Zinc experiences an decrease in the oxidation state B. Copper undergoes oxidation C. Zinc undergoes oxidation D. all of these	1
3.	Oxidizing agents A. are mostly non-metals B. are mostly metals C. increase in oxidation state D. are mostly transition metals	1
4.	Hydrogen acts as a reducing agent, A. by taking oxygen B. by giving electrons C. by taking hydrogen D. Both A and B	1
5.	Displacement reaction occurs when A. a more reactive non-metal displaces less reactive non-metals B. a more reactive metal displaces a less reactive metal C. metal lower in reactivity series is added D. Both A and B	1
6.	Metals are good at A. accepting electrons B. donating electrons C. insulation	1

	D. producing electricity.	
7.	Which of the following is not an example of redox reaction? A. $\text{CuO} + \text{H}_2 \longrightarrow \text{Cu} + \text{H}_2\text{O}$ B. $\text{Fe}_2\text{O}_3 + 3\text{CO} \longrightarrow 2\text{Fe} + 3\text{CO}_2$ C. $2\text{K} + \text{F}_2 \longrightarrow 2\text{KF}$ D. $\text{BaCl}_2 + \text{H}_2\text{SO}_4 \longrightarrow \text{BaSO}_4 + 2\text{HCl}$	1
8.	The oxidation number of an element in a compound is evaluated on the basis of certain rules. Which of the following rules is not correct in this respect? A. The oxidation number of hydrogen is always +1. B. The algebraic sum of all the oxidation numbers in a compound is zero. C. An element in the free or the uncombined state bears oxidation number zero. D. In all its compounds, the oxidation number of fluorine is – 1.	1
9.	Which of the following arrangements represent increasing oxidation number of the central atom? A. CrO_2^- , ClO_3^- , CrO_4^{2-} , MnO_4^- B. ClO_3^- , CrO_4^{2-} , MnO_4^- , CrO_2^- C. CrO_2^- , ClO_3^- , MnO_4^- , CrO_4^{2-} D. CrO_4^{2-} , MnO_4^- , CrO_2^- , ClO_3^- Ans : A	1
10.	Identify disproportionation reaction A. $\text{CH}_4 + 2\text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O}$ B. $\text{CH}_4 + 4\text{Cl}_2 \rightarrow \text{CCl}_4 + 4\text{HCl}$ C. $2\text{F}_2 + 2\text{OH}^- \rightarrow 2\text{F}^- + \text{OF}_2 + \text{H}_2\text{O}$ D. $2\text{NO}_2 + 2\text{OH}^- \rightarrow \text{NO}_2^- + \text{NO}_3^- + \text{H}_2\text{O}$	1
11.	In the reactions $\text{Sn}^{+2} + 2\text{Fe}^{+3} \rightarrow \text{Sn}^{+4} + 2\text{Fe}^{+2}$, the oxidizing agent is A. Sn^{2+} B. Fe^{2+} C. Sn^{4+} D. Fe^{3+}	1
12.	$\text{Mg} + \text{PbCl}_2 \rightarrow \text{MgCl}_2 + \text{Pb}$. Which statement correctly describes the oxidation and reduction that occur? A. Mg is oxidized and Cl^- is reduced B. Mg is reduced and Pb^{+2} is oxidized C. Mg is reduced and Cl^- is oxidized D. Mg is oxidized and Pb^{+2} is reduced	1
13.	In a galvanic cell which of the following is correct? A. anode is negatively charged B. cathode is positively charged	1

	C. Reduction occurs at the anode D. standard e.m.f of the cells is always zero	
14.	In which of the following the oxidation number of Carbon is not zero? A. $C_{12}H_{22}O_{11}$ B. HCHO C. CH_3CHO D. CH_3COOH	1
15.	<p><u>Assertion and Reason Type Questions</u></p> <p>In the following questions a statement of assertion (A) followed by a statement of reason (R) is given. Use the following key points to choose the appropriate answer.</p> <p>a) Both A and R are true and R is the correct explanation of A. b) Both A and R are true but R is not the correct explanation of A. c) A is true but R is false. d) A is false but R is true. e) Both A and R are incorrect.</p> <p>(i) Assertion (A): Among halogens fluorine is the best oxidant. Reason (R): Fluorine is the most electronegative atom. Ans:a</p> <p>(ii) Assertion(A): Redox reactions are also called neutralization reactions Reason(R): The number of electrons gained or lost in the reaction are balanced. Ans:d</p> <p>(iii) Assertion (A): A substance which gets reduced can act as reducing agent. Reason(R): An oxidizing agent itself gets oxidised. Ans:e</p> <p>(iv) Assertion (A): In the reaction between potassium permanganate and potassium iodide, permanganate ions act as oxidizing agent. Reason (R): Oxidation state of manganese changes from +2 to +7 during the reaction. Ans:c</p> <p>(v) 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. Ans:a</p>	1
20.	Name a compound each in which oxidation state of H is i)+1 ii) -1	1

21.	Which is a better oxidizing agent? $\text{Cl}_2 + 2\text{e}^- \longrightarrow 2\text{Cl}^- \quad E^\circ = 1.36\text{V}$ $\text{F}_2 + 2\text{e}^- \longrightarrow 2\text{F}^- \quad E^\circ = 2.87\text{V}$	1
22.	Can we store 1M AgNO_3 in a copper vessel? $E^\circ_{\text{Cu}^{2+}/\text{Cu}} = 0.34\text{V}$, $E^\circ_{\text{Ag}^+/\text{Ag}} = 0.80\text{V}$	1
23.	Calculate E° for the cell. $\text{Al}/\text{Al}^{3+}_{(1\text{M})}/\text{Cu}^{2+}_{(1\text{M})}/\text{Cu}$. Given $E^\circ_{\text{Al}^{3+}/\text{Al}} = -1.66\text{V}$, $E^\circ_{\text{Cu}^{2+}/\text{Cu}} = 0.34\text{V}$	1
24.	Write the stock notation for NiSO_4 , SnO_2	1
25.	Identify oxidant, reductant, substance oxidized, substance reduced in i) $\text{I}_2 + 2\text{S}_2\text{O}_3^{2-} \longrightarrow 2\text{I}^- + \text{S}_4\text{O}_6^{2-}$ ii) $\text{MnO}_2 + 4\text{HCl} \longrightarrow \text{MnCl}_2 + \text{Cl}_2 + 2\text{H}_2\text{O}$	2
26.	Arrange in the decreasing order of oxidation number KMnO_4 , MnO_2 , Mn_2O_3 , Mn , K_2MnO_4	2
27.	Calculate the oxidation number of the underlined elements i) $\underline{\text{S}}_2\text{O}_3^{2-}$ ii) $\underline{\text{Xe}}\text{OF}_4$ iii) $\underline{\text{P}}_2\text{O}_5$ iv) $\underline{\text{K}}\underline{\text{Mn}}\text{O}_4$	2
28.	In the following galvanic cell $\text{Zn}_{(s)} + 2\text{Ag}^+_{(aq)} \longrightarrow \text{Zn}^{2+}_{(aq)} + 2\text{Ag}_{(s)}$ i) Which electrode is negatively charged? ii) Which is the carrier of current in the cell? iii) Represent the cell. iv) Write the individual reaction at the anode and cathode.	3
29.	Balance the following	2 each
	i) $\text{N}_2\text{H}_4 + \text{ClO}_3^- \longrightarrow \text{NO} + \text{Cl}^-$ (basic)	
	ii) $\text{MnO}_4^- + \text{H}_2\text{O}_2 \longrightarrow \text{MnO}_4^{2-} + \text{O}_2$ (basic)	
	iii) $\text{HNO}_3 + \text{I}_2 \longrightarrow \text{HIO}_3 + \text{NO}_2 + \text{H}_2\text{O}$ (acidic)	
	iv) $\text{MnO}_4^- + \text{Fe}^{2+} \longrightarrow \text{Mn}^{2+} + \text{Fe}^{3+}$ (acidic)	