EXE	RCISE-I (Conceptual	Questions)		<b>Build Up Your Understanding</b>
		ΟΧΙΒΑΤΙΟ	NN NUMBER	
1.	In Ni(CO) <sub>4</sub> , the oxid	ation state of Ni is :-		
1.	(1) 4	(2) 0	(3) 2	(4) 8
	(-)	(_) •	(-) -	
2.	The oxidation numb	er of nitrogen in NH <sub>2</sub> O	H is :	
	(1) 0	(2) –1	(3) –1	(4) -2
3.	Of the following elements	ments, which one has t	he same oxidation s	tate in all of its compounds?
	(1) Hydrogen	(2) Fluorine	(3) Carbon	(4) Oxygen
4.	Oxidation number of $(1) + 1$	I fluorine in $OF_2$ is :-	(2) 1	(1) 2
	(1) + 1	(2) + 2	(3) - 1	(4) -2
5	The oxidation numb	er of C in CH, CH <sub>2</sub> Cl	CH <sub>2</sub> Cl CHCl <sub>2</sub> and	CCL are respectively:-
J.	(1) + 4 + 2 0 - 2 - 4		(2) + 2 + 4 = 0 - 4	-2
	(1) + 1, +2, 0, -2, 1 (3) -4, -2, 0, +2, +4		(2) + 2, + 1, 0, + 1, (4) - 2, -4, 0, +4, -4	+2
	(-) -, -, -, -, -		(1) _, ., ., ., .,	
6.	Phosphorus has the o	oxidation state of $+3$ in		
	(1) Ortho phosphoric	c acid	(2) Phosphorus ac	id
	(3) Meta phosphoric	acid	(4) Pyrophosphor	ic acid
7.	Oxidation state of ox	kygen in hydrogen perc	oxide is	
	(1) - 1	(2) + 1	(3) 0	(4) -2
8	The oxidation numb	or of Dt in [Dt(C, U)C]		
0.	(1) $\pm 1$	$(2) \pm 2$	(3) + 3	$(A) \perp A$
	(1) +1	(2) +2	(3) + 3	(4) +4
9.	Which one of the fol	lowing statements is n	ot correct ?	
	(1) Oxidation state o	of S in $(NH_4)_2S_2O_8$ is +	6	
	(2) Oxidation number	er of Os in $OsO_4$ is +8		
	(3) Oxidation state o	f S in H <sub>2</sub> SO <sub>4</sub> is +8		
	(1) Ovidation number	$r of O in KO_2 is \frac{1}{2}$		
	(+) Oxidation number	$\frac{1}{2}$		
10.	Which of the following	ing shows highest oxid	ation number in cor	nbined state :
	(1) Os		(2) Ru	
	(3) Both (1) and (2)		(4) None	
11	Ovidation number of	f codium in codium am	algam is :	
11.	(1) $+2$	(2) + 1	(3) $(3)$ $(3)$	(4) Zara
	(1) + 2	(2) + 1	(3) - 3	(4) 2010
12.	Oxidation state of ni	trogen is incorrectly gi	ven for :	
	Compound	Oxidation St	tate	
	(1) [Co(NH <sub>3</sub> ) <sub>5</sub> Cl]Cl <sub>2</sub>	-3		
	(2) NH <sub>2</sub> OH	-1		
	$(3) (N_2H_5)_2SO_4$	+2		
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	(4) $Mg_3N_2$	-3		
13.	Oxidation number of C in H (1) +2 (2) $-3$	NC is :	(3) +3	(4) Zero
14.	Oxidation number of Fe in F (1) 200 (2) 20	Ge <sub>0.94</sub> O is :- 0/94	(3) 94/200	(4) None
15.	Oxidation number of carbon (1) $\frac{+2}{2}$ (2) $\frac{+4}{2}$	in carbon subox 4	tide $(C_3O_2)$ is : (3) +4	$(4) \frac{-4}{2}$
16.	$\begin{array}{c} 3 \\ \text{Oxidation number of sulphus} \\ (1) + 2 \\ (2) + 4 \end{array}$	r in Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> wo	uld be :- (3) -2	3 (4) 0
17.	Two oxidation states for chlor $(1)$ CaOCl <sub>2</sub> $(2)$ KC	orine are found in Cl	n the compound : (3) KClO <sub>3</sub>	(4) Cl <sub>2</sub> O <sub>7</sub>
18.	Compounds         (A) KMn*O <sub>4</sub> (B) Ni*(CO) <sub>4</sub> (C) [Pt*(NH <sub>3</sub> )Cl <sub>2</sub> ]Cl <sub>2</sub> (D) Na <sub>2</sub> O <sub>2</sub> *         The correct code for the O.N         A       B         (1)       1       2       3         (2)       4       3       2         (3)       2       3       1         (4)       4       1       2	O.N. (1) +4 (2) +7 (3) 0 (4) -1 I. of asterisked at D 4 1 4 3	tom would be :-	
19.	<ul> <li>-1/3 oxidation state of nitrog</li> <li>(1) Ammonia (NH<sub>3</sub>)</li> <li>(3) Nitric oxide (NO)</li> </ul>	gen will be obtain	ned in case of :- (2) Hydrazoic acid (N (4) Nitrous oxide (N <sub>2</sub> )	I <sub>3</sub> H) O)
20.	Oxidation number of Fe in F (1) +2 and +3 (2) +1	$G_{4}O_{4}$ are : and +2	(3) +1 and +3	(4) None
21.	Compound YBa <sub>2</sub> Cu <sub>3</sub> O <sub>7</sub> is a [O. No. of Y = +3] (1) + $7/3$ (2) Ze	super conductor. ro	. The O.N. of the copp (3) +2	per in the compound will be : (4) +1
22.	The oxidation state of iodine $(1) + 7$ $(2) - 1$	e in $H_4IO_6^-$ is :-	(3) +5	(4) +1
23.	Amongst the following, iden (1) $MnO_4^-$ (2) Cr	tify the species $(CN)_3^{3-}$	with an atom in +6 ox (3) $\text{NiF}_6^{2-}$	idation state :- (4) CrO <sub>2</sub> Cl <sub>2</sub>

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24.	The (1) P (3) H	oxidatio hospho Iypo ph	on state brous aci losphore	of $+1$ foid (H <sub>3</sub> Point of H <sub>3</sub>	or phosp O <sub>3</sub> ) l (H <sub>3</sub> PO	ohorous 2)	is found in :- (2) Ortho p (4) Hypo p	s found in :- (2) Ortho phosphoric acid (H <sub>3</sub> PO <sub>4</sub> ) (4) Hypo phosphoric acid (H <sub>4</sub> P <sub>2</sub> O <sub>6</sub> )		
25.	In wl (1) F (3) F	hich of eSO4(N e(CO)5	the follo	owing c 04.6H2O	compour )	nds iron	has lowest or (2) K <sub>4</sub> Fe(C (4) Fe <sub>0.94</sub> O	xidation s CN) <sub>6</sub>	tate :-	
26.	Selec (1) H	ct the co I <sub>2</sub> O	ompoun	d in wh (2) C	ich the $D_2F_2$	oxidatio	on number of (3) Na <sub>2</sub> O	oxygen is	-1 :- (4) BaO <sub>2</sub>	
27.	Matc the c List	h List- odes gi – <b>I</b>	I (comp ven belo	of N) and	select the correc	et answer using				
	$\begin{array}{c} \text{List} - 1 \\ \text{(A) KNO}_3 & \text{(a)} \\ \text{(B) HNO}_2 & \text{(b)} \\ \text{(C) NH}_4\text{Cl} & \text{(c)} \\ \text{(D) NaN}_3 & \text{(d)} \end{array}$					-1/3 -3 0 +3 +5				
	Code	es are :-	D	C	(C) D					
	<ol> <li>(1)</li> <li>(2)</li> <li>(3)</li> <li>(4)</li> </ol>	e e d b	d b c	b d a d	a a c e					
28.	In wl (1) K (3) F	hich of K <sub>3</sub> Fe(CN e <sub>2</sub> O <sub>3</sub> , F	the follo N) <sub>6</sub> , Fe <sub>2</sub> 0 SeO	owing p O <sub>3</sub>	oair oxid	lation n	umber of Fe i (2) Fe(CO) (4) Fe <sub>2</sub> (SO	s same :- )5, Fe <sub>2</sub> O <sub>3</sub> )4)3, K4Fe(	(CN) <sub>6</sub>	
29.	In the	e conve	ersion of	f Br <sub>2</sub> to	$BrO_3^-$ t	he oxid	ation state of	bromine c	chnges from :-	
	(1) 0	to 5		(2) 1	to 5		(3) 0 to -3		(4) 2 to 5	
30.	The s (1) +	sum of 2	oxidatio	on states (2) +	s of sulp -6	ohur in 1	$H_2S_2O_8$ is :- (3) +7		(4) +12	
31.	In wi (1) C	hich of CrO <sub>3</sub>	the follo	owing c (2) C	compour CrO <sub>2</sub> Cl <sub>2</sub>	nds of C	Cr, the oxidation $(3) \operatorname{Cr}_2 \operatorname{O}_3$	on numbe	r of Cr is not + $(4)$ K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub>	6 :-
32.	Oxid (1) 0	ation st	tate of c	obalt in (2) +	[Co(N] -4	H <sub>3</sub> ) <sub>4</sub> (H <sub>2</sub>	O)Cl]SO <sub>4</sub> is :- (3) -2	-	(4) +3	
33.	Oxid (1) Z	ation n Tero	umber o	of carbo (2) +	n in gra -1	phite :-	(3) +4		(4) +2	
34.	Oxid	ation n	umber c	of 'N' ir	n N <sub>3</sub> H (I	Hydrazo	oic acid) is :-			

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	$(1) -\frac{1}{3}$ (2)	2) -3	(3) +3	$(4) + \frac{2}{3}$				
35.	<ul> <li>Phosphorous has the oxidation state of +3 in :-</li> <li>(1) Phosphorus acid</li> <li>(2) Orthophosphoric acid</li> <li>(3) Meta phosphoric acid</li> <li>(4) Pyro phosphoric acid</li> </ul>							
36.	The oxidation number o $(1) - 1$ (2)	f arsenic atom in H <sub>3</sub> 2) –3	AsO <sub>4</sub> is :- (3) +3	(4) +5				
37.	In substance $Mg(HXO_3)$ (1) 0 (2)	), the oxidation num 2) +2	ber of X is :- (3) +3	(4) +4				
38.	Oxidation number of P i $(1)-1$ (2)	in KH <sub>2</sub> PO <sub>3</sub> is :- 2) –3	(3) +5	(4) +3				
39.	The oxidation number of (1) Two (2)	f iron in potassium f 2) Six	ferricyanide [K <sub>3</sub> Fe(CN (3) Three	[) <sub>6</sub> ] is :- (4) Four				
40.	The oxidation number of $(1) -3, +1, +3, +5$ (2)	f phosphorus in PH 2) -3, +3, +5, +1	$^{+}_{4}$ , PO <sub>2</sub> <sup>3-</sup> , PO <sub>4</sub> <sup>3-</sup> and PO <sub>4</sub> <sup>3-</sup> (3) +3, -3, +5, +1	$D_3^{3-}$ are respectively :- (4) -3, +1, +5, +3				
41.	Which of the following compounds are arranged increasing oxidation number of S :- (1) $H_2SO_3$ , $H_2S$ , $H_2SO_4$ , $H_2S_2O_3$ (2) $H_2S_2O_3$ , $H_2SO_3$ , $H_2SO_4$ (3) $H_2S$ , $H_2SO_3$ , $H_2SO_4$ , $H_2S_2O_3$ (4) $H_2S$ , $H_2SO_3$ , $H_2SO_3$ , $H_2SO_4$							
42.	Iodine shows the highes (1) KI (2	t oxidation state in t 2) KI <sub>3</sub>	he compound :- (3) IF <sub>5</sub>	(4) KIO <sub>4</sub>				
43.	The sum of the oxidation $(1) -4$ (2)	n states of all the car 2) 3	rbon atoms present in t (3) +5	the compound $C_6H_5CHO$ is :- (4) -4/7				
44.	Oxidation number of so $(1) + 1$ (2)	dium in sodium ama 2) 0	ılgam is :- (3) −1	(4) +2				
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45.	A reducing agent is a su	bstance which can :						
	<ul><li>(1) Accept electrons</li><li>(3) Accept protons</li></ul>		<ul><li>(2) Donate electrons</li><li>(4) Donate protons</li></ul>					
46.	The reaction $H_2S + H_2O$	$D_2 \rightarrow S + 2H_2O$ mani	ifests ·					
-101	(1) Oxidising action of H	H2O2	(2) Reducing nature (	of H <sub>2</sub> O <sub>2</sub>				
	(3) Acidic nature of $H_2C$	$D_2$	(4) Alkaline nature of	$f H_2 O_2$				
47.	If an element is in its low	west oxidation state	under proper conditio	ons it can act as:				
	(1) Reducing agent	est origation state,	(2) An oxidizing age	nt				
	(3) Oxidizing as well as	reducing agent	(4) Neither oxidizing	nor reducing agent				
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<b>48.</b>	In a reaction of $H_2O(steam) + C(g$	$lowing) \rightarrow CO + H_2$
	(1) $H_2O$ is the reducing agent	(2) $H_2O$ is the oxidizing agent
	(3) Carbon is the oxidizing agent	(4) Oxidation reduction does not occur
49.	The compound that can work both	as an oxidizing as well as reducing agent is :
	(1) KMnO <sub>4</sub> (2) $H_2O_2$	(3) $Fe_2(SO_4)_3$ (4) $K_2Cr_2O_7$
50.	Reaction (A) $S^{-2} + 4H_2O_2 \rightarrow SO_4^2$	$- + 4H_2O$
	$(\mathbf{P}) \mathbf{C} + \mathbf{U} \mathbf{O} \rightarrow 2 \mathbf{U} \mathbf{C} + \mathbf{U} \mathbf{O} \rightarrow 2 \mathbf{U} \mathbf{C} + \mathbf{U} \mathbf{O} \rightarrow \mathbf{U} \mathbf{U} \mathbf{U} + \mathbf{U} \mathbf{U} \mathbf{U} \rightarrow \mathbf{U} \mathbf{U} \mathbf{U} + \mathbf{U} \mathbf{U} \mathbf{U} \rightarrow \mathbf{U} \mathbf{U} \mathbf{U} + \mathbf{U} \mathbf{U} \mathbf{U} \mathbf{U} \rightarrow \mathbf{U} \mathbf{U} \mathbf{U} + \mathbf{U} \mathbf{U} \mathbf{U} \mathbf{U} \mathbf{U} + \mathbf{U} \mathbf{U} \mathbf{U} \rightarrow \mathbf{U} \mathbf{U} \mathbf{U} + \mathbf{U} \mathbf{U} \mathbf{U} \mathbf{U} \mathbf{U} \mathbf{U} \mathbf{U} + \mathbf{U} \mathbf{U} \mathbf{U} \mathbf{U} \mathbf{U} \mathbf{U} \mathbf{U} \mathbf{U}$	-
	(B) $C_{12} + H_2O_2 \rightarrow 2HC_1 +$ The true statement regarding the	$O_2$
	(1) $\mathbf{H}_{\mathbf{A}}$ of a statement regarding the	the reactions is .
	(1) $\Pi_2 O_2$ acts as reductant in both (2) $\Pi_2 O_2$ acts as oxident in reaction	n(A) and reductant in reaction ( <b>P</b> )
	(2) $\Pi_2 O_2$ acts as oxidant in reaction (2) $\Pi_2 O_2$ acts as an oxidant in hot	in (A) and reductant in reaction (B).
	(3) H <sub>2</sub> O <sub>2</sub> acts as an oxidant in both (4) H <sub>2</sub> O <sub>2</sub> acts as reductent in react	in the reactions.
	(4) $H_2O_2$ acts as reductant in react	Ion (A) and oxidant in feaction (B).
51	UNO, acts as an ovident with whi	ch one of the following reagant :
51.	(1) $KMpO$ (2) H-S	$(3) K_{c} C_{r} O_{r} \qquad (4) B_{r}$
	(1) $\mathbf{KivinO}_4$ (2) $\mathbf{H}_2\mathbf{S}$	$(3) R_2 C r_2 O / (4) B r_2$
52	In which of the following reaction	H <sub>2</sub> O <sub>2</sub> acts as reducing agents :-
52.	(1) $2E_{2}C_{1}^{1} + 2HC_{1}^{1} + HO \rightarrow 2E_{2}$	$C_1 + 2H O$
	$(1) 2\Gamma eC_{12} + 2\Gamma C_{1} + \Pi_{2}O_{2} \rightarrow 2\Gamma e$	$C_{13} + 2\Pi_2 O$
	$(2) \operatorname{Cl}_2 + \operatorname{H}_2\operatorname{O}_2 \rightarrow 2\operatorname{H}\operatorname{Cl} + \operatorname{O}_2$	
	$(3) 2HI + H_2O_2 \rightarrow 2H_2O + I_2$	
	$(4) H_2SO_3 + H_2O_2 \rightarrow H_2SO_4 + H_2$	0
50		
53.	A sulphur containing species that	cannot be a reducing agent is :-
	(1) $SO_2$ (2) $SO_3^{-2}$	(3) $H_2SO_4$ (4) $S_2O_3^{2-1}$
54.	When $H_2$ react with Na, it acts as	:-
	(1) Oxidising agent	(2) Reducing agent
	(3) Both	(4) None
55.	Which one is the oxidizing agent	in the reaction given below
	$2\mathrm{CrO}_4^{2-} + 2\mathrm{H}^+ \rightarrow \mathrm{Cr}_2\mathrm{O}_7^{-2} + \mathrm{H}_2\mathrm{O}$	
	(1) $H^+$ (2) $Cr_2 O_7^{-2}$	(3) $Cr^{++}$ (4) None
56.	In the course of a chemical reaction	n an oxidant -
201	(1) Loses electron	(2) Gains electron
	(3) Both loses and gain electrons	(4) Electron change does not occur
	(c) Bour roses and Sum creet ons	(1) Election change does not occur
57.	In the reaction :-	
	$C + 4HNO_2 \rightarrow CO_2 + 2H_2O + 4N$	$O_2$
	$HNO_2$ acts as :-	
	(1) An oxidizing agent	(2) An acid
	(3) A reducing agent	(4) None of them
	(3) IT reducing agent	

58.	A compound contains atoms A, B and C. The oxidation number of A is +2, of B is +5 and of C								
	1s - 2. The possible to (1) ABC <sub>2</sub>	(2) $B_2(AC_3)_2$	$d_{1S}:-$ (3) $A_2(BC_4)_2$	(4) $A_2(B_4C)_2$					
	(1) $(1)$	$(2) D_2(1105)_2$	(3) 113(12-4)2	$(\mathbf{T})$ $(\mathbf{T}_3)$ $(\mathbf{D}_4 \mathbf{C})_2$					
59.	Equivalent weight of $N_2$ in the change $N_2 \rightarrow NH_3$ is :-								
	(1) $\frac{28}{2}$	(2) 28	$(3) \frac{28}{2}$	$(4) \frac{28}{28}$					
	6	(-)	2	3					
60	Fauivalent weight of	NH <sub>2</sub> in the change N <sub>2</sub>	→ NH2 is ·-						
00.	17			17					
	$(1) - \frac{1}{6}$	(2) 17	$(3) - \frac{1}{2}$	$(4) - \frac{1}{3}$					
61.	In the reaction, $2S_2O$	$S_3^{2-} + I_2 \rightarrow S_4 O_6^{2-} + 2I$	, the eq. wt. of $Na_2S_2C$	$O_3$ is equal to its :					
	(1) Mol. wt.	(2) Mol. wt / 2	(3) $2 \times$ Mol. wt	(4) Mol. wt / 6					
<i>L</i> )	In the reaction VO	$E_2 \cap X E_2 \cap V_2 \cap V_2$	the art with of V-O- is	a agual ta ita i					
04.	In the reaction, $v \cup +$ (1) Mol. wt.	$Fe_2 U_3 \rightarrow reU + v_2 U_5$ (2) Mol wt / 8	, the eq. wt. of $v_{2}O_{5}$ is (3) Mol wt / 6	(4) None of these					
	(1) 10101. We.	(2) 10101. WC / 0	(J) 10101. We / 0	(+) I tolle of these					
63.	The eq. wt. of iodine	in, $I_2 + 2S_2O_3^{2-} \rightarrow 2I^-$	$+ S_4 O_6^{2-}$ is :						
	(1) Mol. wt.	(2) Mol. wt. / 2	(3) Mol. wt. / 6	(4) None of these					
64.	Molecular weight of	$KBrO_3$ is M. What is it	ts equivalent weight, if	the reaction is :					
	$\operatorname{Br}O_3^- \to \operatorname{Br}$	(acidic medium)							
	(1) M	(2) M / 4	(3) M / 6	(4) 6M					
65	In the reaction : $\Delta^{-n_2}$	$1 \text{ ve}^- \rightarrow A^{-n_1}$ here v	will be						
05.	(1) $\mathbf{n}_1 = \mathbf{n}_2$	$+ x c \rightarrow A$ , note A (2) $n_2 - n_1$	(3) $n_1 - n_2$	$(4) n_1 \cdot n_2$					
	(1) n <sub>1</sub> n <sub>2</sub>	$(2)$ $n_2$ $n_1$	$(\mathbf{J})$ $\mathbf{n}_1$ $\mathbf{n}_2$	(¬) II <sub>1</sub> II <sub>2</sub>					
66.	What would be the eq	quivalent weight of the	reductant in the reaction	on :-					
	$[Fe(CN)_6]^{-3} + H_2O_2 + G_2 + G_2$	$+ 2OH^{-} \rightarrow 2[Fe(CN)_{6}]^{4}$	$+ 2H_2O + O_2$						
	[Given : Fe = 56, $C =$	= 12, N = 14, O = 16, H	= 1] (2) 24	(1) 37					
	(1) 17	(2) 212	(3) 34	(4) 32					
67.	The eq. wt. of Na <sub>2</sub> S <sub>2</sub> (	$D_3$ as reductant in the re	eaction, $Na_2S_2O_3 + H_2C$	$O + Cl_2 \rightarrow Na_2SO_4 + 2HCl + S$					
	is:								
	(1) (Mol. wt.) / 1	(2) (Mol. wt.) / 2	(3) (Mol. wt.) / 6	(4) (Mol. wt.) / 8					
68	Fourivalent weight of	$FeC_{2}\Omega_{4}$ in the change							
00.	(1) $M/3$	(2) M / 6	(3) M / 2	(4) M / 1					
		(-) -							
69.	What will be n-factor	for $Ba(MnO_4)_2$ in acid	lic medium? (Where is	behaves as oxidant)					
	(1) 5	(2) 10	(3) 6	(4) 3					
70	The number of mole	of ovalate ions ovidise	d by one mole of Mn(	)- ; <sub>c</sub> .					
/0.	$\frac{110}{110} \frac{11000}{1100}$	(2) 2/5	(2) 5/2	$V_4  18$ . (1) 5					
_	(1) 1/3	(2) 2/3	(3) 3/2	(4) 5					
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71.	Oxidising product of	substance Na <sub>3</sub> AsO <sub>3</sub> we	ould be				
	(1) $As_2O_3^{-3}$	(2) $AsO_3^{-3}$	(3) $AsO_2^{-4}$	(4) $AsO_4^{-3}$ .			
72.	In a reaction 4 mole oxidant. The possible (1) (1/2) mole N <sub>2</sub> (3) 1 mole of NO <sub>2</sub>	e of electrons are tran e reduction product is :	sferred to one mole of (2) (1/2) mole $N_2O$ (4) 1 mole $NH_3$	of HNO <sub>3</sub> when its acts as an			
73.	The equivalent weigh (1) Mn <sub>2</sub> O <sub>3</sub>	nt of MnSO <sub>4</sub> is half of i (2) MnO <sub>2</sub>	ts molecular weight w (3) $MnO_4^-$	hen it is converted to :- (4) $MnO_4^{-2}$			
74.	In the following chan its equivalent weight (1) 42	nge, $3Fe + 4H_2O \rightarrow Fe$ will be :- (2) 21	$e_3O_4 + 4H_2$ . If the ator (3) 63	nic weight of iron is 56, then (4) 84			
75.	$Cr_2O_7^{-2} + I^- + H^+ \rightarrow 0$ The equivalent weight	$Cr^{+3} + I_2 + H_2O$	e above equation is :- (	(At wt of $Cr = 52$ I = 127)			
	(1) 26	(2) 127	(3) 63.5	(4) 10.4			
76.	How many moles of	KMnO <sub>4</sub> are reduced by	1 mole of ferrous oxa	late in acidic medium :-			
	(1) $\frac{1}{5}$	(2) $\frac{5}{3}$	(3) $\frac{1}{3}$	$(4) \frac{3}{5}$			
77.	The number of moles (1) One	s of KMnO <sub>4</sub> reduced by (2) Two	one mole of KI in alk (3) Five	aline medium is :- (4) One fifth			
		REDOX R	EACTIONS				
78.	Which one of the foll (1) $H_2 + Br_2 \rightarrow 2HBr$ (3) $HCl + AgNO_3 \rightarrow$	lowing is a redox reacti AgCl + HNO <sub>3</sub>	on ? (2) $2NaCl + H_2SO_4 - (4) NaOH + HCl \rightarrow N$	→ Na <sub>2</sub> SO <sub>4</sub> + 2HCl NaCl + H <sub>2</sub> O			
79.	Which of the following	ng is not a redox chang	ge ?				
	(1) $2H_2S + SO_2 \rightarrow 2H$ (3) $BaO_2 + H_2SO_4 \rightarrow H_2SO_4 $	$H_2O + 3S$ $BaSO_4 + H_2O_2$	(2) $2BaO + O_2 \rightarrow 2B$ (4) $2KClO_3 \rightarrow 2KCl$	$aO_2$ + $3O_2$			
80.	In the reaction $4Fe + 3O_2 \rightarrow 4Fe^{3+} + 6O^{2-}$ which of the following statements is incorrect ? (1) It is a redox reaction (3) $Fe^{3+}$ is an oxidizing agent (2) Metallic iron is a reducing agent (4) Metallic iron is reduced to $Fe^{3+}$						
81.	In the reaction, $Cl_2$ +	$OH^- \rightarrow Cl^- + ClO_4^- +$	H <sub>2</sub> O, chlorine is :				
	<ul><li>(1) Oxidised</li><li>(3) Oxidised as well a</li></ul>	as reduced	<ul><li>(2) Reduced</li><li>(4) Neither oxidised r</li></ul>	nor reduced			
82.	Which is a redox read (1) $2CuI_2 \rightarrow CuI + I_2$ VISIONET INFO Solution Part	ction :					
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(2) NaCl + AgNO<sub>3</sub>  $\rightarrow$  AgCl + NaNO<sub>3</sub> (3) NH<sub>4</sub>Cl + NaOH  $\rightarrow$  NH<sub>3</sub> + NaCl + H<sub>2</sub>O (4) Cr<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> + 6KOH  $\rightarrow$  2Cr(OH)<sub>3</sub> + 3K<sub>2</sub>SO<sub>4</sub>

- 83. Which of the following example does not represent disproportionation :-(1)  $MnO_2 + 4HCl \rightarrow MnCl_2 + Cl_2 + 2H_2O$ (2)  $2H_2O_2 \rightarrow 2H_2O + O_2$ (3)  $4KClO_3 \rightarrow 3KClO_4 + KCl$ (4)  $3Cl_2 + 6NaOH \rightarrow 5NaCl + NaClO_3 + 3H_2O$
- **84.** The decomposition of KClO<sub>3</sub> to KCl and  $O_2$  on heating is an example of :
  - (1) Intermolecular redox change
  - (2) Intramolecular redox change
  - (3) Disproportionation or auto redox change
  - (4) None
- **85.** Which of the following change represents a disproportionation reaction (s) :-
  - (1)  $Cl_2 + 2OH^- \rightarrow ClO^- + Cl^- + H_2O$
  - (2)  $Cu_2O + 2H^+ \rightarrow Cu + Cu^{2+} + H_2O$
  - (3) 2HCuCl<sub>2</sub>  $\xrightarrow{\text{dilution with}}$  Cu + Cu<sup>2+</sup> + 4Cl<sup>-</sup> + 2H<sup>+</sup>
  - (4) All of the above
- 86. One mole of iron [55.8 gm], when oxidised to +2 oxidation state gives up : (1) 1  $N_A$  (2)  $2N_A$  electron (3)  $3N_A$  electron (4) 0.5 mole of electron
- 87. How many electrons should  $X_2H_4$  liberatre so that in the new compound X shows oxidation number of  $-\frac{1}{2}(E.N. X > H)$ (1) 10 (2) 4 (3) 3 (4) 2

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- 88. Which one of the following is not a redox reaction :-(1)  $CaCO_3 \rightarrow CaO + CO_2$ (2)  $2H_2 + O_2 \rightarrow 2H_2O$ (3)  $Na + H_2O \rightarrow NaOH + \frac{1}{2}H_2$ (4)  $MnCl_3 \rightarrow MnCl_2 + \frac{1}{2}Cl_2$
- 89. In the reaction :-  $MnO_4^- + SO_3^{2-} + H^+ \longrightarrow SO_4^{-2} + Mn^{+2} + H_2O$ (1)  $MnO_4^-$  and  $H^+$  both are reduced
  - (2)  $M_{\pm}O^{\pm}$  is an end of  $M_{\pm}O^{\pm}$  is a side of  $M^{\pm}$  is a side of  $M^{\pm}$
  - (2)  $MnO_4^-$  is reduced and  $H^+$  is oxidised
  - (3)  $MnO_4^-$  is reduced and  $SO_3^{2-}$  is oxidised
  - (4)  $MnO_4^-$  is oxidised and  $SO_3^{2-}$  is reduced

**90.**  $I_2 + KI \rightarrow KI_3$ 

In the above reaction :-(1) Only oxidation taken place

(2) Only reduction takes place

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	(3) Both the above	(4) None of the above								
91.	Which of the following reaction represents the oxidizing behavior of $H_2sO_4$ :- (1) $2PCl_5 + H_2SO_4 \rightarrow 2POCl_3 + 2HCl + SO_2Cl_2$ (2) $2NaOH + H_2SO_4 \rightarrow Na_2SO_4 + 2H_2O$ (3) $NaCl + H_2SO_4 \rightarrow NaHSO_4 + HCl$ (4) $2HI + H_2SO_4 \rightarrow I_2 + SO_2 + 2H_2O$									
92.	Select the example of disproportionation reaction (1) $BaCl_2 + H_2SO_4 \rightarrow BaSO_4 + 2HCl$ (2) $NH_4NO_3 \rightarrow N_2O + 2H_2O$ (3) $4H_3PO_3 \rightarrow PH_3 + 3H_3PO_4$ (4) $AgCl + 2NH_3 \rightarrow Ag(NH_3)_2Cl$									
93.	Which of the following reaction involves oxidation & reduction :- (1) NaBr + HCl $\rightarrow$ NaCl + HBr (2) HBr + AgNO <sub>3</sub> $\rightarrow$ AgBr + HNO <sub>3</sub> (3) 2NaOH + H <sub>2</sub> SO <sub>4</sub> $\rightarrow$ Na <sub>2</sub> SO <sub>4</sub> + 2H <sub>2</sub> O (4) H <sub>2</sub> + Br <sub>2</sub> $\rightarrow$ 2HBr									
94.	The reaction $2K_2MnO_4 + Cl_2 \rightarrow 2KMnO_4 + 2KCl$ is an example of (1) Redox (2) Reduction only (3) Neutralization (4) Disproportionation									
95.	Which of the following reaction involves $n_{4}^{(1)}$ CrO <sub>4</sub> <sup>2-</sup> $\rightarrow$ Cr <sub>2</sub> O <sub>7</sub> <sup>2-</sup> (3) Na $\rightarrow$ Na <sup>+</sup>	either oxidation nor reduction:- (2) $Cr \rightarrow CrCl_3$ (4) $2S_2O_3^{2-} \rightarrow S_4O_6^{2-}$								
96.	$Zn + H_2SO_4 \rightarrow ZnSO_4 + H_2$ , Zn undergoes (1) Reduction (3) Both oxidation and reduction	<ul><li>(2) Oxidation</li><li>(4) None of these</li></ul>								
	BALANCING OF R	REDOX REACTIONS								
97.	Balance the following given half reaction for $C_1 O_2^{2-1} \rightarrow C_2 O_2^{-1} \rightarrow O_2^{-1} $	or the unbalanced whole reaction :								
	$\operatorname{CrO}_{4}^{2} \rightarrow \operatorname{CrO}_{2}^{2} + \operatorname{OH}$ is: (1) $\operatorname{CrO}_{2}^{2-} + 2\operatorname{H} O + 2\operatorname{o}_{2}^{-} \rightarrow \operatorname{CrO}_{2}^{-} + 4\operatorname{OH}_{2}^{-}$									
	(1) $\operatorname{CrO}_4^- + 2\operatorname{H}_2O + 3e^- \rightarrow \operatorname{CrO}_2^- + 4\operatorname{H}_2O + 8e^-$	)H-								
	(2) $2 \operatorname{clo}_4^2 + \operatorname{old}_2^2 \to \operatorname{clo}_2^2 + \operatorname{clo}_2^2 + \operatorname{clo}_2^2 + \operatorname{old}_2^2 \to \operatorname{clo}_2^2 + \operatorname{clo}_2^2$									
	(4) $3\text{CrO}_{4}^{-2} + 4\text{H}_{2}\text{O} + 6\text{e}^{-} \rightarrow 2\text{CrO}_{2}^{-1} + 8\text{OH}^{-1}$	Ŧ								
98.	Choose the set of coefficients that correctly $x \operatorname{Cr}_2 \operatorname{O}_7^{2^-} + y \operatorname{H}^+ + z \operatorname{e}^- \rightarrow \operatorname{a} \operatorname{Cr}^{+3} + \operatorname{b} \operatorname{H}_2 \operatorname{O}$ $\begin{array}{cccccccccccccccccccccccccccccccccccc$	balances the following equation :								
	(4) 2 7 6 1 7									

In the reaction :  $MnO_4^- + xH^+ + ne^- \rightarrow Mn^{2+} + yH_2O$ , What is the value of n :-99.

	(1) 5	(2) 8	(3) 6	(4) 3		
100.	The number of electr $NO_3^- + 4H^+ + e^- \rightarrow 2$	ons required to balance 2H <sub>2</sub> O + NO is	e the following equation	on :-		
	(1) 5	(2) 4	(3) 3	(4) 2		
101.	The molar mass of C (a) Reaction CuSO <sub>4</sub> - (b) Electrolysis of Cu (1) (a) 249 (b) 249 (3) (a) 249 (b) 124.5	uSO <sub>4</sub> .5H <sub>2</sub> O is 249. Its + KI $\rightarrow$ product usO <sub>4</sub> solution	equivalent mass in the reaction (a) and (b) would be (2) (a) 124.5 (b) 124.5 (4) (a) 124.5 (b) 249			
102.	$2KMnO_4 + 5H_2S +$ electrons would be in	$6H^+ \rightarrow 2Mn^{2+} + 2K^+$ nvolved in the oxidation	+ 5S + 8 $H_2O$ . In the n of 1 mole of reductation	the above reaction, how many nt?		
	(1) Two	(2) Five	(3) Ten	(4) One		
103.	The value of n in : M	$InO_4^- + 8H^+ + ne \rightarrow M$	$\ln^{2+} + 4H_2O$ is :-			
104.	(1) 5 What is the value of $r$ Cr(OH) <sup>-</sup> <sub>4</sub> + OH <sup>-</sup> $\rightarrow$ 0	(2) 4 n in the following equation $CrO_4^{2-} + H_2O + ne$ ?	(3) 3 ation :-	(4) 2		
	(1) 3	(2) 6	(3) 5	(4) 2		
105.	For the redox reaction $Zn + NO_3^- \rightarrow Zn^{+2}$ - equation respectively (1) 4, 1, 7	n + NH <sub>4</sub> <sup>+</sup> in basic mediu 7 are :- (2) 7, 4, 1	m, coefficients of Zn, (3) 4, 1, 10	$NO_3^-$ and $OH^-$ the balanced (4) 1, 4, 10		
106.	In the balanced equat $[Zn + H^+ + NO_3^- \rightarrow (1) 4$	tion :- NH <sub>4</sub> <sup>+</sup> + Zn <sup>+2</sup> + H <sub>2</sub> O] co (2) 3	oefficient of $NH_4^+$ is :- (3) 2	(4) 1		
107	In the balanced equat	tion				
107.	$MnO_{4}^{-} + H^{+} + C_{2}O_{4}^{2-}$	$\rightarrow Mn^{2+} + CO_2 + H_2$	O, the moles of $CO_2$ for	ormed are :-		
	(1) 2	(2) 4	(3) 5	(4) 10		
108.	In the following reac $H_2O + SO_3^{2-} \rightarrow SO_4^2$	tion the value of 'X' is $- + 2H^+ + X$				
	(1) 4e <sup>-</sup>	(2) 3e <sup>-</sup>	(3) 2e <sup>-</sup>	(4) 1e <sup>-</sup>		
109.	The number of electr $NO_3^- + 4H^+ \rightarrow 2H_2C$	ons required to balance 0 + NO	e the following equation	on are :-		
	<ul><li>(1) 2 on right side</li><li>(3) 3 on right side</li></ul>		<ul><li>(2) 3 on left side</li><li>(4) 5 on left side</li></ul>			

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	ANSWER KEY												
	EXERCISE-I (Conceptual Questions)												
1.	(2)	2.	(3)	3.	(2)	4.	(3)	5.	(3)	6.	(2)	7.	(1)
8.	(2)	9.	(3)	10.	(3)	11.	(4)	12.	(3)	13.	(1)	14.	(2)
15.	(2)	16.	(1)	17.	(1)	18.	(3)	19.	(2)	20.	(1)	21.	(1)
22.	(1)	23.	(4)	24.	(3)	25.	(3)	26.	(4)	27.	(1)	28.	(1)
29.	(1)	30.	(4)	31.	(3)	32.	(4)	33.	(1)	34.	(1)	35.	(1)
36.	(4)	37.	(3)	38.	(4)	39.	(3)	40.	(4)	41.	(4)	42.	(4)
43.	(1)	44.	(2)	45.	(2)	46.	(1)	47.	(1)	48.	(2)	49.	(2)
50.	(2)	51.	(2)	52.	(2)	53.	(3)	54.	(1)	55.	(4)	56.	(2)
57.	(1)	58.	(3)	59.	(1)	60.	(4)	61.	(1)	62.	(3)	63.	(2)
64.	(3)	65.	(3)	66.	(1)	67.	(4)	68.	(1)	69.	(2)	70.	(3)
71.	(4)	72.	(2)	73.	(2)	74.	(2)	75.	(2)	76.	(4)	77.	(2)
78.	(1)	79.	(3)	80.	(4)	81.	(3)	82.	(1)	83.	(1)	84.	(2)
85.	(4)	86.	(2)	87.	(3)	88.	(1)	<mark>89</mark> .	(3)	90.	(3)	91.	(4)
92.	(3)	93.	(4)	94.	(1)	95.	(1)	<u>96.</u>	(2)	97.	(1)	98.	(2)
<b>99.</b>	(1)	100.	(3)	101.	(3)	102.	(1)	<b>103</b> .	(1)	104.	(1)	105.	(3)
106.	(4)	107.	(4)	108.	(3)	109.	(2)						