EXE	RCISE-I (Conceptu	al Questions)		Build Up Your Understanding				
1.	Which of the follo	wing is not an ore of I	ron:-	, , , , , , , , , , , , , , , , , , ,				
	(1) Haematite	(2) Limonite	(3) Cassiterite	(4) Magnetite				
2	A 1	in alfarenzal O hardh						
Ζ.	Aluminium is obta							
	(1) Thermal reduct (2) Electric lettic mediate	10 n.	(2) Hydro metallul (4) D a drasti a rabati	(4) Deduction by incr				
	(3) Electrolytic red	luction.	(4) Reduction by 1	(4) Reduction by fron.				
3	Zinc blende on roa	sting in air gives						
	(1) Zinc carbonate	isting in an gives.	(2) SO_2 and ZnO					
	(1) Zine carbonate (3) ZnS and ZnSO	4	(2) SO ₂ and ZnO (4) CO ₂ and ZnO					
		4	$(1) \cos_2 \operatorname{und} \operatorname{Eno}$					
4.	Litharge is a miner	al of:-						
	(1) Magnesium	(2) Lithium	(3) Lead	(4) Zinc				
5.	The oxide cannot b	be reduced by coke						
	(1) Cu_2O , ZnO		(2) Fe_2O , ZnO					
	$(3) \operatorname{CaO}, \operatorname{K_2O}$		(4) PbO, Fe_3O_4					
6.	Chemical formula	of horn silver is:-						
	(1) Ag_2S	(2) AgCl	(3) $AgNO_3$	$(4) \operatorname{Ag}_2 S. \operatorname{Sb}_2 S_3$				
7	An axample of hal	ida anazia						
7.	An example of har (1) Colore	(2) Douvito	(2) Cinnahan	(1) Crucelite				
	(1) Galella	(2) Dauxite	(3) Chinabar	(4) Cryolite				
8.	Which is not a bas	ic flux :-						
0.	(1) Silica	(2) Lime stone	(3) Calcite	(4) Ouick lime				
		()						
9.	Iron pyrites ore is	concentrated by :-						
	(1) Froth floatation	1	(2) Electrolysis					
	(3) Roasting		(4) Magnetic separ	ration				
10.	Which of the follo	wing metal is extracted	d by electrolytic reduct	ion process of its halide are :-				
11	(1) Copper	(2) Iron	(3) Sodium	(4) Aluminium				
11.	Which of the follow	wing metal can not be	extracted by smelting	process:-				
	(1) Lead	(2) Zinc	(3) Iron	(4) Aluminimum				
12	The main reducing	agent for the extraction	on of iron metal in a bl	ast furnace is :-				
14.	(1) Coke	, agent for the extraction	(2) Carbon	ast furnace is				
	(1) Coke (3) Carbon dioxide		(4) Carbon monox	ide				
			(+) Carbon monox					
13.	The flux used in ex	straction of Iron from	haematite in the blast f	furnace is:-				
	(1) Silica		(2) Lime stone					
	(3) Phosphorus chl	loride	(4) Calcium phosp	hate				
	-							
14.	The reduction Cr ₂ C	O ₃ , by heating it with a	lluminium is known as	:-				
	(1) Smelting		(2) Roasting					
	(3) Calcination		(4) Aluminotherm	ite process				
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15.	Which of the follow (1) Copper	ing is obtained by hydr (2) Gold	rometallurgy :- (3) Silver	(4) All of these					
16.	Aluminium is purifi (1) Roasting (3) Electrolytic refin	ed by:-	(2) Sublimation(4) Reduction with carbon						
17.	In Goldschmidt ther								
	(1) Fe	(2) Na	(3) Ca	(4) Al					
18.	Heating pyrites in air to remove sulphur is known as:- (1) Roasting (2) Calcination (3) Smelting (4) Fluxing								
19.	Liquation process is	used for refining :-							
170	(1) Bismuth	(2) Lead	(3) Tin	(4) All					
20.	A mineral is called (1) Metal present in (2) A metal can be e (3) A metal can be e (4) A metal can not	ore if the mineral is costly extracted from it extracted profitably from be extracted form it	m it						
21.	Autoreduction proce (1) Cu & Pb	ess is used in the extrac (2) Zn & Hg	ction of :- (3) Cu & Al	(4) Fe & Pb					
22.	In thermite process, thermite mixture is :- (1) Al powder + sulphide (3) Na + Oxide (2) Zn + oxide powder (4) Al powder + oxide								
23.	The process of converting hydrated Alumina into anhydrous Alumina is called :-(1) Roasting(2) Calcination(3) Smelting(4) Dressing								
24.	The metallurgical pr (1) Smelting	ocess in which a metal (2) Roasting	l is obtained in a fused (3) Calcination	state is called:- (4) Froth floatation					
25.	In the extraction of copper, metals is formed in the Bassemer converter due to reaction: (1) $Cu_2S + 2Cu_2O \rightarrow 6Cu + SO_2$ (2) $Cu_2S \rightarrow 2Cu + S$ (3) Fe + $Cu_2O \rightarrow 2Cu + FeO$ (4) $2Cu_2O \rightarrow 4Cu + O_2$								
26.	In the electrolytic refining of copper, Ag and Au are found:-(1) On cathode(2) On anode(3) In the anodic mud(4) In the cathodic mud								
27.	Consider :- (a) Copper blende = Cu ₂ O (b) Chromite = Magnetic separation. (c) Bauxite = Al ₂ O ₃ .2H ₂ O								
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	(d) Liquation = Liquid metals e.g. Hg Which is/are not correctly matched :-								
	(1) (a) only (2) (b) only		(3) (d) only	(4) (a) & (d) both					
28.	Silver can be separat	ed from lead by :-							
	(1) Distillation	(2) Amalgamation	(3) Filtration	(4) Cupellation					
29.	In blast furnace this	s acting as reducing ag	gent at lower part:-						
	(1) CO	(2) H_2	(3) C	(4) None					
30.	Which of the following metals can not be extracted by carbon reduction process :-								
	(1) Pb	(2) Al	(3) Sn	(4) Zn					
31.	The maximum temperion.	erature obtained in the	region of the blas	t furnace used in extraction of					
	(1) Reduction	(2) Combustion	(3) Fusion	(4) Slag formation					
32.	The concentration of	chromite (FeO.Cr ₂ O ₃)	is done by:-						
	(1) Leaching process(3) Froth -flotation		(2) Magnetic separati(4) Calcination	ion					
33	Which of the followi	ng process involves sn	alting						
55.	(1) $2PbS + 3O_2 \rightarrow 2I$	$PbO + 2SO_2\uparrow$	(2) $Al_2O_3.2H_2O \rightarrow A$	(2) $Al_2O_3.2H_2O \rightarrow Al_2O_3 + 2H_2O$					
	$(3) \operatorname{Fe}_2 \operatorname{O}_3 + \operatorname{CO} \to 2$	$Fe + 2CO_2$	(4) $Cr_2O_3 + 2AI \rightarrow Al_2O_3 + 2Cr + Heat$						
34.	Out of the following,	which ores are calcina	ated during- extraction	:-					
	(a) Copper pyrites	(b) Matachite	(c) Ba	uxite					
	(1) a, b, c	(2) b, c	(3) Only a	(4) All					
35.	Which of the followi	ng match are incorrect	:-						
	(a) Goldshmidt alum	inothermite process –C	Cr_2O_3						
	(c) Mond process - N	lie process - re							
	(d) Van Arkel proces	s - Au	(2) 1 1	(4) - 1					
	(1) a, c	(2) C, d	(3) D, d	(4) a, b					
36.	Electro metallurgical	process (electrolysis o	of fused salt) is employ	red to extract:-					
	(1) Lead	(2) Sliver	(3) Sodium (4) Copper						
37.	In the extraction of c (1) E ₂ SO	opper from pyrites, iro	n is removed as:-	(4) E ₂ O					
	(1)1,6304	(2) 1703103	(3) 1.6304	(+) 1'C2U3					
38.	Which one of the fol (1) Na from Na O	lowing metals can not	be extracted by using A	Al as a reducing agent :-					
	(3) Mn from MnO_2		(4) V from V_2O_5						
39	In the electrolytic ref	ining for aluminium ex	straction the electrolyte	e used is:-					
~~~	In the electrolytic remning for aluminum extraction the electrolytic used is								

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	(1) Flu (3) Ar	uorides 1 aqueo	of Al, N us solut	Na and ( ion of A	Ca Al ₂ (SO ₄ )	)3	<ul> <li>(2) Al(OH)₃ in NaOH solution.</li> <li>(4) Molten Al₂O₃</li> </ul>			
40.	Which (1) Po (3) Sn	n one is ling – r nelting -	mismat efining – An ox	ched :- of copp idation	per process	5	<ul><li>(2) Cupellation – refining of silver</li><li>(4) Roasting – An oxidation process</li></ul>			
41.	Which (1) Cu	n metal I	can be j	ourified (2) Ag	by dist	illation	:- (3) Fe	(4) Hg		
42.	Carbo (1) it i (2) the (3) pu (4) the	n canno s an exp e enthal re carbo e enthal	ot be use pensive py of fc on is no py of fc	ed in the ormation t easily ormation	e reduct n of CO availab n of Al ₂ 9	ion of $A_2$ is mor le O ₃ is too	$l_2O_3$ because :- e than that of $Al_2O_3$ o high			
43.	Match A. B. C. D. <b>Codes</b> (1) (2) (3) (4)	list I w List I Van A Solva Cupel Poling S A I II IV III	vith list Arkel may y process lation g B II I I I I I I	II and s ethod ss C IV III I I II	D III IV III IV	I. II. III. IV.	et answer using the codes given below the lists List II Purification of titanium Manufacture of Na ₂ CO ₃ Purification of copper Refining of silver			
44.	Anode	e mud o	btained	after el	lectrolyt	ic refini	ing of copper contains	S :-		
45.	(1) Ag Matte (1) Cu (3) Cu	$\frac{1}{2}$ :- $1_2$ S + Fe $1_2$ O + C	eS u ₂ S	(2) At	1		$(3) Pt \qquad (4) All$ $(2) Cu_2O + FeS$ $(4) FeS + SiO_2$			
46.	Which (1) 3M (3) 2F	n of the $In_3O_4 + e + Al_2e$	followi - 8A1— O₃—→	ng reaction $\rightarrow 9M_1$ $\rightarrow 2A1 +$	tion is n n + 4Al ₂ Fe ₂ O ₃	ot invol 2O3	lved in themite process :- (2) $Cr_2O_3 + 2Al \longrightarrow Al_2O_3 + 2Cr$ (4) $B_2O_3 + 2Al \longrightarrow 2B + Al_2O_3$			
47.	Alumi (1) Str (3) No	ino ther congly a ot easily	mite pro acidic reduce	ocess is d by hy	used fo drogen	r the ex	<ul> <li>(2) Not easily reduced by carbon</li> <li>(4) Strongly basic</li> </ul>			
48.	Match (A) (B)	the fol I Calcir Roasti	lowing: nation ing	-		a. b.	$II$ $2Cu_2S + 3O_2 \rightarrow 2Cu_2O + 2SO_2$ $Fe_2O_3.nH_2O \rightarrow Fe_2O_3 + nH_2O$			

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55.	<ul> <li>Which bne of the following statements is incorrect?</li> <li>(1) Tin is extracted by carbon reduction (smelting)</li> <li>(2) Aluminium is extracted by Hall's process which involves carbon reduction.</li> <li>(3) Extraction of lead does not involve bessermisation.</li> <li>(4) Silver is extracted by cyanide process.</li> </ul>								
56.	<ul> <li>Extraction of zinc from zinc blende is achie</li> <li>(1) Electrolytic reduction</li> <li>(2) Roasting following by reduction with ca</li> <li>(3) Roasting followed by reduction with and</li> <li>(4) Roasting followed by self-reduction</li> </ul>	eved by : arbon other metal							
57.	Column-I	Column-II							
	(1) Metal which occur in the native state	(P) Hg							
	in nature is								
	(2) The oxides of metal that can be	(Q) Ti							
	commercially reduced by Aluminorthermit	ie –							
	reduction process is								
	(3) Van Arkel method is used for	(R) Cr							
	(4) Auto reduction process is employed for	$(\mathbf{S}) \mathbf{A} \mathbf{g}$							
	the sulphide ore of	(5) 11g							
	(1) A-S, B-R, C-O, D-P	(2) A-R, B- <mark>S, C-O</mark> , D-P							
	(3) A-P, B-S, C-Q, D-R	(4) A-Q, B-R, C-S, D-P							
58.	Match the following								
	1. Zincite	P Sulphide ore							
	2. Malachite	Q Halide ore							
	3. Horn silver	R Oxide ore							
	4. Iron pyrities	S Carbonate ore							
	(1) $1 - R; 2 - P; 3 - Q; 4 - S$ (2) $1 - R; 2 - P; 3 - Q; 4 - S$	(2) $I - R; 2 - S; 3 - Q; 4 - P$							
	(3) 1 - 5; 2 - R; 3 ~ P; 4 – Q	(4) 1 - Q; 2 - S; 3 - P; 4 - R							
58.	In magnetic separation method which one is	s true							
20.	(1) either ore is being attracted by magnetic	field							
	(2) either gangu is being attracted by magnet	etic field							
	(3) Both	) Both							
	(4) None								

**60.** In froth floatation method depresants are used for

- (1) to enhance non wettability of mineral partiels
- (2) to made suspension of ore with water
- (3) to take forth upside
- (4) to seperate two sulphide ore
- **61.** Which reaction shows formation of blistered copper.

(1)  $2\text{FeS} + 3\text{O}_2 \longrightarrow 2\text{FeO} + 2\text{SO}_2^{\uparrow}$ 



(2)  $2Cu_2S + 3O_2 \longrightarrow 2Cu_2O + 2SO_2\uparrow$ (3)  $2Cu_2O + Cu_2S \longrightarrow 6Cu + SO_2\uparrow$ (4)  $Cu_2O + C \longrightarrow 2Cu + CO\uparrow$ 

- 62. Which reaction is involved in extraction of Ag by cyanide process
  - (1)  $AgBr + Na_2S_2O_3 \longrightarrow Na_3 [Ag(S_2O_3)_2]$
  - (2)  $AgCl + NH_4OH \longrightarrow [Ag(NH_3)_2)Cl$
  - $(3) AgS + NaCN \longrightarrow Na[Ag(CN)_2]$
  - (4) None

## **ANSWER KEY**

EXERCISE-I (Conceptual Questions)													
1.	(3)	2.	(3)	3.	(2)	4.	(3)	5.	(3)	6.	(2)	7.	(4)
8.	(1)	9.	(1)	10.	(3)	11.	(4)	12.	(4)	13.	(2)	14.	(4)
15.	(4)	16.	(3)	17.	(4)	18.	(1)	19.	(4)	20.	(3)	21.	(1)
22.	(4)	23.	(2)	24.	(1)	25.	(1)	<b>26</b> .	(3)	27.	(4)	28.	(4)
29.	(3)	30.	(2)	31.	(2)	32.	(2)	33.	(3)	34.	(2)	35.	(3)
36.	(3)	37.	(2)	38.	(1)	39.	(1)	40.	(3)	41.	(4)	42.	(4)
43.	(1)	44.	(4)	45.	(1)	46.	(3)	47.	(2)	48.	(2)	49.	(2)
50.	(2)	51.	(2)	52.	(1)	53.	(3)	54.	(3)	55.	(2)	56.	(2)
57.	(1)	58.	(2)	59.	(3)	60.	(4)	61.	(3)	62.	(3)		