

Q. RACE-13:-

Q. 1:- [Ans: (D)]

Solution:- (A) $\text{Sn}^{2+} < \text{Pb}^{2+}$: (~~reducing strength~~) ~~(wrong)~~

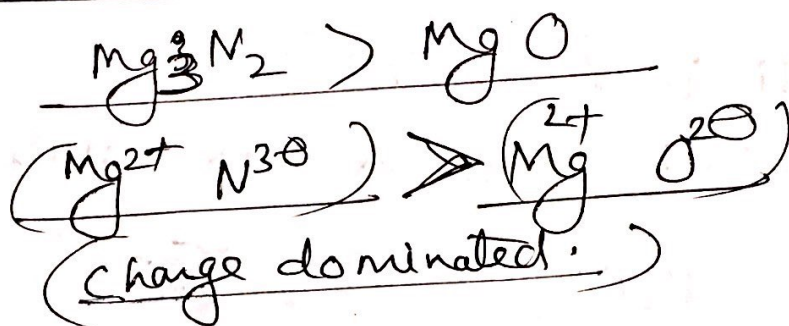
the correct order is:- $\text{Sn}^{2+} > \text{Pb}^{2+}$

(B) $\text{Ga}^{3+} < \text{Tl}^{3+}$: (~~stability~~) ~~X (wrong)~~

The correct order is:- $\boxed{\text{Ga}^{3+} > \text{Tl}^{3+}}$

(C) $\text{Mg}_3\text{N}_2 < \text{MgO}$: (~~Lattice energy~~) ~~X (wrong)~~

the correct order is:-

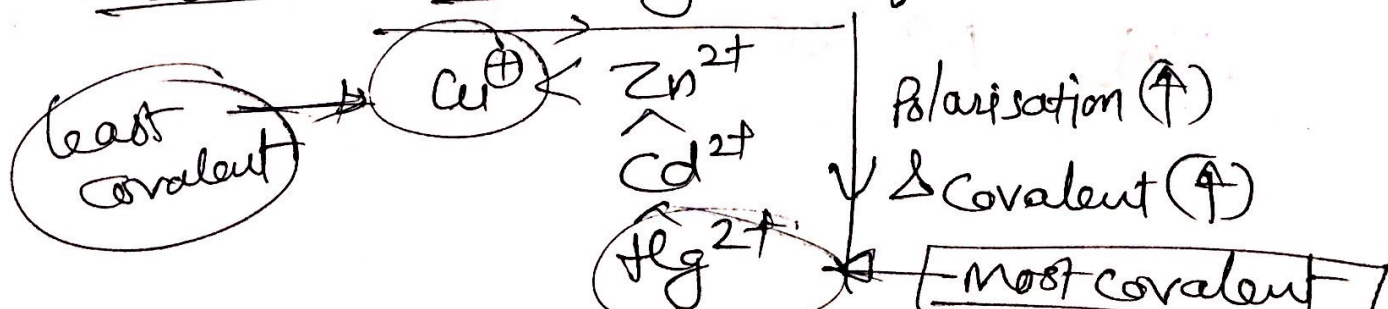


(D) $\text{SnCl}_4 < \text{PbCl}_4$: oxidising power ✓ (correct)

~~due to~~ Pb^{4+} act as strong oxidising due to $6s^0$ (vacant orbital) & it requires stability to get $6s^2$ configuration due to inert pair effect

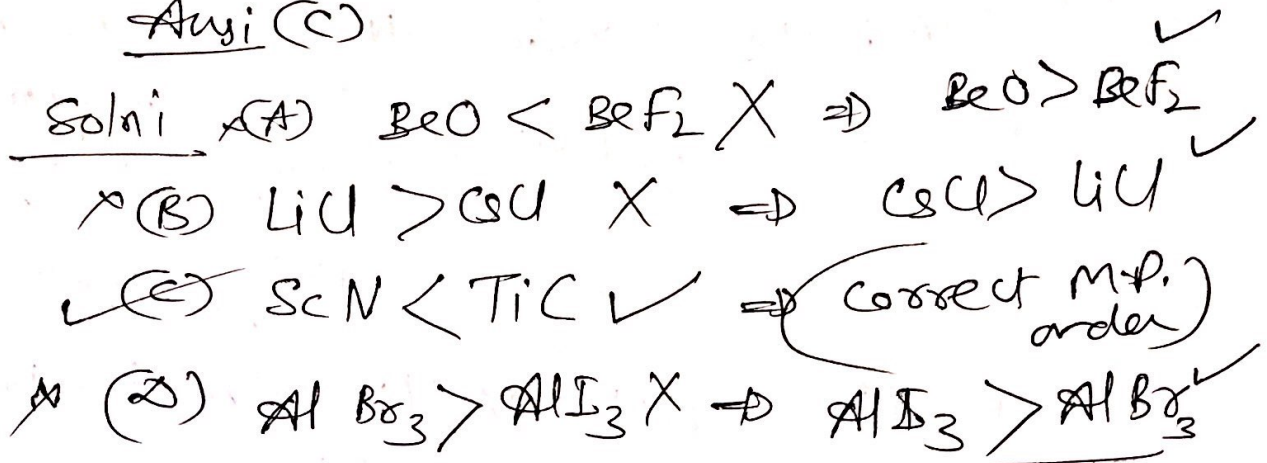
Q. 2:- [Ans: (C)]

Solution:- Polarising power of cation is:-



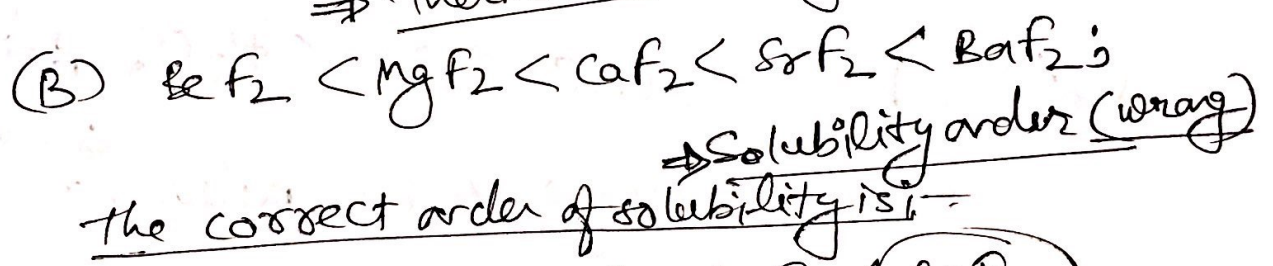
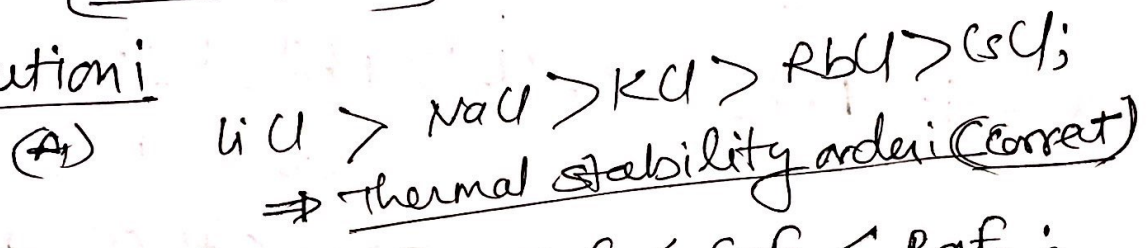
Ques-③:- The correct order of melting point is

Ans: (C)

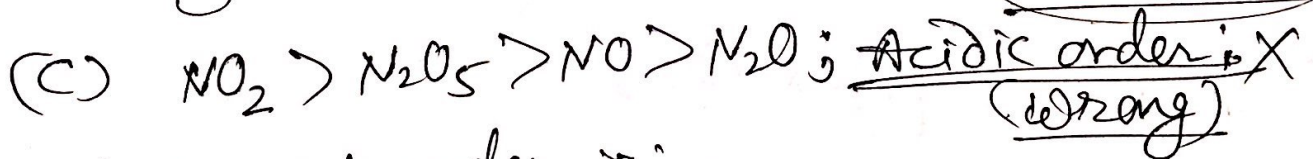
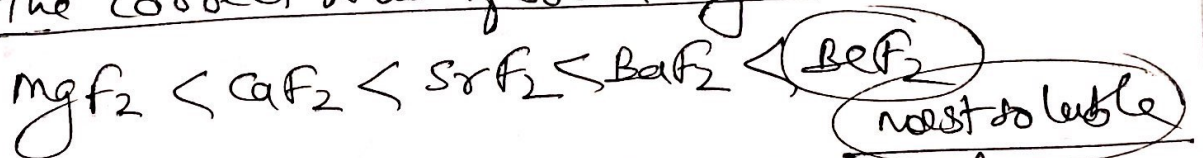


Ques-④:- [Ans: (A)]

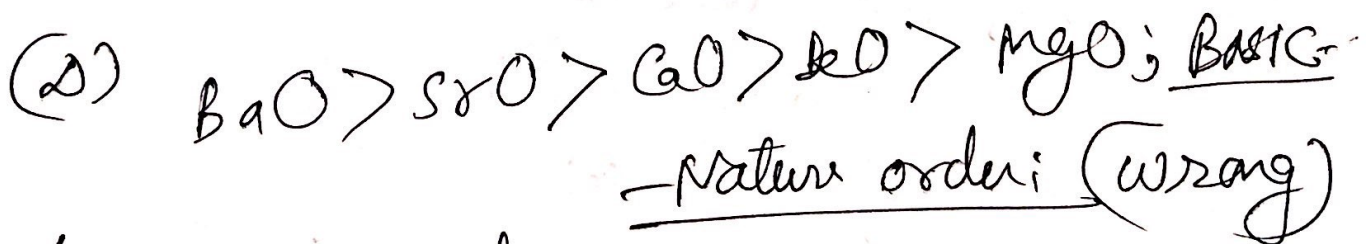
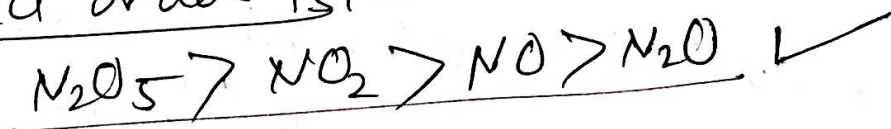
Solution:



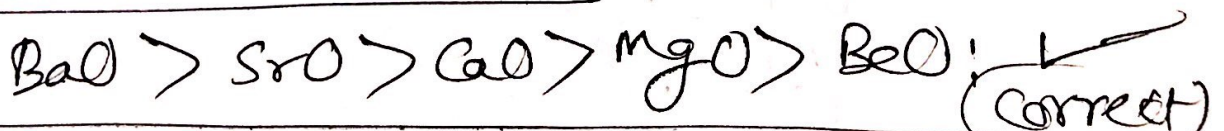
The correct order of solubility is:-



The correct order is:-



The correct order is:-



Ques (5) :- [Ans: (C)]

(3)

Solution :- (A) :- $\text{Na}^+(\text{aq}) > \text{Mg}^{2+}(\text{aq}) > \text{Al}^{3+}(\text{aq})$:- Order of hydration ~~(wrong order)~~ X
correct order of hydration :- charge density

$\text{Na}^+(\text{aq}) < \text{Mg}^{2+}(\text{aq}) < \text{Al}^{3+}(\text{aq}) \Rightarrow$ hydration ✓

(B) :- $\text{LiF} < \text{LiCl} < \text{NaCl}$:- solubility in water X
correct order of solubility in water :- ~~(wrong)~~

$\text{LiF} < \text{NaCl} < \text{LiCl}$ ✓

(C) :- $\text{PbF}_2 > \text{PbCl}_2 > \text{PbI}_2$:- Thermal stability
(correct order) ✓

(D) $\text{K}_2\text{O} < \text{CuO} < \text{CO}_2 < \text{H}_2\text{O}$:- Acidic order
correct order of Acidic nature :- ~~(wrong)~~ X

$\text{K}_2\text{O} < \text{CuO} < \text{H}_2\text{O} < \text{CO}_2$ ✓

Ques (6) :- [Ans: (D)]

Solution :- on moving down the group
solubility decreases with $\text{Sr}(\text{II})$ -metal cation
and SrSO_3 :-

Solubility order is:-

$\text{MgSO}_3 > \text{CaSO}_3 > \text{SrSO}_3 > \text{BaSO}_3$
(most soluble) (least soluble)

Ques: ⑦:- [Ansi- A, B, D]

Solution:- "The correct order of given properties are correct except option (C):-

(C) $Tl_2O_3 < Na_2O_3$; Basic strength (wrong)
Hence it will be correct:- $Tl_2O_3 > Na_2O_3$

Ques: ⑧:- [Ansi A, D]

Correct order of given properties:-

✓ (A) $Mg_3N_2 > Ca_3N_2 > Sr_3N_2$; (Thermal stability) ✓
(B) $Li_2CO_3 > Na_2CO_3 > K_2CO_3$; (solubility) X
(wrong order)

It's correct order of solubility is:-

$Li_2CO_3 < Na_2CO_3 < K_2CO_3$; ✓

(C) $HgCl_2 > HgBr_2 > HgI_2$; (Covalent character) X
(wrong)

Hence it's correct order of Covalent nature:

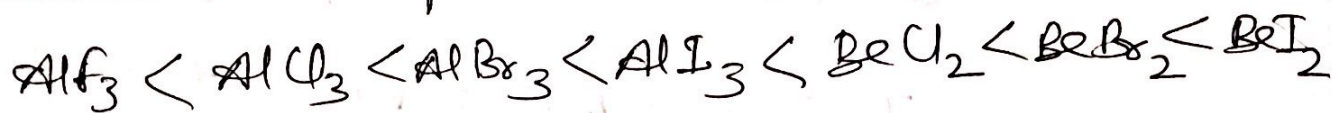
$HgCl_2 < HgBr_2 < HgI_2$ ✓

✓ (D) $TiC > ScN > MgO$; (melting point)

It is correct order of Lattice Energy
($L.E \propto \text{charged density} \propto m.p.$)

Q. (9) :- [Ans: (05)]

Solutions:- order of covalent nature is:-



Here " ϕ " of $\text{Be}^{2+} \Rightarrow \frac{2 (\text{charge of } \text{Be}^{2+})}{0.31 \text{ \AA} (\text{radius})} \Rightarrow \textcircled{6.45}$

& " ϕ " of $\text{Al}^{3+} \Rightarrow \frac{3}{0.5 \text{ \AA}} \Rightarrow \textcircled{6}$

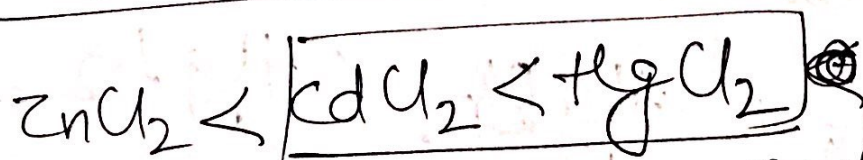
Hence " ϕ " (Polarisation power) $\Rightarrow \text{Al}^{3+} < \text{Be}^{2+}$

Q. (10) :- [Ans: (03)]

Solution:- Zn^{2+} Ga^{3+} Ge^{4+} have pseudo inert gas configuration i.e. 18-e in their penultimate shell.

Q. (11) :- [Ans: (04)]

Solutions:- "Here more covalent nature than ZnCl_2 is:-



more covalent is due to more " z_{eff} " of Cd^{2+} & Hg^{2+}

$\boxed{\text{GaCl}_3 \text{ and } \text{AlBr}_3}$ are also more covalent than ZnCl_2 .