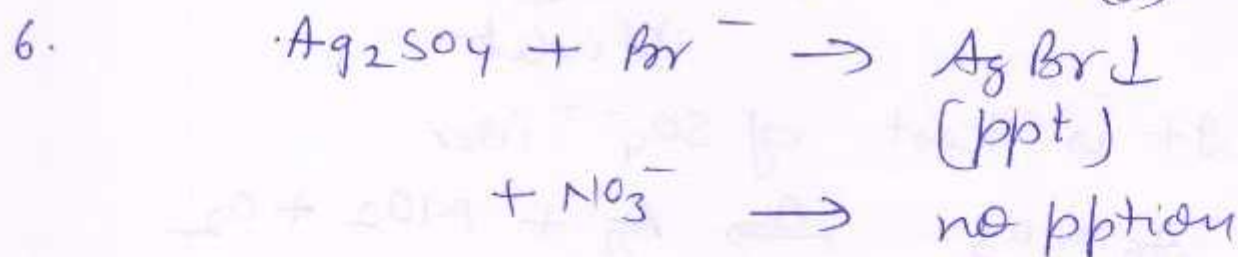
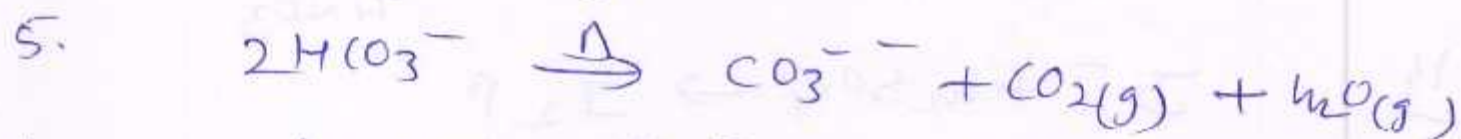
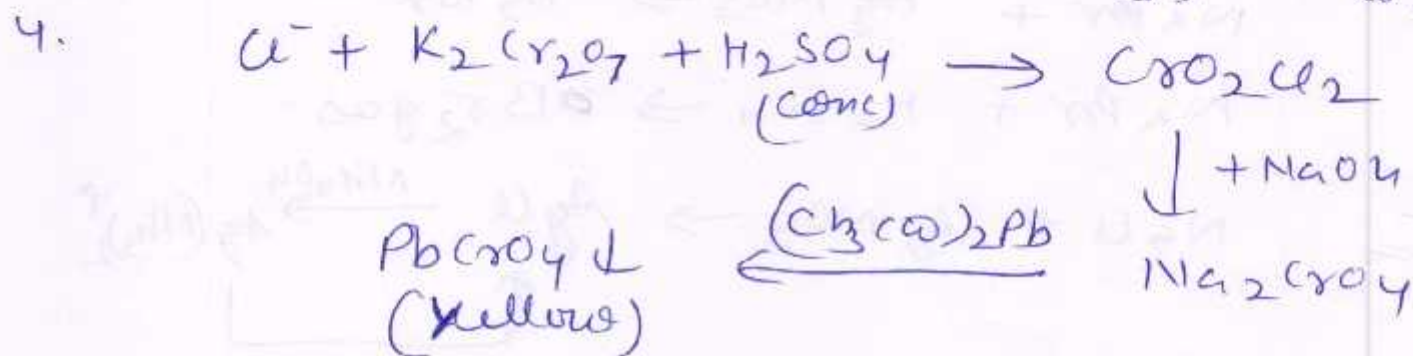
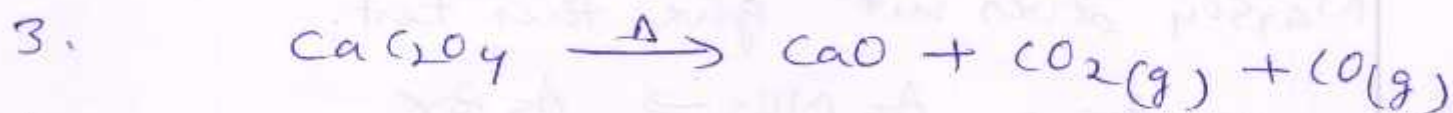
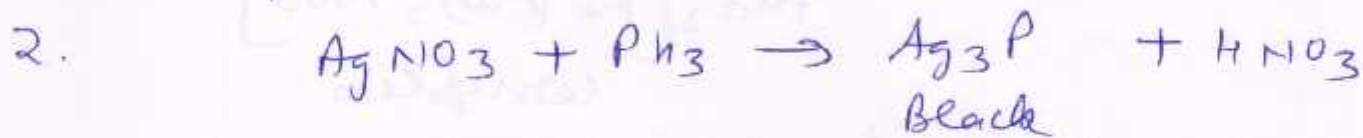


SALT ANALYSIS

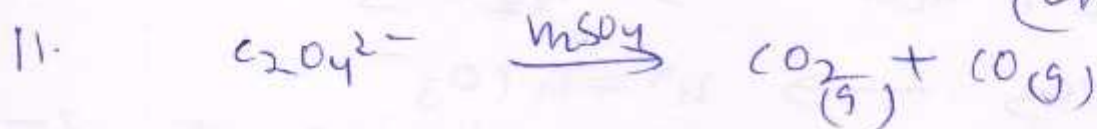
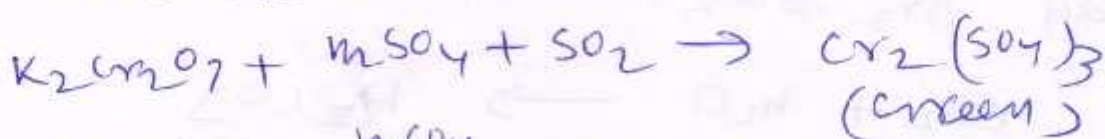
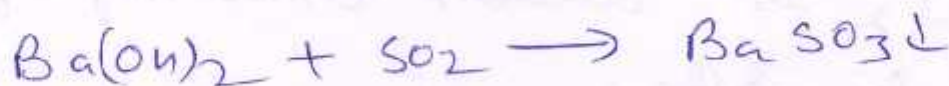
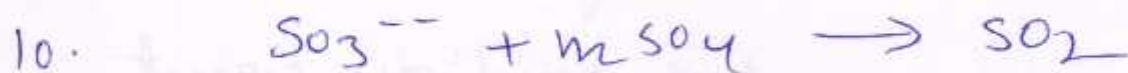
①

Home assignment - 1

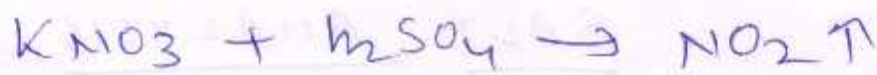
1. FeSO_4 forms $[\text{Fe}(\text{H}_2\text{O})_5\text{NO}^+]\text{SO}_4$ as brown ring complex.



7. AgI does not dissolve in NH_3

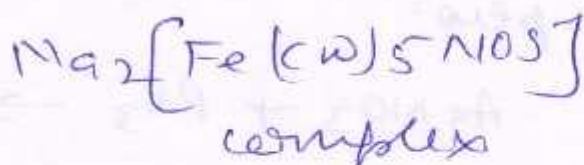
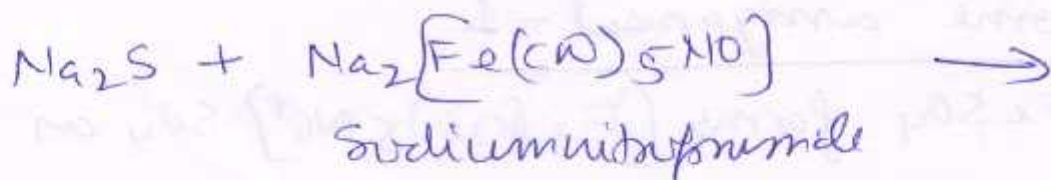


12



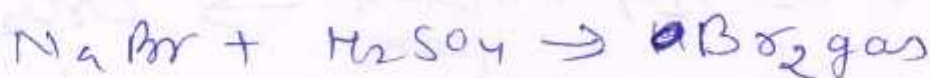
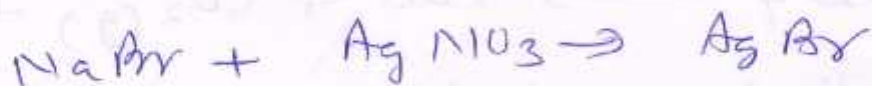
(2)

13

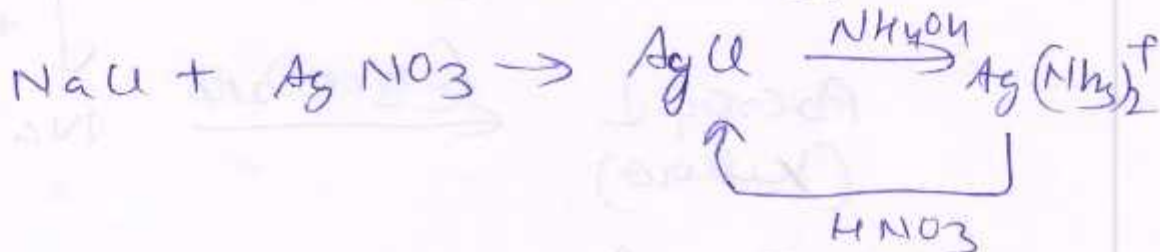


Na_2SO_4 does not give this test.

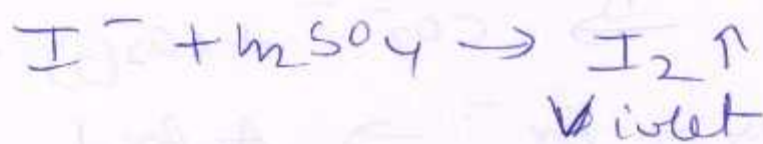
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15



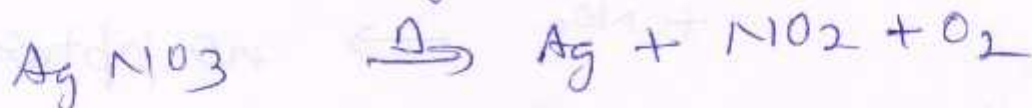
16



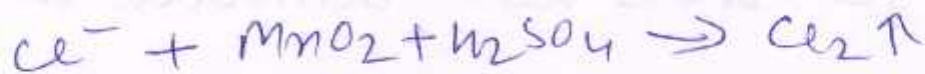
18

It is test of SO_4^{2-} ion

21



22



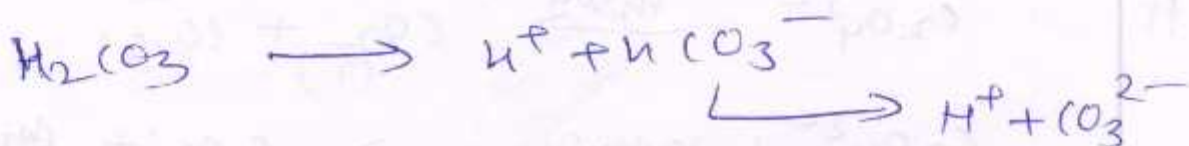
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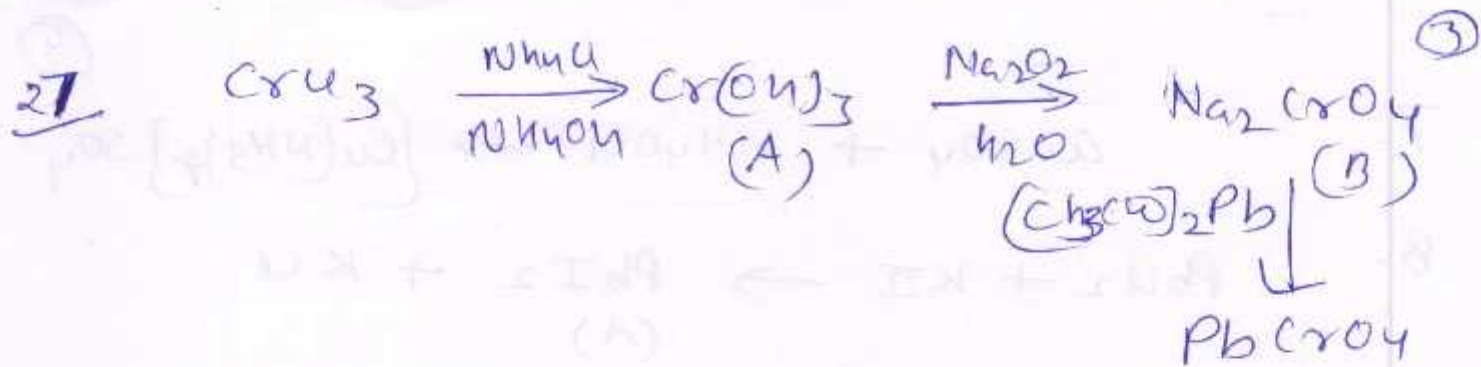
It is test of Ce^{3+} ion

24

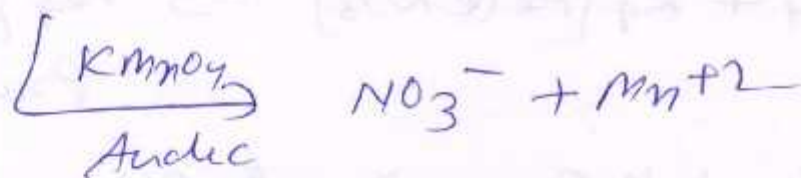
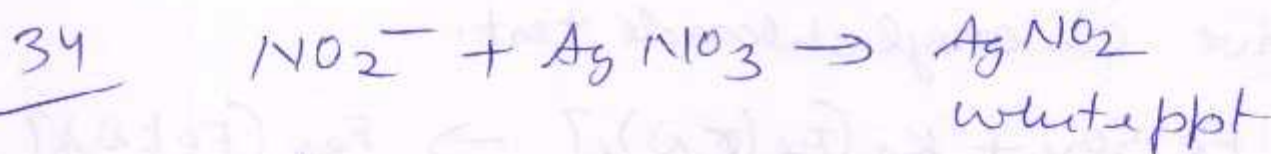
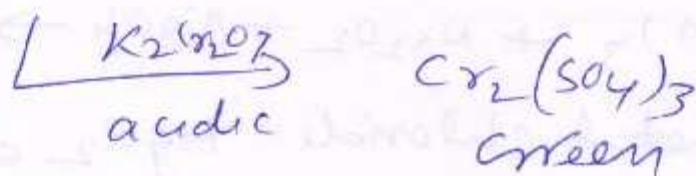
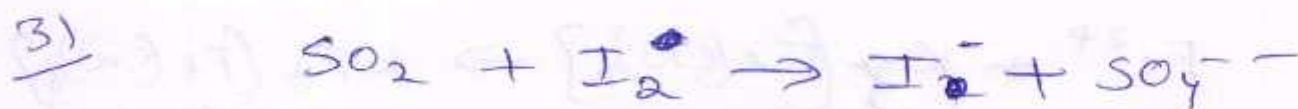
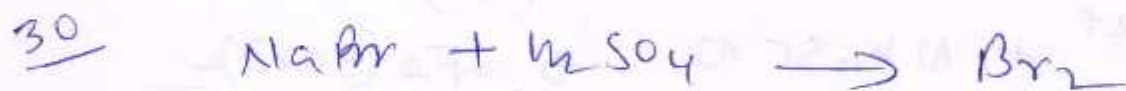
I_2 is weaker oxidising agent than Br_2 & Cl_2 .

25





28 It is chromyl chloride test (C)



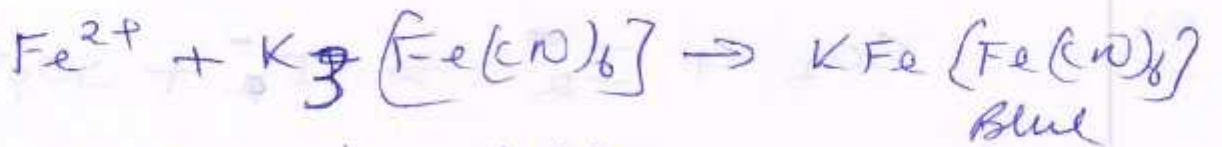
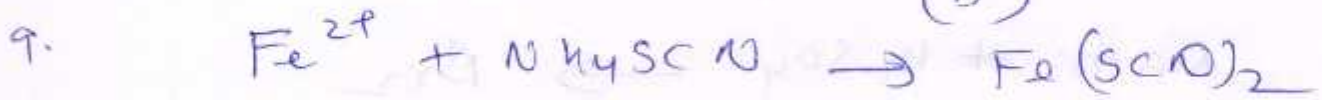
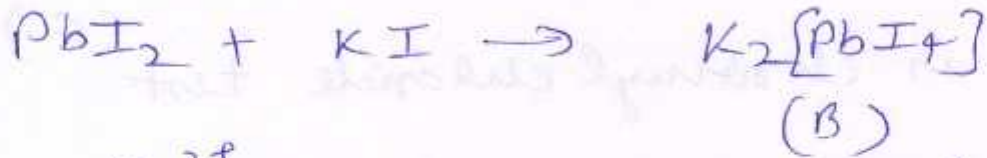
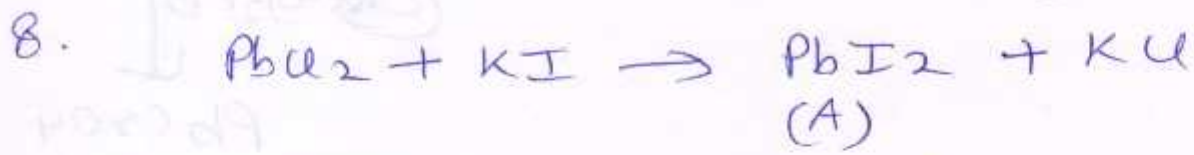
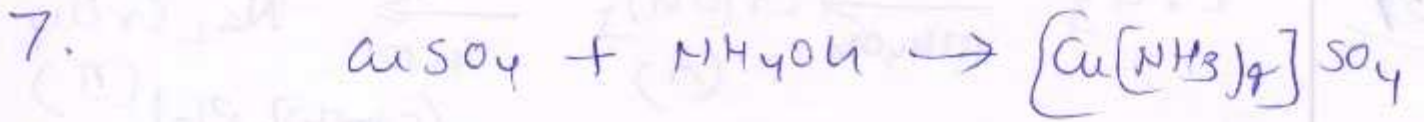
Home Assignment - 2

(1) Ba^{2+} & Sr^{2+} belong to group II and can not be separated by same group reagent.

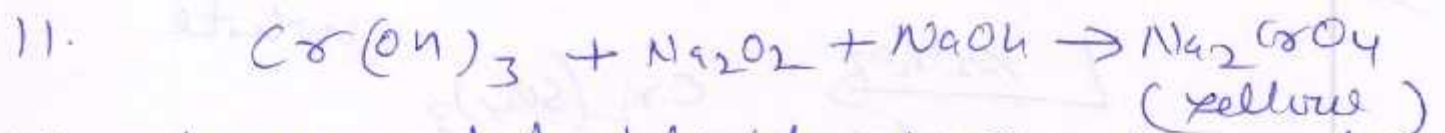
(2) HgS dissolves in aqua regia.

(3) Pb^{2+} is precipitated as PbS in gp II.

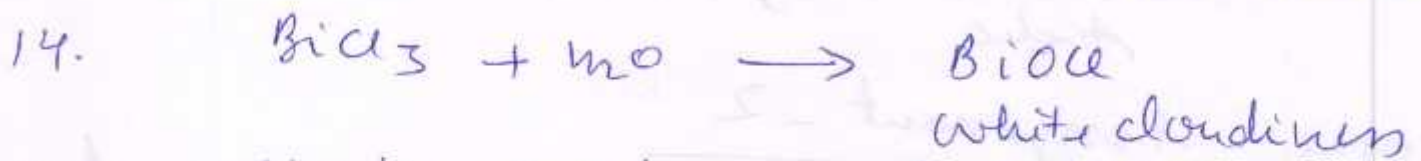
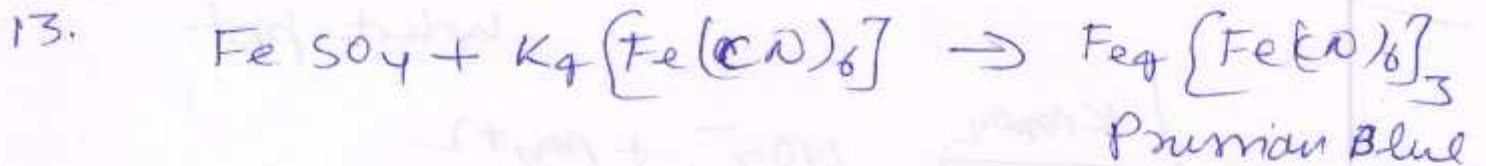
(4) Na_2S is soluble while K_{sp} of ZnS is more than 10^{-5} .



10. $CaSO_4$ is soluble.

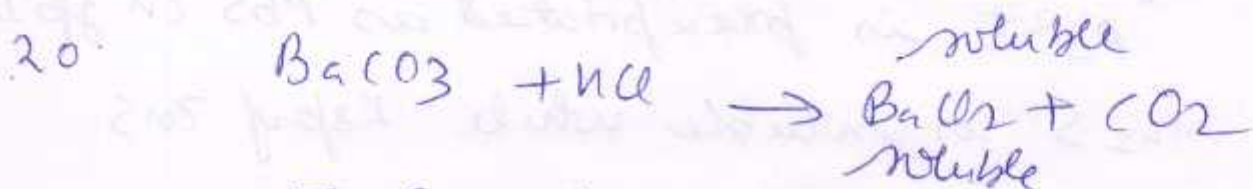
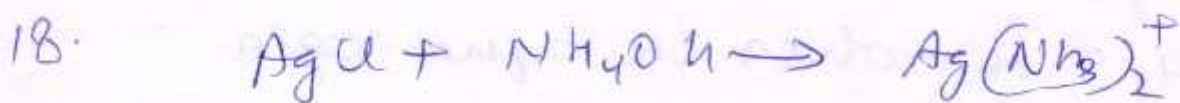
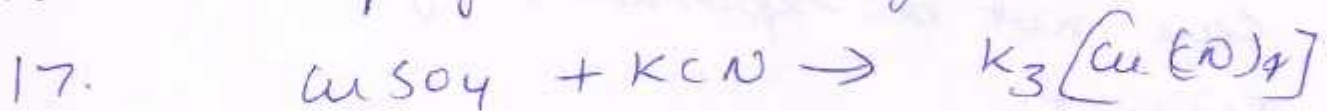


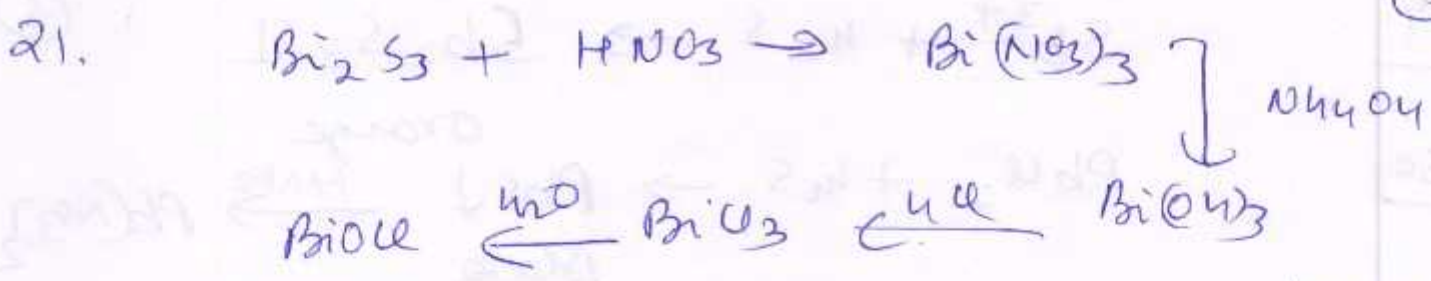
12. Heavy metal chloride $MgCl_2$ does not give chromyl chloride test.



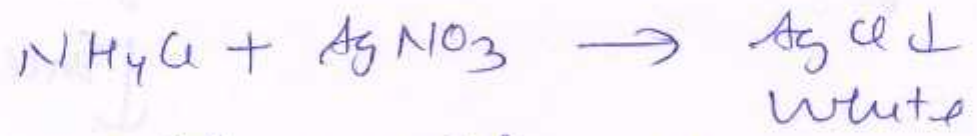
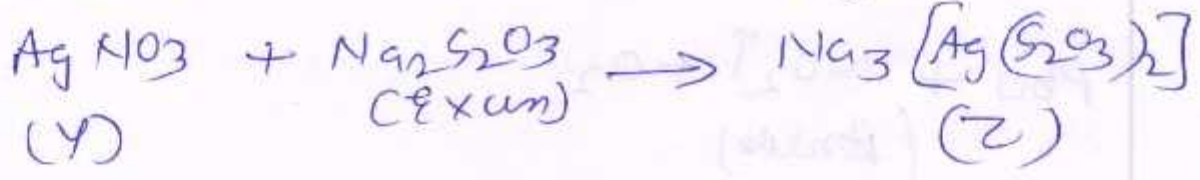
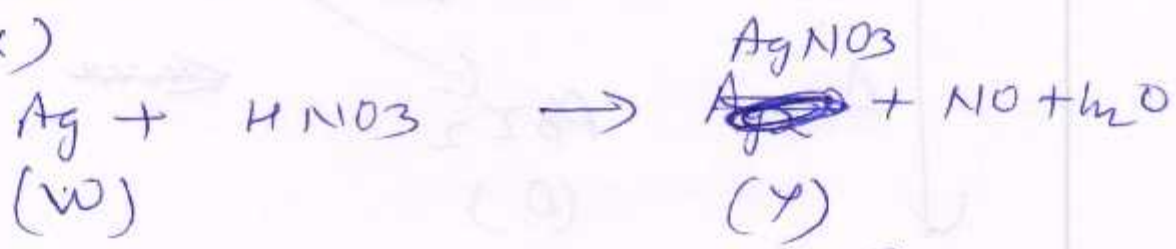
15. It is group reagent for Al^{3+} .

16. K_{sp} of NiS is high

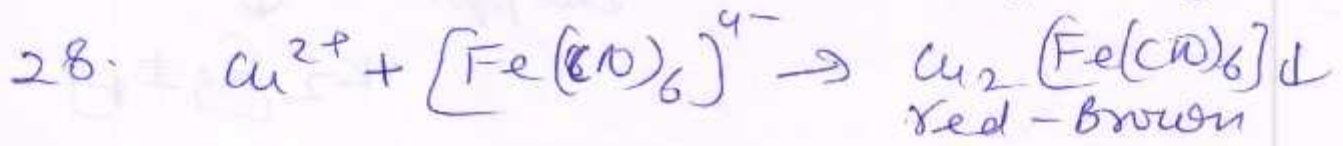
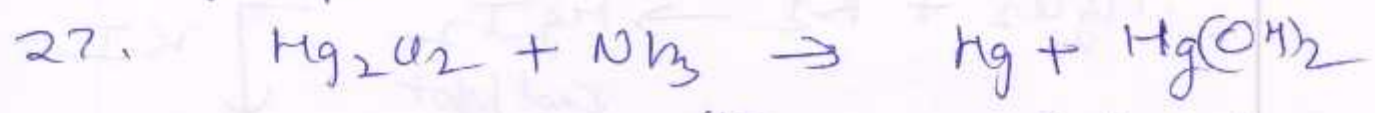




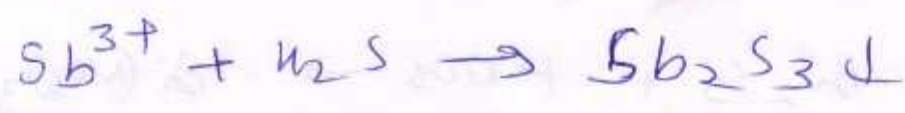
22. Cu^{+2} solubility is low as K_{sp} of CuS is low while Fe^{+2} K_{sp} is high for FeS .



26. Co^{2+} & Ni^{2+} both are same group ions.

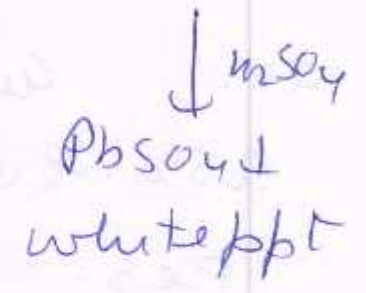
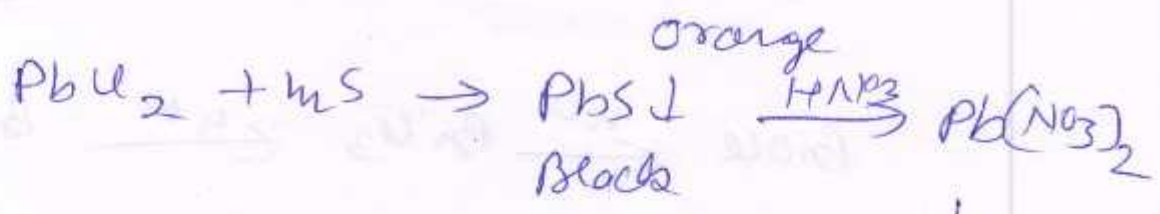


29.

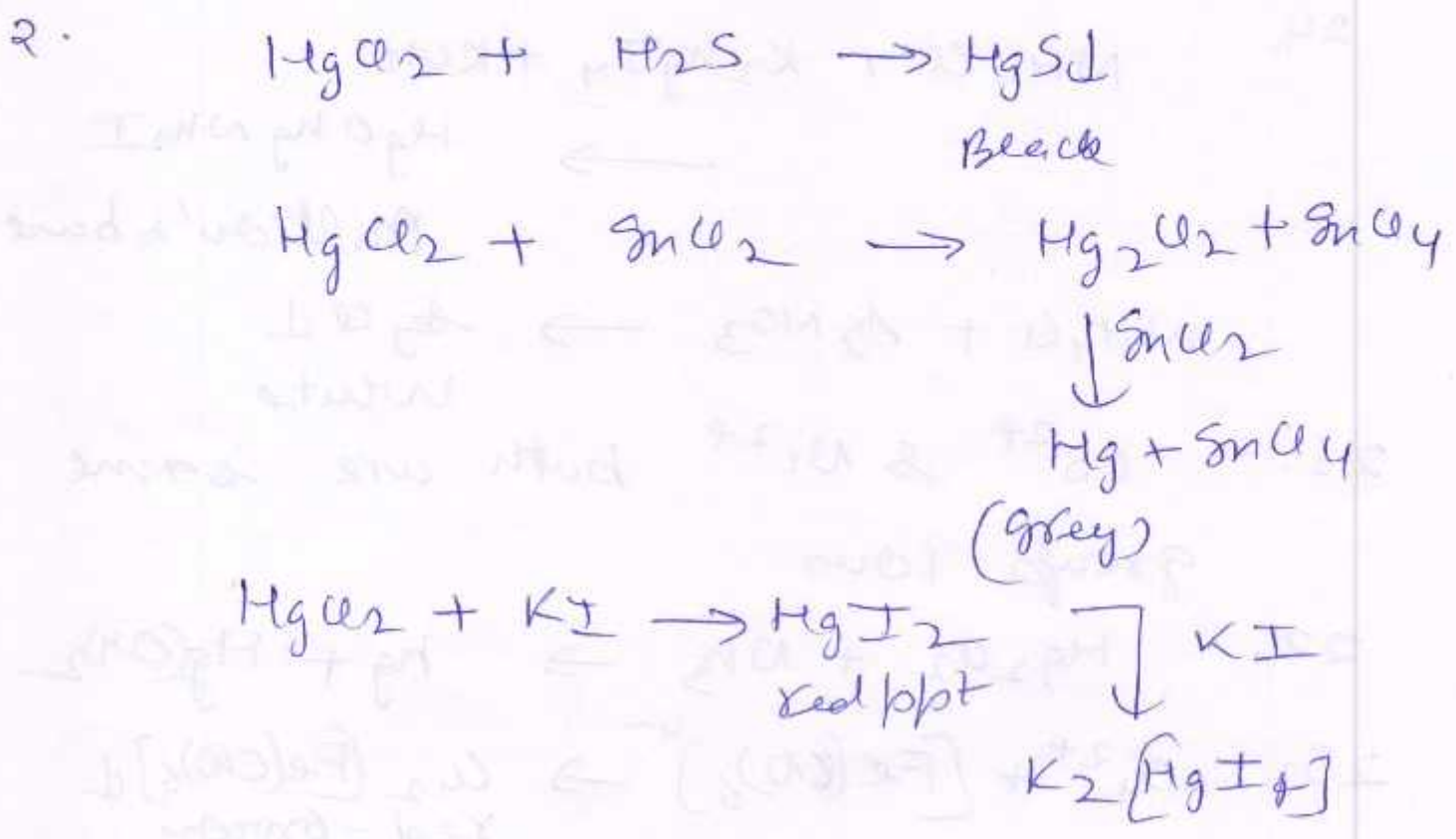
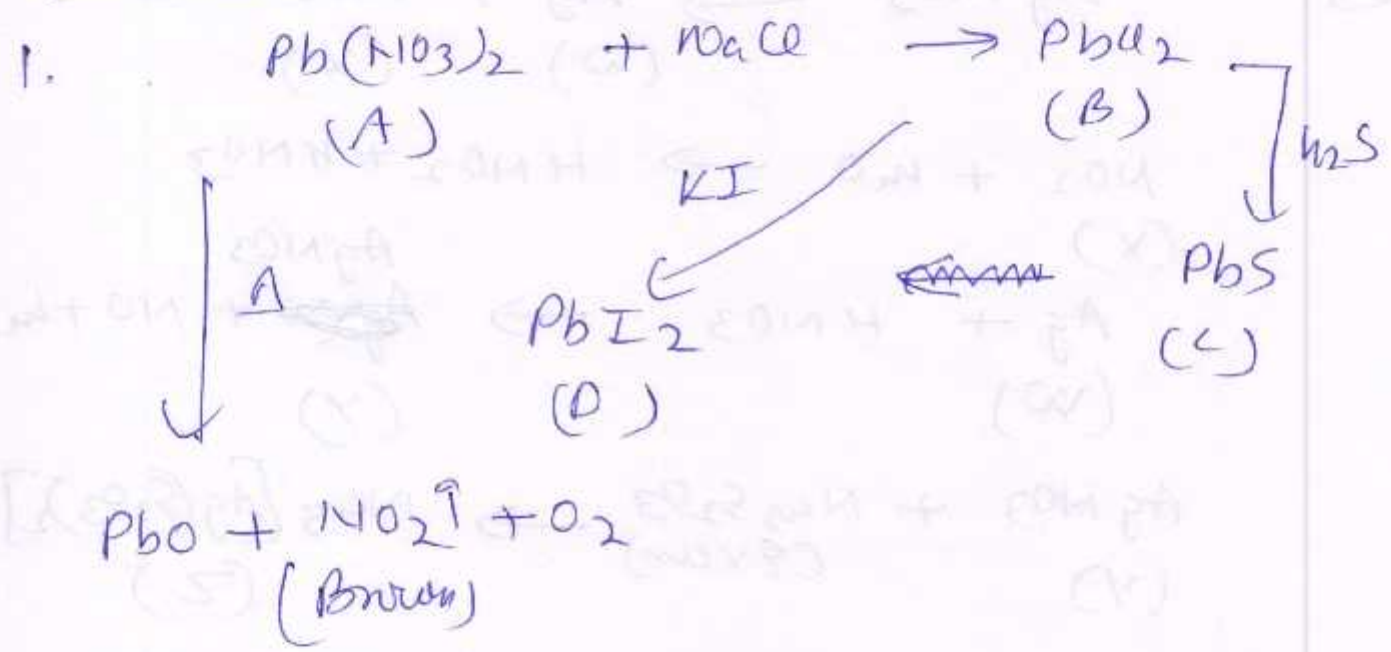


(6)

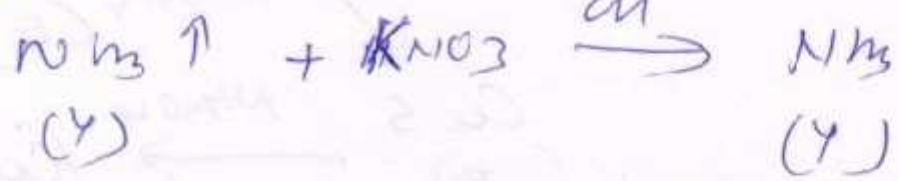
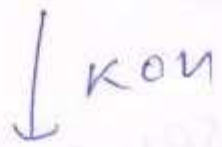
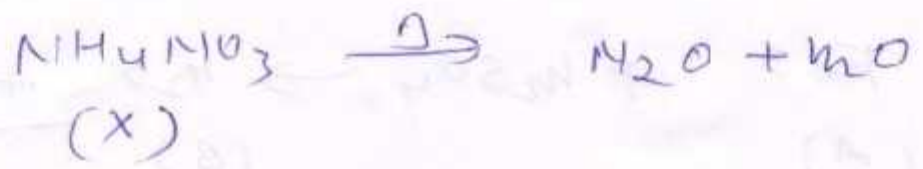
30



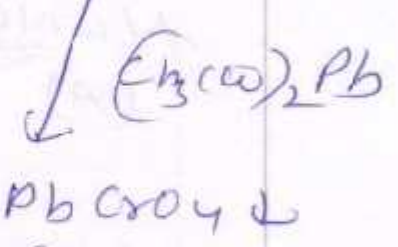
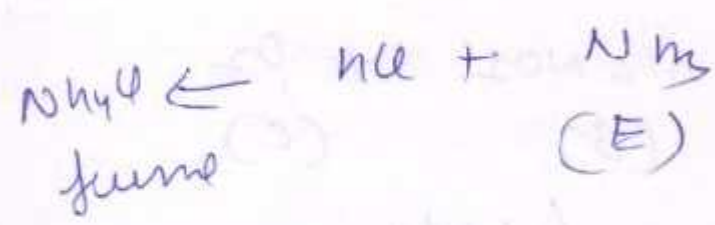
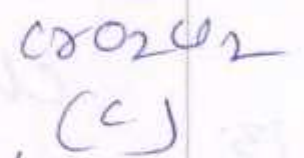
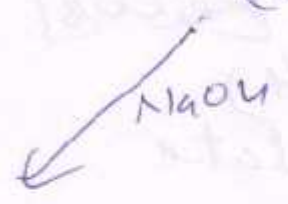
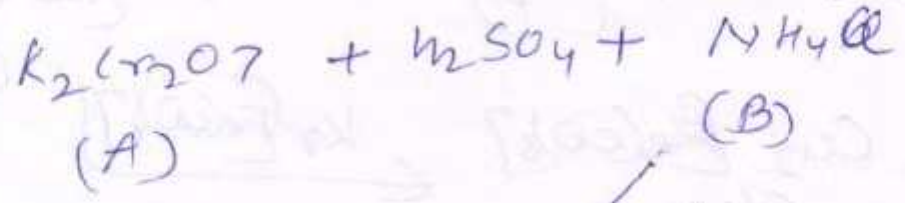
Home Assignment - 3



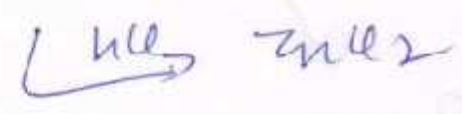
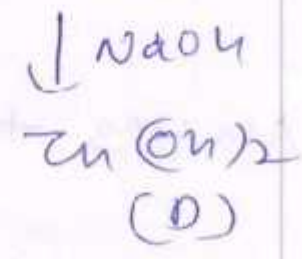
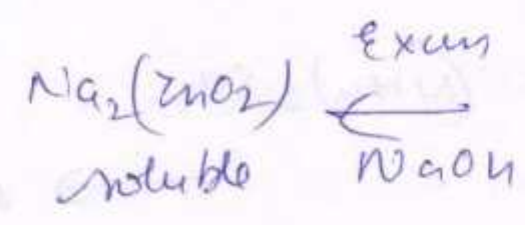
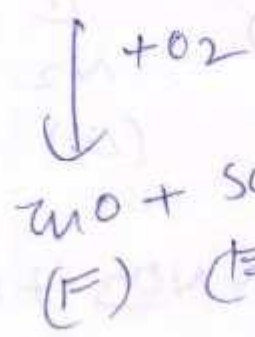
3.



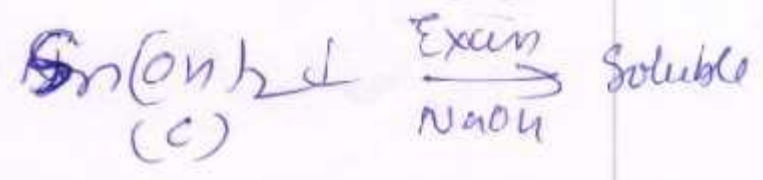
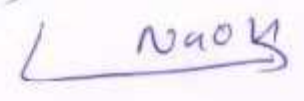
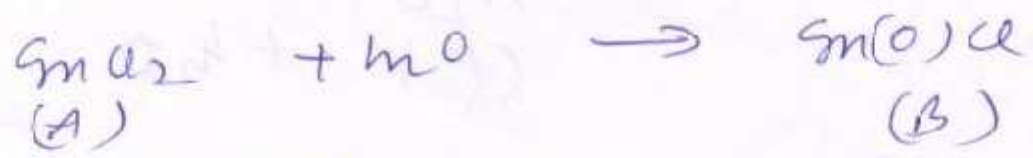
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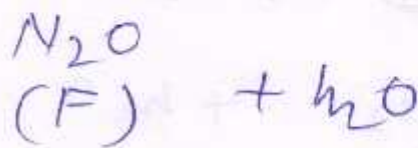
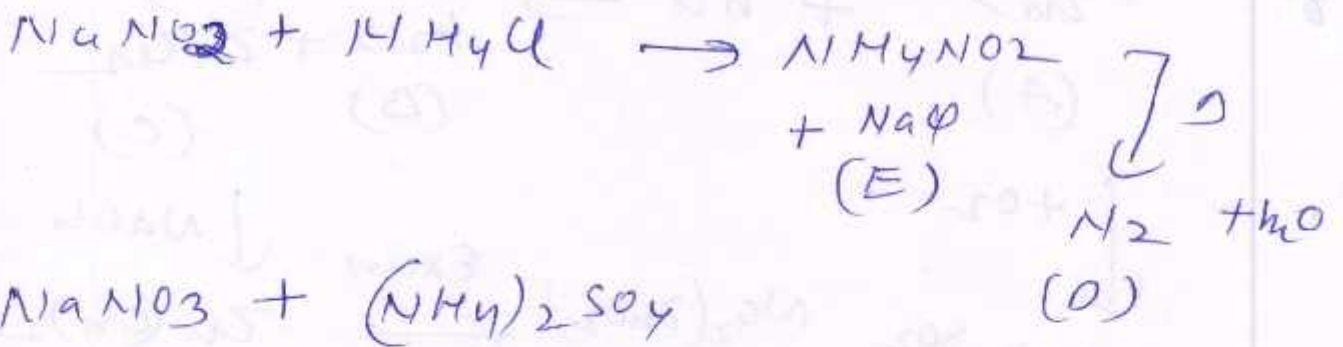
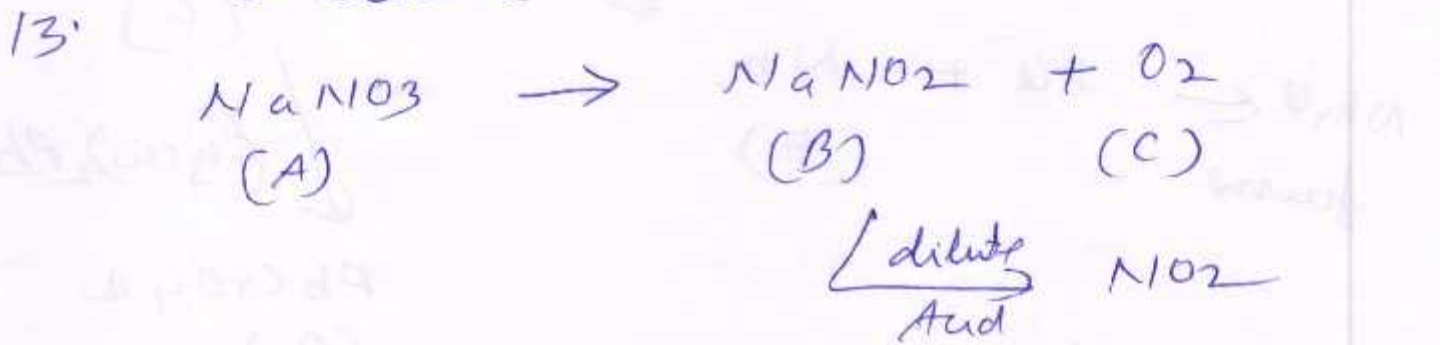
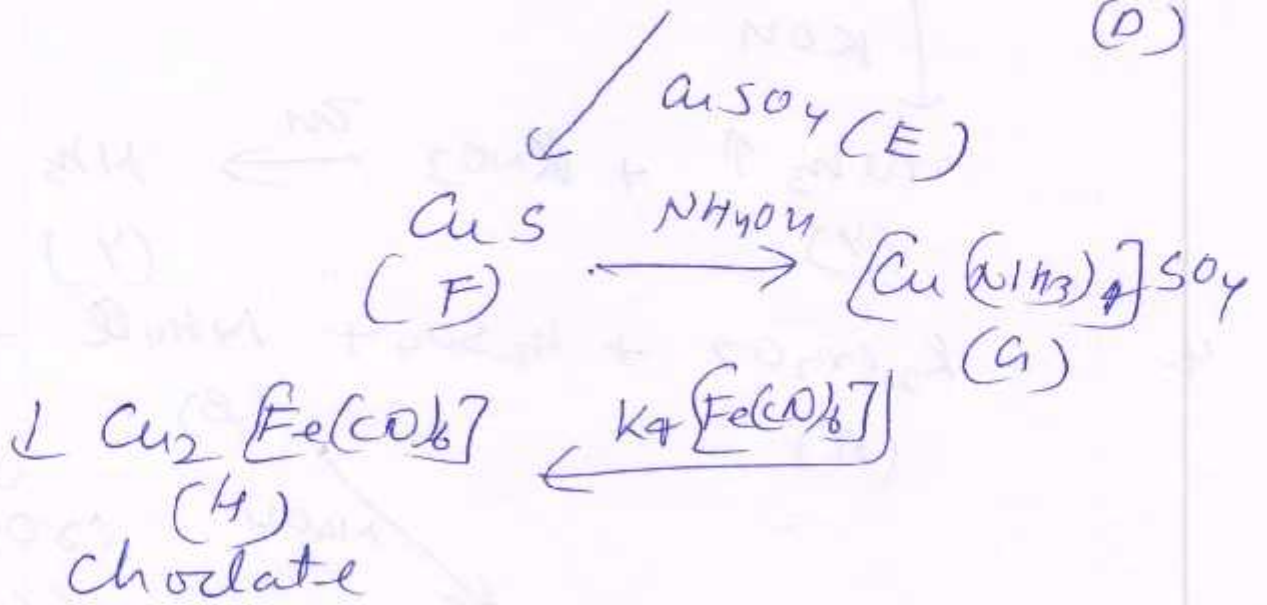
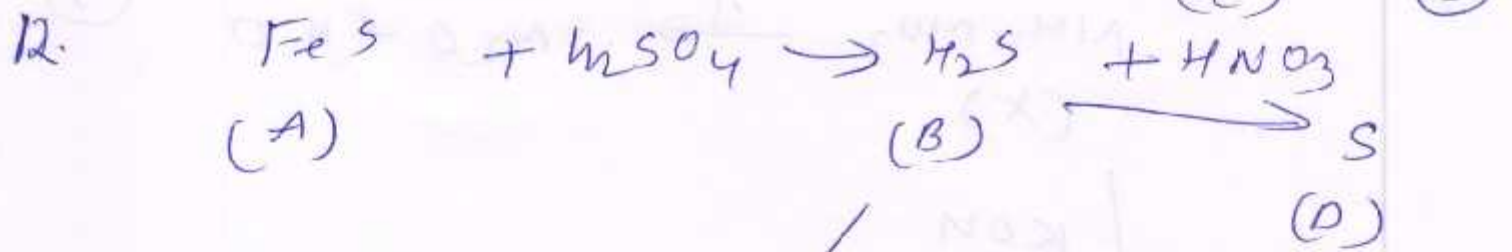


5.



6.

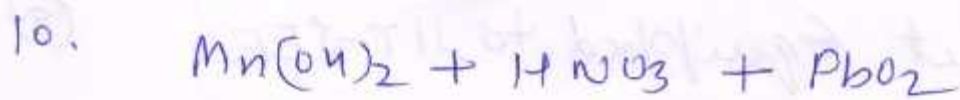




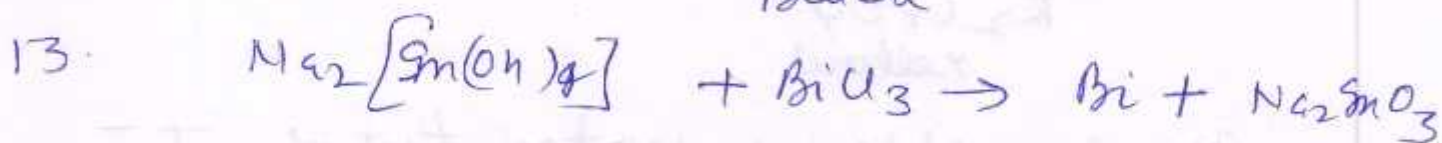
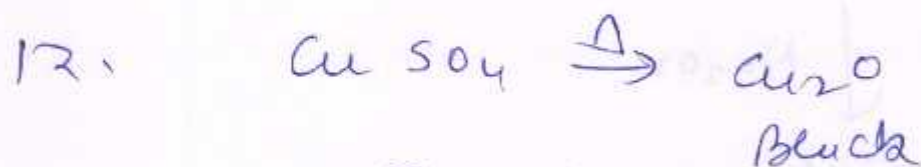
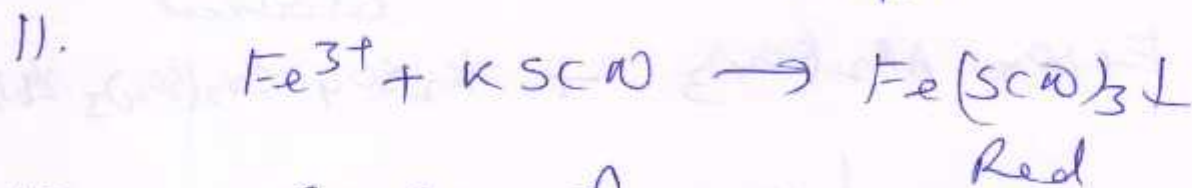
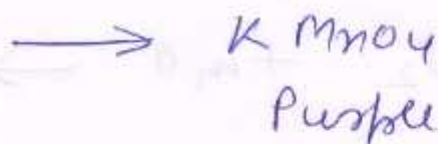
Get Equipped to IIT-JEE

9

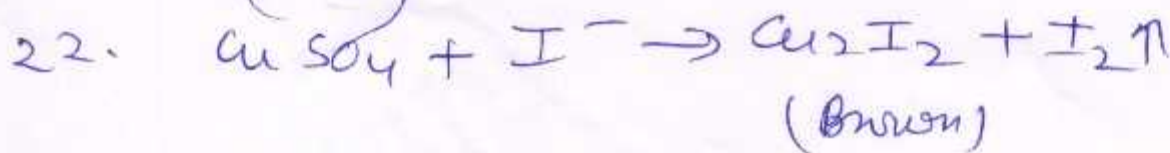
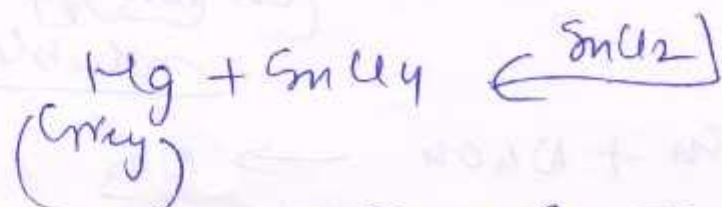
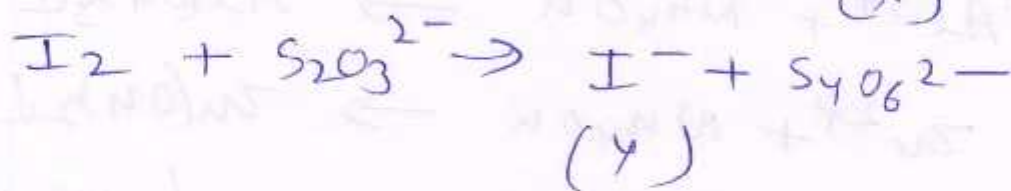
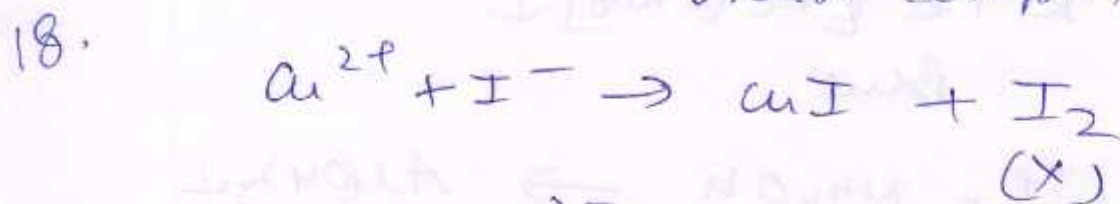
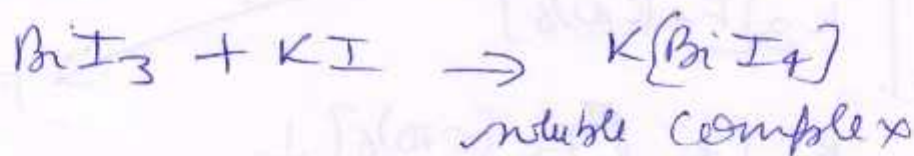
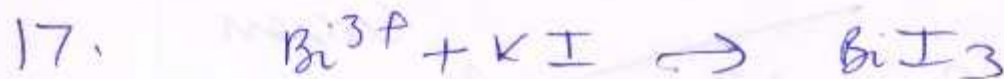
1. $\text{Co}(\text{NO}_3)_2 + \text{H}_2\text{O} \rightarrow \text{Co}(\text{OH})_2$
coloured
2. $\text{FeSO}_4 \cdot \text{Al}_2(\text{SO}_4)_3 + \text{K}_2\text{SO}_4 \cdot \text{Cr}_2(\text{SO}_4)_3 \cdot 24\text{H}_2\text{O}$
 $\downarrow \text{Na}_2\text{O}_2$
 K_2CrO_4
yellow
4. It is chlorine water test of I^-
5. $\text{Al}(\text{OH})_3 + \text{NaOH} \rightarrow \text{Na}(\text{AlO}_2)$
soluble
7. $\text{FeSO}_4 + \text{H}_2\text{O} \rightarrow \text{Fe}(\text{OH})_2$
green
 $\downarrow \text{K}_3[\text{Fe}(\text{CN})_6]$
 $\text{K}_4\text{Fe}[\text{Fe}(\text{CN})_6] \downarrow$
Blue
 \nearrow
 $\text{Fe}_2\text{O}_3 + \text{SO}_2 + \text{O}_2$
8. $\text{Al}^{3+} + \text{NH}_4\text{OH} \rightarrow \text{Al}(\text{OH})_3 \downarrow$
 $\text{Zn}^{2+} + \text{NH}_4\text{OH} \rightarrow \text{Zn}(\text{OH})_2 \downarrow$
 $\downarrow \text{NH}_4\text{OH}$
 $[\text{Zn}(\text{OH})_4]^{2-}$
soluble
9. $\text{NO}_2^- + \text{Zn} + \text{NaOH} \rightarrow \text{NH}_3$

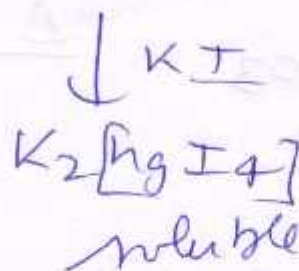


(10)



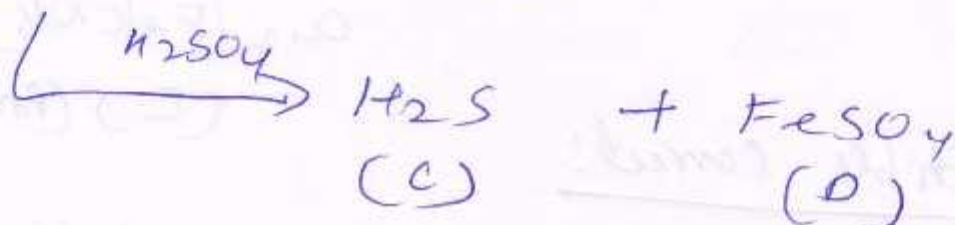
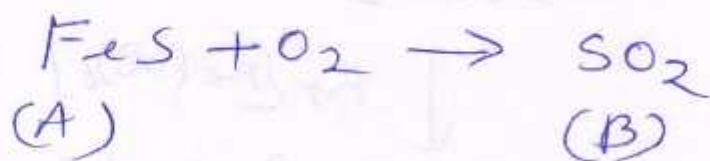
14. $\cdot g +$ is test of ZnS



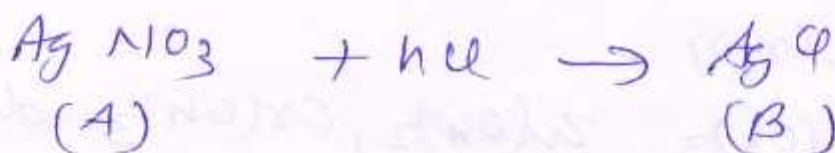


Comprehension

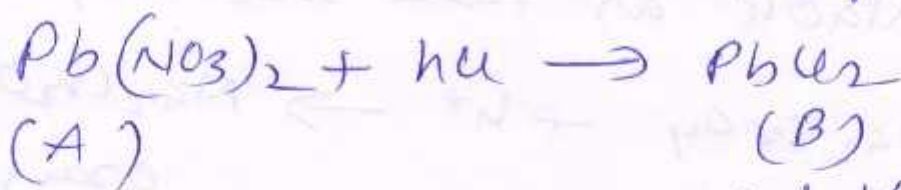
Passage-1



Passage-2

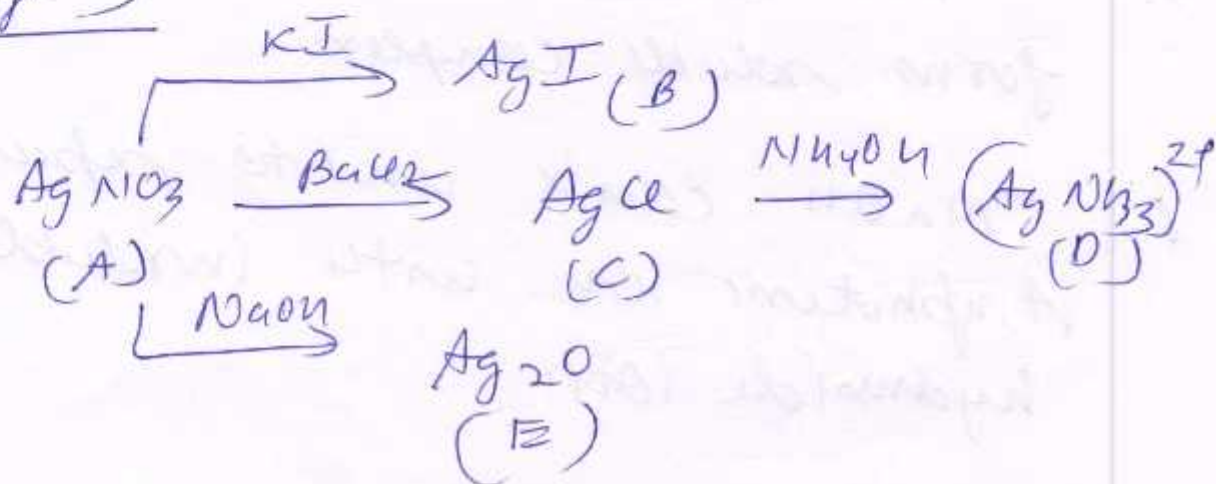


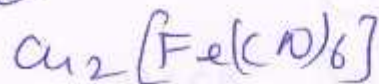
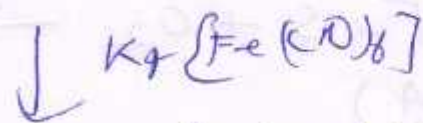
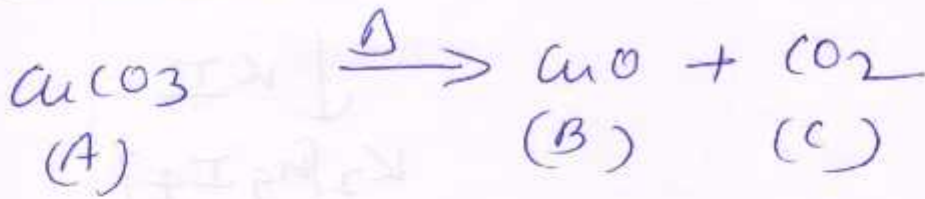
not possible



soluble in hot water

Passage-3

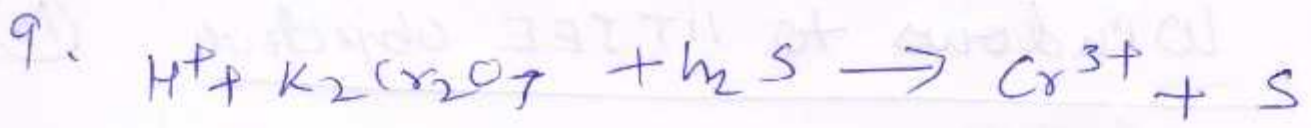




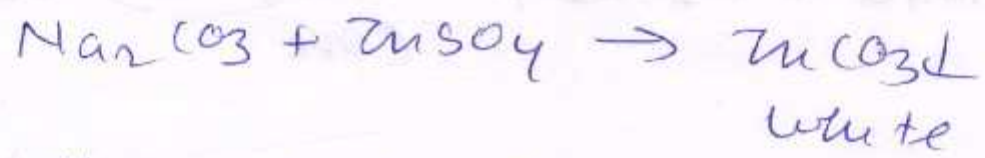
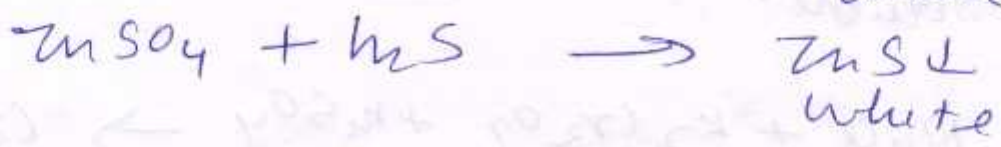
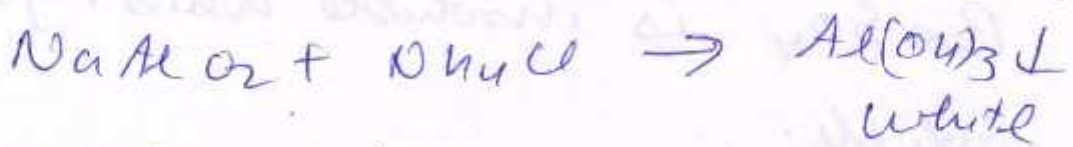
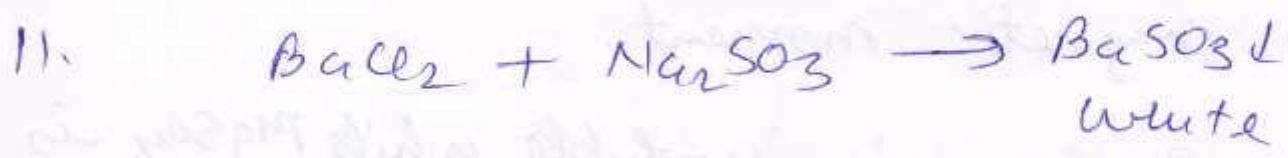
(E) (Brown)

multiple correct!

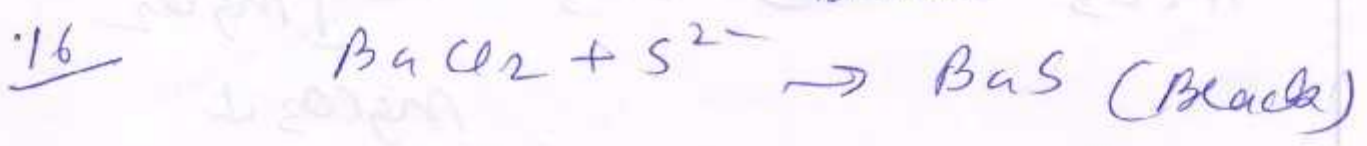
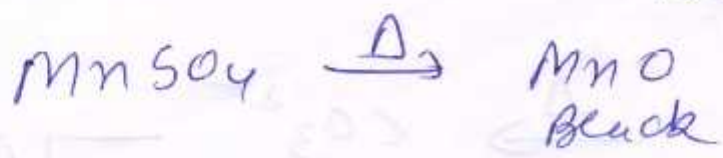
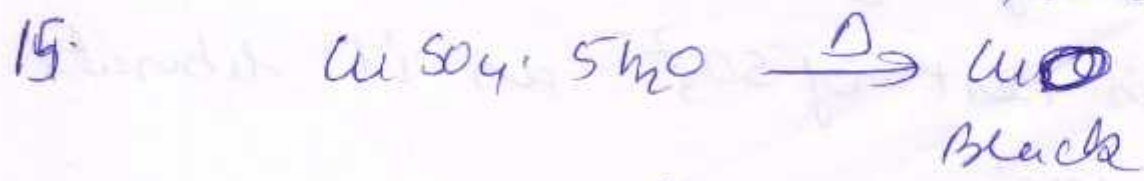
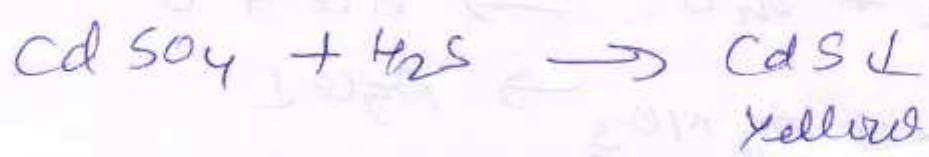
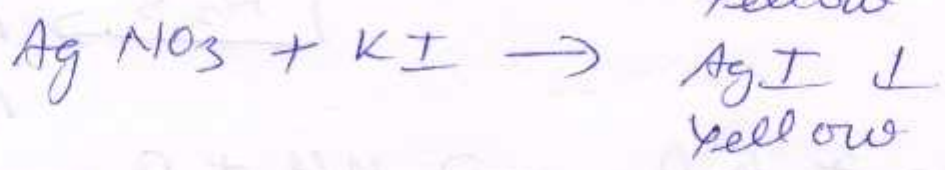
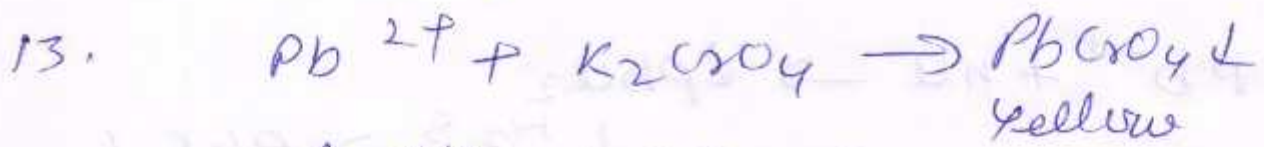
1. Both H_2S & SO_2 are oxidised by $\text{K}_2\text{Cr}_2\text{O}_7$
2. $\text{Al}(\text{OH})_3$, $\text{Zn}(\text{OH})_2$, $\text{Cr}(\text{OH})_3$ dissolves in excess NaOH as these are Amphoteric.
3. $\text{Na}_2\text{CrO}_4 + \text{H}^+ \rightarrow \text{Na}_2\text{Cr}_2\text{O}_7$
orange
5. All dissolves in NH_4OH as they form soluble complex.
6. NaOH can be used to separate Amphoteric ion with insoluble normal hydroxide ion.



10. Na_2CO_3 does not break on heating & rest give CO_2 & SO_2 gas.



12. It is test of SO_2 gas produced from sulphide & sulphite salt.



Windows to IIT JEE objective

(14)

1. NO is paramagnetic & NO^+ is diamagnetic so can be distinguished by magnetic moment.
2. BaSO_4 is insoluble while MgSO_4 is soluble.
4.
$$\text{NaCl} + \text{K}_2\text{Cr}_2\text{O}_7 + \text{H}_2\text{SO}_4 \rightarrow \text{CrO}_2\text{Cl}_2$$

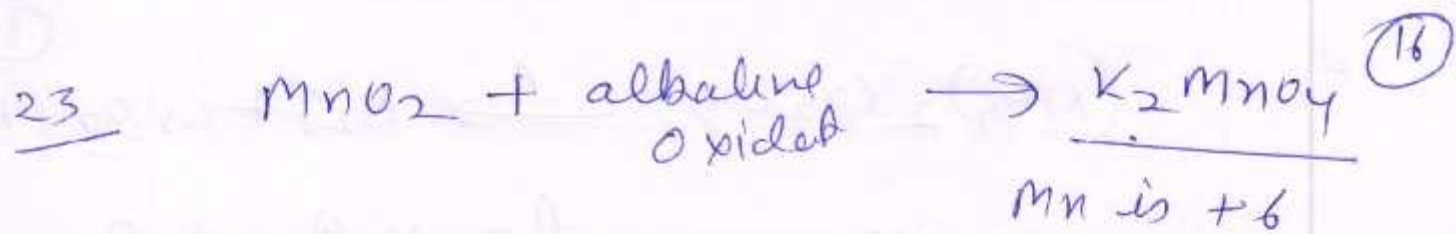
conc

$\downarrow \text{NaOH}$
 Na_2CrO_4
yellow
5.
$$\text{Pb}^{2+} + \text{HCl} \rightarrow \downarrow \text{PbCl}_2$$

$\xrightarrow{\text{H}_2\text{S}}$ $\text{PbS} \downarrow$
Black
6.
$$\text{Cl}_2 + \text{HCl} \rightarrow \text{HCl} + \text{O}$$

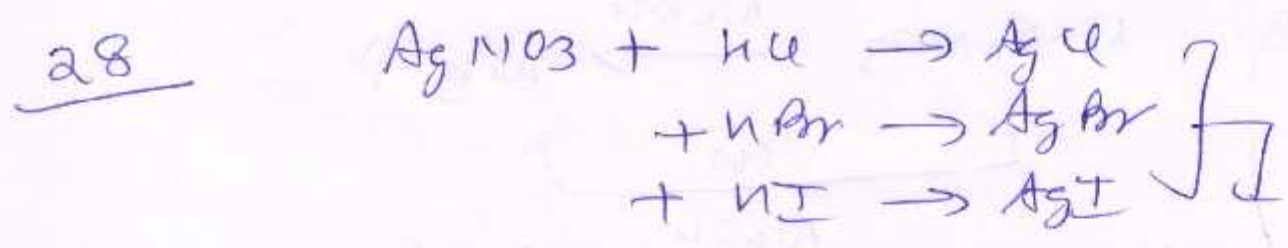
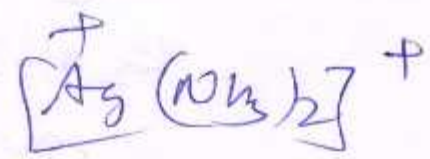
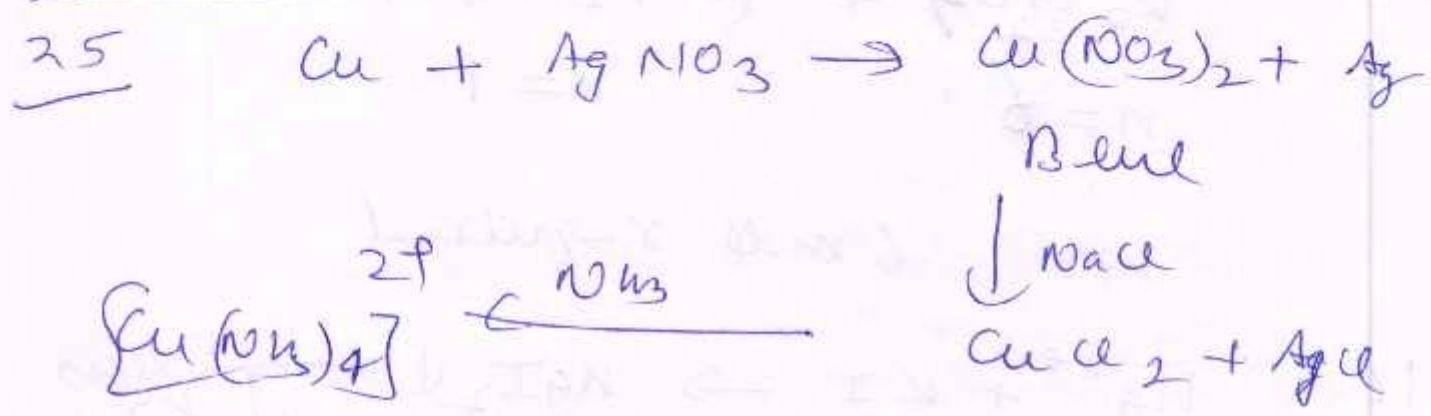
$$\text{HCl} + \text{AgNO}_3 \rightarrow \text{AgCl} \downarrow$$
7. OH^- is test of SO_3^{2-} as it liberate SO_2 gas.
8.
$$\text{HCO}_3^- \xrightarrow{\Delta} \text{CO}_3^{2-}$$

$\downarrow \text{MgCl}_2$
 $\text{MgCO}_3 \downarrow$
white ppt



24 It gives test of group II sulphide ion like CuS & HgS .

Passage



dissolves
 $Cu(NH_3)_2SO_4$

