

~~C~~ C

2. B  $\text{KClO}_4$  <sup>+1 +1 -2</sup>

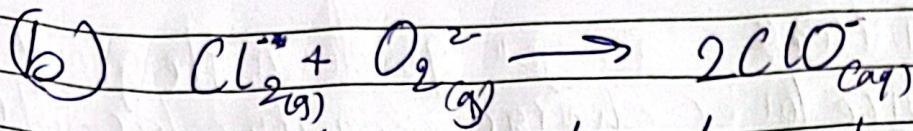
3. C

4. B

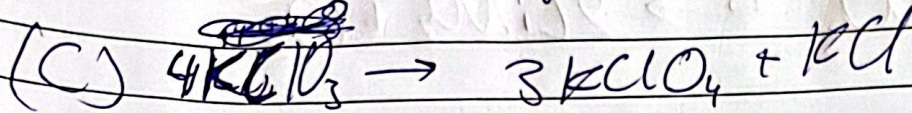
5. B

6. B

7. (a)  $\text{ClO}^-$  ~~C~~  
 ↓  
 (i)  $\text{Cl} + 1(-2) = -1$  (ii) chlorate(I) ion  
 ↓  
 $\text{Cl} = +1$



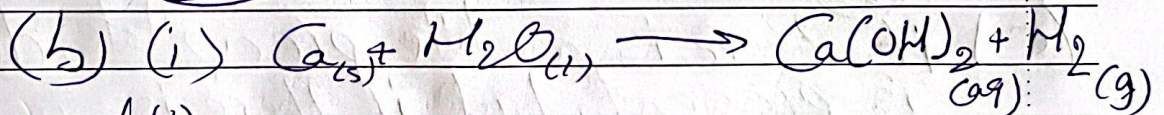
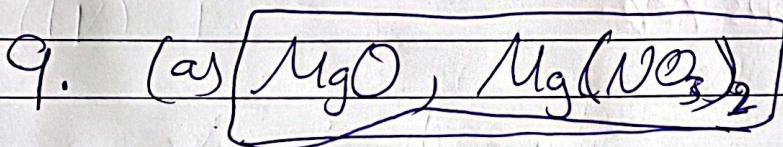
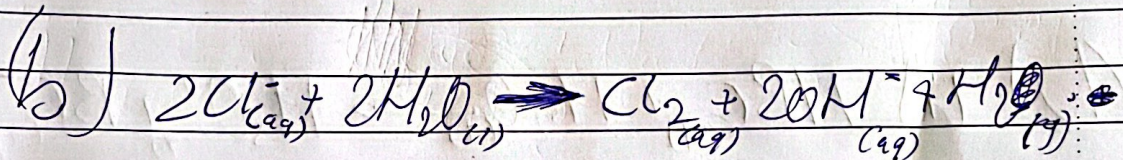
It is disproportionation because the same compound is oxidised and reduced.



It is changed so that the reaction would be balanced.

8. (a) (i) oxidation is <sup>losing</sup> ~~gaining~~ electrons and reduction is <sup>gaining</sup> ~~losing~~ electrons.

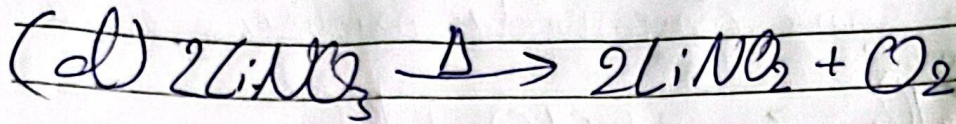
(ii) ~~Cl<sub>2</sub>~~ Cl<sub>2</sub>, because it reduced itself for the 2Br<sup>-</sup> to oxidise.



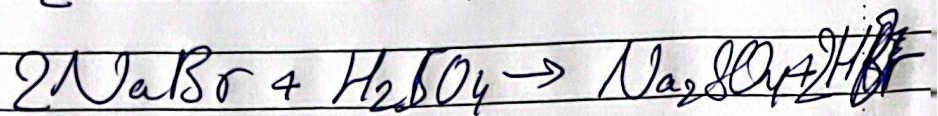
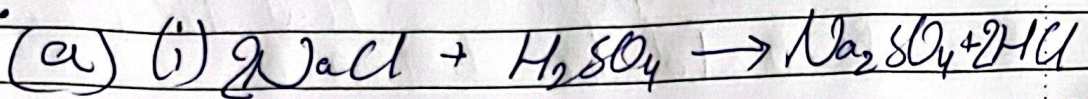
(ii) it increases because there are more electrons around the nucleus.

(iii) increase.

(c) it increases as you go down the group  
Since lower charge density so less distortion  
of carbonate ions.

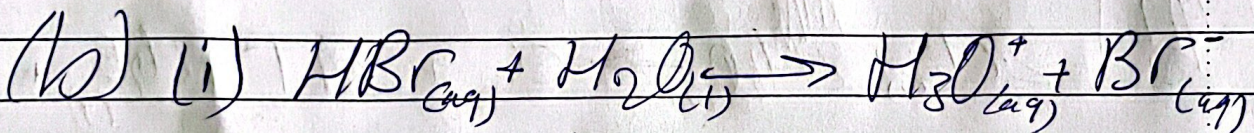


10.



(ii) ~~As Bromide~~ Bromine is larger  
than chlorine therefore the reaction  
it will produce will be weaker.

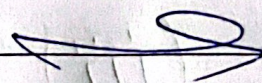
(iii) white fumes will be present.



(ii) Turns red.

~~(iii)~~

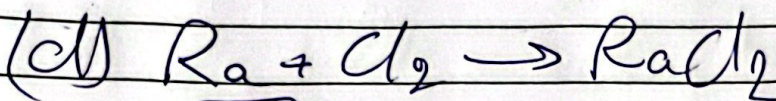
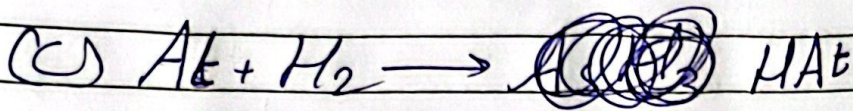
(c) if there is a white precipitate, chlorine  
is present, but if there is a yellow  
precipitate the iodine is present.



11.

- (a) (i) solid  
(ii) solid

(b) less reactive than iodine since larger size.

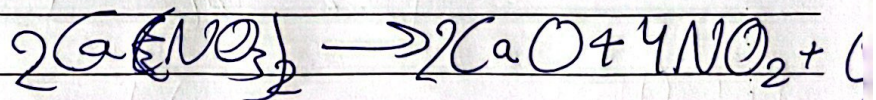
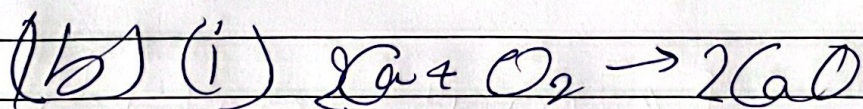
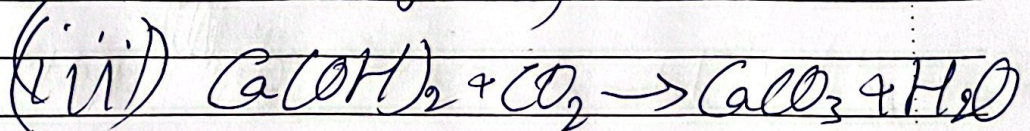


(e) D

12.

(a) (i) very reactive

(ii) calcium hydroxide 12.



(ii) They will become more thermally stable down the group.