

**DPP-02****Solution**

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1. Nitrogen dioxide cannot be obtained by heating KNO<sub>3</sub>. The decomposition reactions are as follows:

- (A) 4KNO<sub>3</sub> → 2K<sub>2</sub>O + 2N<sub>2</sub> + 5O<sub>2</sub>
- (B) 2Pb(NO<sub>3</sub>)<sub>2</sub> → 2PbO + 4NO<sub>2</sub> + O<sub>2</sub>
- (C) 2Cu(NO<sub>3</sub>)<sub>2</sub> → 2CuO + 4NO<sub>2</sub> + O<sub>2</sub>
- (D) 2AgNO<sub>3</sub> → 2Ag + O<sub>2</sub> + 2NO<sub>2</sub>

Except KNO<sub>3</sub>, we see that all others give NO<sub>2</sub>.

Hence, option A is correct.

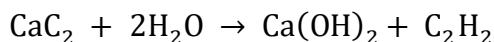
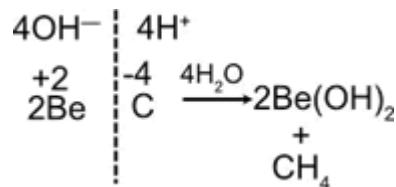
2. Chemically speaking, barium is an element with the symbol Ba and atomic number 56. It is an alkaline earth metal that is soft and silvery, and it is the fifth element in group 2. Both water and ammonia have the potential to dissolve this metal.

3. Option (A) is correct.

Mg can form complexes. Some examples are chlorophyll, Mg EDTA.

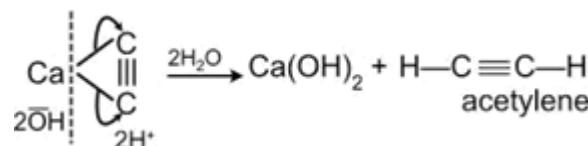
4. Correct options are C) and D)

- (A) BeCl<sub>2</sub> is a linear molecule in the vapour state but it is polymeric in the solid(As it exhibits sp hybridisation) state. True.
- (B) Calcium hydride is called hydrolith(CaH<sub>2</sub>).True.
- (C) Carbides of both Be and Ca react with water to form acetylene. False.(only Carbide of Ca react with water to form acetylene).False.





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Be<sub>2</sub>C on hydrolysis gives methane, whereas calcium carbide on hydrolysis gives acetylene

(D) Oxides of both Be and Ca are amphoteric. BeO is amphoteric CaO is basic. False.

Hence options C & D are correct answer.

5. CaC<sub>2</sub>, Be<sub>2</sub>C & Al<sub>4</sub>Cl<sub>3</sub> are ionic carbides but SiC are covalent.

Hence options A, B & D are correct.

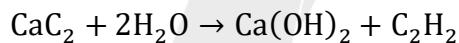
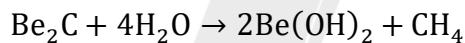
6. Rb<sup>+</sup> most EP → large size

Be<sup>2+</sup> least EP → small size

As the size of the cation increases ionic character increases, so among the given chlorides the Rb is having larger size and the element having least size is Be. So, the compound having more ionic character is RbCl.

The compound having more ionic character is BeCl<sub>2</sub>. Hence option B is correct.

7. Balanced reactions are:



So, X and Y are methane and acetylene respectively.

8. In option B, Mg, Sr, Ba belongs to 2nd group so they have same outer electronic configuration of ns<sub>2</sub>. So it is correct.

In option C, Be and Ca belongs to 2nd group so they are having same properties however, Al shows similar properties with Be and Ca due to diagonal relationship of Be with Al. In options A and D, both 1st and 2nd group elements are present together so their properties are different.