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**Max Time : 1 hr** **s – BLOCK ELEMENTS Max Marks : 30**

**Class = 11th Chemistry**

1. Multiple choice questions : [ 1 x 10 = 10 ]
2. Which one of the following alkali metals gives hydrated salts ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) Li | b) Na | c) K | d) Cs |

1. Which one of the following alkaline earth metal carbonates is thermally the most stable ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) MgCO3 | b) CaCO3 | c) SrCO3 | d) BaCO3 |

1. The reducing power of a metal depends on various factors. Suggest the factor which make Li, the strongest reducing agent in aqueous solution.

|  |  |  |  |
| --- | --- | --- | --- |
| a) Sublimation enthalpy | b) Ionisation enthalpy | c) Hydration enthalpy | d) Electron-gain enthalpy |

1. Some of the Group 2 metal halides are covalent and soluble in organic solvents. Among the following metal halides, the one which is soluble in ethanol is

|  |  |  |  |
| --- | --- | --- | --- |
| a) BeCl2 | b) MgCl2 | c) CaCl2 | d) SrCl2 |

1. The order of decreasing ionization enthalpy in alkali metals is

|  |  |  |  |
| --- | --- | --- | --- |
| a) Na > Li > K > Rb | b) Rb < Na < K < Li | c) Li > Na > K > Rb | d) K < Li < Na < Rb |

1. The correct order of increasing thermal stability of K2CO3 , MgCO3 , CaCO3 and BeCO3 is :

|  |  |
| --- | --- |
| a) K2CO3 < MgCO3 < CaCO3 < BeCO3 | b) BeCO3 < MgCO3 < K2CO3 < CaCO3 |
| c) BeCO3 < MgCO3 < CaCO3 < K2CO3 | d) MgCO3 < BeCO3 < CaCO3 < K2CO3 |

1. Which pair of following chlorides do not impart colour to the flame

|  |  |  |  |
| --- | --- | --- | --- |
| a) BeCl2 and SrCl2 | b) BeCl2 and MgCl2 | c) CaCl2 and BaCl2 | d) BaCl2 and SrCl2 |

1. Among the following, the least thermally stable is

|  |  |  |  |
| --- | --- | --- | --- |
| a) K2CO3 | b) Na2CO3 | c) BaCO3 | d) Li2CO3 |

1. Plaster of Paris is hardened by

|  |  |  |  |
| --- | --- | --- | --- |
| a) Liberating CO2 | b) Hydration | c) Dehydration | d) changing into CaCO3 |

1. Which of the following compound is most stable ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) LiF | b) LiCl | c) LiBr | d) LiI |

1. More than one option : [ 2 x 4 = 8 ]
2. When zeolite, which is hydrated sodium aluminium silicate is treated with hard water, the sodium ions are exchanged with which of the following ion(s) ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) H+ ions | b) Mg2+ ions | c) Ca2+ ions | d) ions |

1. Identify the correct formula of halides of alkaline earth metals from the following.

|  |  |  |  |
| --- | --- | --- | --- |
| a) BaCl2.2H2O | b) BaCl2.4H2O | c) CaCl2.6H2O | d) SrCl2.4H2O |

1. Which of the following groups of elements have properties that are most similar ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) Na , K , Cs | b) Mg , Sr , Ba | c) Be , Al , Ca | d) Be , Ra , Cs |

1. Which of the following chlorides are soluble in pyridine ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) LiCl | b) CsCl | c) NaCl | d) BeCl2 |

1. Why is KO2 paramagnetic ? [ 2 ]
2. Explain why is sodium less reactive than potassium ? [ 2 ]
3. In what ways Lithium Shows similarities to magnesium in its chemical behavior ? [ 2 ]
4. Beryllium and magnesium do not give colour to flame whereas alkaline earth metals do so. Why ?

[ 2 ]

1. Compare I.E1 and I.E2 of Na and Mg. [ 2 ]
2. LiCl is soluble in organic solvent. Explain ? [ 2 ]