

1. The species that do not contain peroxide linkage are - [JEE 1992]
 (1) PbO_2 (2) H_2O_2
 (3) SrO_2 (4) BaO_2
2. The following compounds have been arranged in order of their increasing thermal stabilities. Identify the correct order. [JEE 1996]
 K_2CO_3 (I) MgCO_3 (II) CaCO_3 (III) BeCO_3 (IV)
 (1) $\text{I} < \text{II} < \text{III} < \text{IV}$ (2) $\text{IV} < \text{II} < \text{III} < \text{I}$
 (3) $\text{IV} < \text{II} < \text{I} < \text{III}$ (4) $\text{II} < \text{IV} < \text{III} < \text{I}$
3. Property of all the alkaline earth metals that increase with their atomic number is - [JEE 1997]
 (1) ionisation energy
 (2) solubility of their hydroxides
 (3) solubility of their sulphate
 (4) electronegativity
4. The set representing the correct order of first ionization potential is - [JEE 2001]
 (1) $\text{K} > \text{Na} > \text{Li}$ (2) $\text{Be} > \text{Mg} > \text{Ca}$
 (3) $\text{B} > \text{C} > \text{N}$ (4) $\text{Ge} > \text{Si} > \text{C}$
5. A metal M readily forms its sulphate MSO_4 which is water soluble. It forms oxide MO which becomes inert on heating. It forms insoluble hydroxide which is soluble in NaOH. The metal M is :- [AIIEE-2002]
 (1) Mg (2) Ba
 (3) Ca (4) Be
6. KO_2 is used in space and submarines because it [AIIEE-2002]
 (1) Absorbs CO_2 and increase O_2 concentration
 (2) Absorbs moisture
 (3) Absorbs CO_2
 (4) Produces ozone
7. In curing cement plasters, water is sprinkled from time to time. This helps in :- [AIIEE-2003]
 (1) Hydrating sand and gravel mixed with cement
 (2) Converting sand into silicate
 (3) Developing interlocking needle like crystals of hydrated silicates
 (4) Keeping it cool
8. The solubilities of carbonates decreases down the magnesium group due to decrease in :- [AIIEE-2003]
 (1) Inter-ionic attraction
 (2) Entropy of solution formation
 (3) Lattice energy of solids
 (4) Hydration energy of cations
9. The substance not likely to contain CaCO_3 is :- [AIIEE-2003]
 (1) Sea shells (2) Dolomite
 (3) A marble statue (4) Calcined gypsum
10. One mole of magnesium nitride on reaction with excess of water gives :- [AIIEE-2004]
 (1) Two mole of HNO_3 (2) Two mole of NH_3
 (3) 1 mole of NH_3 (4) 1 mole of HNO_3
11. Beryllium and aluminium exhibit many properties which are similar. But the two elements differ in - [AIIEE-2004]
 (1) Exhibiting maximum covalency in compounds
 (2) Forming polymeric hydrides
 (3) Forming covalent halides
 (4) Exhibiting amphoteric nature in their oxides.
12. The ionic mobility of alkali metal ions in aqueous solution is maximum for :- [AIIEE-2006]
 (1) Rb^+ (2) Li^+
 (3) Na^+ (4) K^+
13. The products obtained on heating LiNO_3 will be :- [AIIEE-2011]
 (1) $\text{LiNO}_2 + \text{O}_2$ (2) $\text{Li}_2\text{O} + \text{NO}_2 + \text{O}_2$
 (3) $\text{Li}_3\text{N} + \text{O}_2$ (4) $\text{Li}_2\text{O} + \text{NO} + \text{O}_2$
14. What is the best description of the change that occurs when $\text{Na}_2\text{O}(\text{s})$ is dissolved in water? [AIIEE-2011]
 (1) Oxidation number of sodium decreases
 (2) Oxide ion accepts sharing in a pair of electrons
 (3) Oxide ion donates a pair of electrons
 (4) Oxidation number of oxygen increases
15. Which of the following on thermal-decomposition yields a basic as well as an acidic oxide? [AIIEE-2012]
 (1) NH_4NO_3 (2) NaNO_3
 (3) KClO_3 (4) CaCO_3
16. Very pure hydrogen (99.9%) can be made by which of the following processes? [AIIEE 2012]
 (1) Reaction of salt like hydrides with water
 (2) Reaction of methane with steam
 (3) Mixing natural hydrocarbons of high molecular weight
 (4) Electrolysis of water
17. Based on lattice energy and other considerations, which one of the following alkali metal chloride is expected to have the highest melting point? [JEE MAIN-2012, Online]
 (1) RbCl (2) LiCl
 (3) KCl (4) NaCl

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- 18.** Which one of the following will react most vigorously with water ? **[JEE MAIN-2012, Online]**
 (1) Li (2) K
 (3) Rb (4) Na
- 19.** A metal M on heating in nitrogen gas gives Y. Y on treatment with H_2O gives a colourless gas which when passed through $CuSO_4$ solution gives a blue colour, Y is :- **[JEE MAIN-2012, Online]**
 (1) NH_3 (2) MgO
 (3) Mg_3N_2 (4) $Mg(NO_3)_2$
- 20.** The correct statement for the molecule, CsI_3 , is : **[JEE(Main)-2014]**
 (1) it contains Cs^{3+} and I^- ions
 (2) it contains Cs^+ , I^- and lattice I_2 molecule
 (3) it is a covalent molecule
 (4) it contains Cs^+ and I_3^- ions
- 21.** Which of the following statements about Na_2O_2 is **not** correct ? **[JEE MAIN-2014, Online]**
 (1) Na_2O_2 oxidises Cr^{3+} to CrO_4^{2-} in acid medium
 (2) It is diamagnetic in nature
 (3) It is the super oxide of sodium
 (4) It is a derivative of H_2O_2
- 22.** Amongst $LiCl$, $RbCl$, $BeCl_2$ and $MgCl_2$ the compounds with the greatest and the least ionic character, respectively are : **[JEE MAIN-2014, Online]**
 (1) $RbCl$ and $MgCl_2$ (2) $LiCl$ and $RbCl$
 (3) $MgCl_2$ and $BeCl_2$ (4) $RbCl$ and $BeCl_2$
- 23.** From the following statements regarding H_2O_2 , choose the incorrect statement : **[JEE(Main) 2015]**
 (1) It has to be stored in plastic or wax lined glass bottles in dark
 (2) It has to be kept away from dust
 (3) It can act only as an oxidizing agent
 (4) It decomposes on exposure to light
- 24.** The correct order of thermal stability of hydroxides is : **[JEE(Main)Online-2015]**
 (1) $Ba(OH)_2 < Sr(OH)_2 < Ca(OH)_2 < Mg(OH)_2$
 (2) $Mg(OH)_2 < Sr(OH)_2 < Ca(OH)_2 < Ba(OH)_2$
 (3) $Mg(OH)_2 < Ca(OH)_2 < Sr(OH)_2 < Ba(OH)_2$
 (4) $Ba(OH)_2 < Ca(OH)_2 < Sr(OH)_2 < Mg(OH)_2$
- 25.** Which of the alkaline earth metal halides given below is essentially covalent in nature :- **[JEE(Main)Online-2015]**
 (1) $SrCl_2$ (2) $CaCl_2$
 (3) $BeCl_2$ (4) $MgCl_2$
- 26.** Which one of the following alkaline earth metal sulphates has its hydration enthalpy greater than its lattice enthalpy ? **[JEE(Main)-2015]**
 (1) $BaSO_4$ (2) $SrSO_4$
 (3) $CaSO_4$ (4) $BeSO_4$
- 27.** The commercial name for calcium oxide is : **[JEE(Main)-2016]**
 (1) Quick lime (2) Milk of lime
 (3) Limestone (4) Slaked lime
- 28.** The correct order of the solubility of alkaline-earth metal sulphates in water is : **[JEE(Main)-2016]**
 (1) $Mg < Sr < Ca < Ba$
 (2) $Mg < Ca < Sr < Ba$
 (3) $Mg > Ca > Sr > Ba$
 (4) $Mg > Sr > Ca > Ba$
- 29.** The main oxides formed on combustion of Li, Na and K in excess of air are respectively : **[JEE(Main)-2016]**
 (1) Li_2O , Na_2O_2 and KO_2
 (2) Li_2O , Na_2O and KO_2
 (3) LiO_2 , Na_2O_2 and K_2O
 (4) Li_2O_2 , Na_2O_2 and KO_2
- 30.** In KO_2 , the nature of oxygen species and the oxidation state of oxygen atom are, respectively **[JEE(Main)ONLINE-2018]**
 (1) Superoxide and $-1/2$
 (2) Oxide and $--2$
 (3) Peroxide and $-1/2$
 (4) Superoxide and -1

PREVIOUS YEARS QUESTIONS				ANSWER KEY				Exercise-II			
Que.	1	2	3	4	5	6	7	8	9	10	
Ans.	1	2	2	2	4	1	3	4	4	2	
Que.	11	12	13	14	15	16	17	18	19	20	
Ans.	1	1	4	3	4	4	4	3	3	4	
Que.	21	22	23	24	25	26	27	28	29	30	
Ans.	3	4	3	3	3	4	1	3	1	1	