1. The alkali metals which form normal oxide, peroxide as well as super oxides are :-
(1) Na, Li (2) K, Li
(3) Li, Cs (4) K, Rb

2. The correct order of degree of hydration of M^+ ions of alkali metals is
(1) $Li^+ < K^+ < Na^+ < Rb^+ < Cs^+$
(2) $Li^+ < Na^+ < K^+ < Rb^+ < Cs^+$
(3) $Cs^+ < Rb^+ < K^+ < Na^+ < Li^+$
(4) $Cs^+ < Rb^+ < Na^+ < K^+ < Li^+$

3. The hydroxide of II[nd] A metal, which has the lowest value of solubility product (K_{sp}) at normal temperature (25°C) is
(1) $Ca(OH)_2$ (2) $Mg(OH)_2$
(3) $Sr(OH)_2$ (4) $Be(OH)_2$

4. $Mg_2C_3 + H_2O \longrightarrow X$ (organic compound). Compound X is
(1) C_2H_2 (2) CH_4
(3) propyne (4) ethene

5. The alkaline earth metals, which do not impart any colour to Bunsen flame are
(1) Be and Mg (2) Mg and Ca
(3) Be and Ca (4) Be and Ba

6. $Y \xleftarrow{\Delta,205°C} CaSO_4\cdot 2H_2O \xrightarrow{\Delta,120°C} X.$
X and Y are respectively
(1) plaster of paris, dead burnt plaster
(2) dead burnt plaster, plaster of paris
(3) CaO and plaster of paris
(4) plaster of paris, mixture of gases

7. The correct order of basic-strength of oxides of alkaline earth metals is
(1) BeO > MgO > CaO > SrO
(2) SrO > CaO > MgO > BeO
(3) BeO > CaO > MgO > SrO
(4) SrO > MgO > CaO > BeO

8. Weakest base among KOH, NaOH, $Ca(OH)_2$ and $Zn(OH)_2$ is
(1) $Ca(OH)_2$ (2) KOH
(3) NaOH (4) $Zn(OH)_2$

9. $BeCl_2 + LiAlH_4 \longrightarrow X + LiCl + AlCl_3$
(1) X is LiH (2) X is BeH_2
(3) X is $BeCl_2\cdot 2H_2O$ (4) None

10. A metal which is soluble in both water and liquid NH_3 separately -
(1) Cr (2) Mn
(3) Ba (4) Al

11. $MgBr_2$ and MgI_2 are soluble in acetone because of
(1) Their ionic nature
(2) Their coordinate nature
(3) Their metallic nature
(4) Their covalent nature

12. Which of the following reaction produces hydrogen gas ?
(1) $Mg + H_2O$ (2) $BaO_2 + HCl$
(3) $H_2S_2O_8 + H_2O$ (4) $Na_2O_2 + 2HCl$

13. Hydrogen combines with other elements by
(1) Losing an electron
(2) Gaining an electron
(3) Sharing an electron
(4) Losing, gaining or sharing electron

14. The oxide that gives hydrogen peroxide on the treatment with a dilute acid is
(1) MnO_2 (2) PbO_2
(3) Na_2O_2 (4)TiO_2

15. In which of the following reaction hydrogen peroxide is a reducing agent
(1) $2FeCl_2 + 2HCl + H_2O_2 \longrightarrow 2FeCl_3 + 2H_2O$
(2) $Cl_2 + H_2O_2 \longrightarrow 2HCl + O_2$
(3) $2HI + H_2O_2 \longrightarrow 2H_2O + I_2$
(4) $H_2SO_3 + H_2O_2 \longrightarrow H_2SO_4 + H_2O$

16. When zeolite (Hydrated sodium aluminium silicate) is treated with hard water the sodium ions are exchanged with
(1) OH^- ions (2) SO_4^{2-} ions
(3) Ca^{2+} ions (4) H^+ ions

17. Temporary hardness may be removed from water by adding
(1) $CaCO_3$ (2) $Ca(OH)_2$
(3) $CaSO_4$ (4) HCl

18. Which of the following can effectively remove all types of hardness of water
(1) Soap (2) Washing soda
(3) Slaked lime (4) None of these

19. Temporary unstable hardness of water due to presence of :-
(1) $CaCl_2$, $MgSO_4$
(2) Ca^{+2}, Mg^{+2}
(3) K^+, $CaCO_3$
(4) $Ca(HCO_3)_2$, $Mg(HCO_3)_2$

20. Out of the following metals which will give H_2 on reaction with NaOH :
I : Zn, II : Mg,
III : Al, IV : Be
(1) I, II, III, IV (2) I, III, IV
(3) II, IV (4) I, III

21. One of the following is an incorrect statement, point it out.
(1) Permanent hardness can be removed by boiling water
(2) Hardness of water effects soap consumption
(3) Temporary hardness is due to bicarbonates of Ca and Mg
(4) Permanent hardness is due to the soluble SO_4^{2-}, Cl^- of Ca and Mg

22. All alkali metal superoxides contain the $[O_2^-]$ ion. They are–
(1) paramagnetic
(2) colored compounds
(3) oxidizing agents
(4) all of these

23. As compared to potassium, sodium has
(1) Lower electronegativity
(2) Higher ionization potential
(3) Larger atomic radius
(4) Lower melting point

24. On passing excess of CO_2 in lime water, its milky appearance disappears because -
(1) Soluble $Ca(OH)_2$ is formed
(2) Soluble $Ca(HCO_3)_2$ is formed
(3) Reaction becomes reversible
(4) Calcium compound evaporated

25. Which of the following alkali metals has the biggest tendency of the half reaction $M_{(g)} \longrightarrow M^+_{(aq)} + e^-$
(1) Sodium (2) Lithium
(3) Potassium (4) Cesium

26. Which of the following releases 0.2 moles of hydrogen on hydrolysis ?
(1) 0.1 mole of LiH
(2) 0.2 mole of LiH
(3) 0.3 mole of LiH
(4) 0.4 mole of LiH

27. Which of the following statement is not correct ?
(1) LiOH is amphoteric in nature
(2) LiCl is soluble in pyridine
(3) Li_3N is stable while Na_3N doesn't exist even at room temperature
(4) BeO is amphoteric in nature

28. There is loss in weight when mixture of Li_2CO_3 and $Na_2CO_3.10H_2O$ is heated strongly. This loss is due to :
(1) Li_2CO_3
(2) $Na_2CO_3.10H_2O$
(3) both
(4) none

29. Which of the following statements is incorrect ?
(1) $NaHCO_3$ on heating gives Na_2CO_3
(2) Pure sodium metal dissolves in liquid ammonia to give blue solution
(3) NaOH reacts with glass to give sodium silicate
(4) Aluminium reacts with excess NaOH to give $Al(OH)_3$

30. Which alkali metal on flame test gives red violet colour ?
(1) Li (2) Cs
(3) Na (4) Rb

ANSWER KEY — Exercise-I

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	**4**	**3**	**4**	**3**	**1**	**1**	**2**	**4**	**2**	**3**
Que.	11	12	13	14	15	16	17	18	19	20
Ans.	**4**	**1**	**4**	**3**	**2**	**3**	**2**	**2**	**4**	**2**
Que.	21	22	23	24	25	26	27	28	29	30
Ans.	**1**	**4**	**2**	**2**	**2**	**2**	**1**	**3**	**4**	**4**